Cash, child cognitive development and the mother

The impact of cash transfer programmes on child cognitive development and the role of the mothers' control in their living environment and mothers' symptoms of depression

Samia Abreu-Oliveira

PhD

University of York

Department of Health Sciences

October 2023

ABSTRACT

The initial years of a child's life are crucial for cognitive development, with poverty as a substantial threat. The examination of the widespread impact of social policies on cognitive development has become increasingly pertinent in academic, economic, and public policy discussions. Among these policies, Cash Transfer Programmes (CTPs) are tools designed to address critical social determinants of child health. At the core of CTP mechanisms of change is an essential figure: the mother. This thesis explores the intricate interplay between poverty, cash transfer policies, cognitive development, and the mother. Operationally, this PhD research centres on the Brazilian *Bolsa Família* Programme (BFP), widely regarded as the world's most extensive conditional CTP. Additionally, it leverages the Pelotas Birth Cohort, one of the largest birth cohorts in low and middle-income countries, and official data from the Brazilian Ministry of Social Development. Through a systematic review and two longitudinal studies, the research investigates the dimensions of mothers' control influenced by CTPs and the specific effects of BFP. The systematic review identifies heightened maternal control over financial resources, particularly in food purchasing, with implications for basic survival needs. Positive impacts on small livestock ownership suggest savings strategies in rural areas, but variations in sexual and reproductive rights outcomes highlight urban-rural disparities. Employment findings underscore the complexity, emphasising shifts toward informal and temporary employment. However, notable gaps persist in exploring dimensions like mobility, legal resources, education, and healthcare access. The longitudinal studies, based on the 2004 Pelotas Birth Cohort and the Brazilian Ministry of Social Development dataset, reveal a null impact of BFP on the cognitive development of 6-year-old children. Similarly, there is no influence on mothers' control in their living environment or a reduction in symptoms of maternal depression over the follow-up periods, except for a modest and negative impact in one comparison group at the 1-year follow-up. The monthly per capita value of BFP, approximately 3 British pounds, appears insufficient to bring about substantial changes. In contrast, maternal education and per capita income significantly influence the observed outcomes. While these findings may differ from previous discussions on the Brazilian programme, they contribute to the global literature on CTPs' impacts on mothers' mental health and children's cognitive development. The study challenges the initial hypothesis and emphasises that the BFP is not a panacea for all maternal and childhood-related outcomes. Addressing cognitive development and maternal well-being complexities requires discussions on enhancing the BFP benefit and investing in broader public policies to mitigate social inequalities. Only through such measures can the positive effects of the CTP extend beyond immediate survival needs, contributing to meaningful improvements in the lives of children and their mothers.

Keywords: cash transfer programme, cognitive development, maternal depression, mothers' control, *Bolsa Família* programme.

List of Contents

Acknowledgements

5, 4, 4, 3, 2, 2, 1 and (ready or not), here I go!

This PhD has been a long journey! In total: 5.5 years, encompassing 4 academic years, 4 supervisors (dynamically), 3 studies, 2 countries, 2 pregnancies bearing 2 children, and 1 pandemic. And then there is this thesis. Perhaps 5.5 years might seem like a lengthy path for a PhD, but considering 'where I come from', this story began many years ago.

In academia, completing a doctorate often marks the starting point. In my family's narrative, earning a doctorate represents an achievement spanning multiple generations, which is beginning to materialise now. Descended from Brazilian indigenous peoples, Italians, Portuguese, and some African countries - where a cruel history prevents me from knowing which ones - I am the first in my family to complete a PhD. **I see this accomplishment as collective**; it is an accumulation of efforts, encouragement, public policies, and perhaps luck (or blessing, if my scarce faith allows me to name it so).

Thus, I begin by thanking my **grandparents**: Cleusa, Ademar (in memory), Evangelina (in memory), and Waldir (in memory), for always encouraging me to study, for seeing knowledge as a gift to be pursued diligently, and for admiring wisdom. Thank you for being curious and teaching me to be curious, to always want to learn, and for being proud of my achievements, allowing me to take pride in them, too.

To my **parents,** Sônia and Santo, for always believing in me and teaching me that making mistakes is part of the process and that I could and should go far. I learned from you to be autonomous, to value my independence, and to solve problems with creativity, finding possibilities even in the face of scarcity. Thank you for your unconditional love!

To my **sister,** Sarinha, my most genuine and constant love in life. Thank you, *Chuchuda*, for always being there for me, for your insightful questions, for helping me so much with the systematic review and thesis revisions, and for being such a vital support to keep me firm yet flexible enough to tell me that I could change my mind whenever needed. Thank you, "Chico-lindo da Titia", for embodying the renewed, fresh, light, delightful, and fluffy love of this new generation you bring. Thank you, Pedro, for all the exciting conversations and support with interpreting the data.

To my **uncles, aunts, cousins**, and the new generation of little cousins, the affection, tight hugs, and delicious meals you have welcomed me with over the years during my visits to Brazil have reminded me of who I am and who we are. It's not the World Cup final, but this title is ours!

To my in-laws. Thank you, Pat, for always telling me not to give up, and Ken (in memory) for cheering me on even as I applied for the PhD. Jo, for joyfully accompanying me throughout the process. Jack and Jamie, who entertained me with their childhood games when I started the PhD and now entertain everyone with their teenage stories.

I would also like to extend my thanks to my friends and close professionals:

To Omara Dogar and Sarwat Shah for the warm, lovely, and welcoming moments in York. Thanks to Josefina Valenzuela, Marena Ceballos, Fitria Fitria, Zainab Kidwai, Mehreen Faisal, Samiha Mirza, Sinong Chen, Radha Shukla, Rocio Nava, Semra Pinar, and Suranga Dolamulla for our collaboration in RECSS, in the corridors and cafes of the University of York, and for sharing your ideas, feedback, and dreams. You made my days in York as joyful and beautiful as the yellow daffodils by the city walls.

To my friends wherever I go: Val, Jakê, Neili, Eliz, Zago, Vivi, Marinêutica, Lígia Cat, Ana Carolina, Flora, Janaína, Michaela, Raquel, Larissa, Pierre, Martha, Élida, Chiara, Caru, Carlinha, Artur for being the freshness and hope on difficult days and the joy on festive ones. A special thank you to my beloved Grace and André (Tarugo) for being my connection to who I aspire to be and encouraging me along the way.

To Sheila and Pedro, thank you for your attentive gaze and generous ear, along with the best and happiest guidance, '*apadrinhamento*', and partnership in the UK or Brazil.

To newer friends Adriana, Paulo, Lalá, and Lelê, a beloved family that brought so much joy and lightness in the final stretch of this PhD. To Nathalia, thank you for unlocking the fear of dealing with databases and for our inspiring conversations. To Gorete, Sassá and Bianca for celebrating every little step.

To my former and current psychologists, Laura Potrich and Gabriela Maia, for accompanying me empathetically over the years and "clearing the skies" on this journey.

My heartfelt thanks to my colleagues at Space 22, especially Helison, Eliane, and Dona Ieda, for their warmth, camaraderie, and care during the final stretch of the PhD.

And my much-appreciated gratitude to my supervisors:

I am forever indebted to Professor Trevor Sheldon. His sharp, dry wit, intellectual prowess and immense empathy guided me on this journey. He is a great mentor, both a researcher and a human being. Thank you, Trevor; I couldn't have gone that far without your constant (nearly weekly) support.

I am grateful to Professor Tracey Bywater for being such an inspiration as a researcher and a powerful woman. Thank you, Tracey, for your *crystal clear* perspectives on the PhD research. I will miss our fun and challenging supervision meetings with Trevor. Also, I am grateful to Professor Richard Cookson for enchanting me with the econometric models and letting me dream of adopting a research design which uses them. It was not this time, Richard, but hopefully soon.

I am immensely grateful to Professor Kate Pickett for being naturally audacious, extraordinarily responsive, and accepting of joining this "endless" PhD journey. Thank you, Kate; you were essential to turn this journey into a written thesis.

And to the partner universities and Brazilian public policies:

Thank you to the Postgraduate Programme in Epidemiology at the Federal University of Pelotas (UFPel) for sharing a rich dataset. I especially thank Professor Leonardo Pozza for sharing his knowledge and assertive ideas and carefully accompanying me throughout these long years.

Thanks to Professor Paulo Jannuzi for the conversations and recommendations that shed much light on data interpretation and new methodological paths.

To my colleagues from GEPPSVida (Research Group from the University of Brasília) and BRAPEP (Brazilian Society for Prevention and Health Promotion Research) for being my academic safe haven, a place of security to seek help and also to create and question.

I want to thank the Brazilian Government, through CAPES, for providing this indispensable scholarship. I was a recipient of the latest edition of the doctoral scholarship programme abroad funded by the Brazilian Ministry of Education. Such public policies were discontinued during the dark years of an administration that discredited Brazilian science.

And, my loves:

To Tim, *meu amor*, who has supported me since before I applied for the PhD. You have faced the ups and downs of this journey and continue with me (and with us all) even in the middle of such a mess. Thank you for being able to reinvent yourself. We tend to hear that getting out of our comfort zone is essential to grow… I am sure we have grown (and aged a bit), but I cannot wait to enjoy our marriage without the constant and heavy pressure of the PhD. Love you!

And to my children, Amber and Jorge, who were born and raised during these PhD years. I may become a doctor, but my life's most beautiful, meaningful, and challenging title is the one you give me daily: *Mamãe*/Mummy. *Amo vocês, meus amores*!

Author's declaration

I declare that this thesis is a presentation of original work, and I am the sole author. This work has not previously been presented for an award at this, or any other, university. All sources are acknowledged as references.

The Coordination of Superior Level Staff Improvement (CAPES) studentship, part of the Brazilian Ministry of Education, funded this work.

THESIS OUTLINE

This thesis is organised in a journal style and presents three studies displayed in three papers inserted between an introduction and a critical discussion. Before each paper, a concise 'PhD Context' section outlines the steps and rationale behind variable choices and analyses. Each paper starts with an abstract and ends by describing strengths and limitations, a proposed research agenda, and a succinct conclusion.

In the introduction, I establish the rationale and a theoretical framework developed as a foundation for this PhD research. The introduction underscores the critical early years for children's cognitive development and the adverse impact of poverty and introduces. Cash Transfer Programmes (CTPs). A theoretical hypothesised pathway follows, and the research questions of each study are presented.

Paper 1 is a systematic review that begins by highlighting the role of mothers in CTPs and revisiting the concept of mothers' control. It then presents methodological details, including the PROSPERO protocol and a PRISMA diagram. Results focus on eight dimensions of mothers' control, and tables summarise findings.

Paper 2 is a longitudinal study about the impact of the Brazilian conditional CTP, *Bolsa Família* Programme (BFP), on child cognitive development. Paper 2 presents the longitudinal approach using data from the 2004 Pelotas Cohort and the official data on BFP. It describes the intervention and four control groups. Results and discussions address cognitive development determinants and vulnerabilities.

Paper 3 is also a longitudinal study about the impact of BFP, but it focuses on mothers' symptoms of depression and mothers' sense of control. Methodological similarities and differences with paper 2 are outlined. Results, followed by a comprehensive discussion, shed light on maternal outcomes and the CTPs literature.

Concluding the paper trilogy, the discussion compares the initial hypotheses and findings, followed by a critical discussion of the results. This provides a comprehensive overview of the three studies as a cohesive research effort. A concise conclusion finalises the PhD research.

INTRODUCTION

The importance of the first years of life for children's cognitive development

The first few years of a child's life are widely recognised as the most critical phase in a person's cognitive development. During the first few years of life, the brain undergoes rapid growth and development, with neural connections being formed at an astonishing rate (Bick & Nelson, 2017; Britto et al., 2017; Cao et al., 2017; Couperus & Nelson, 2006; Jiang et al., 2023; Tierney & Nelson, 2009). This period of brain growth is crucial for establishing neural circuits and developing cognitive functions (Best & Miller, 2010; Nelson, 2000). The first two or three years of life, in particular, are seen as an essential period for establishing fundamental processes for brain development, both in terms of structure and functioning (Ursache & Noble, 2016; Zelazo et al., 2010). In the long term, brain development in the early years will affect healthy development in adulthood.

Healthy cognitive development in early life is a positive and protective cumulative capital for various health outcomes, educational achievement, well-being, and social participation (Catalano et al., 2012; Daelmans et al., 2017). Studies have highlighted the importance of cognitive development in various aspects of well-being, including academic achievement, social-emotional competence, employment and overall health (Blair & Cybele Raver, 2015; Blair & Diamond, 2008; Hair et al., 2015). Auld and Sidhu (2005) investigated the role of cognitive ability in the relationship between schooling and health. They found that cognitive ability accounted for a significant portion of the association between schooling and health outcomes. A one standard deviation increase in cognitive ability was associated with roughly the same increase in health as two years of schooling. Thinking of the cumulative perspective of cognitive development, a study by Feinstein & Bynner (2004) examined the relationship between cognitive development in middle childhood and various adult outcomes. They found that changes in cognitive performance during middle childhood strongly influenced adult income, educational success, household worklessness, criminality, teen parenthood, smoking, and depression. In the same direction, with older children, another study examined the relative strength of cognitive and non-cognitive psychological human capital in explaining the relationship between educational attainment and health outcomes among high school graduates (Herd, 2010). The study found that cognitive human

capital, as measured by high school academic performance, was strongly linked to health in late life.

In the short term, healthy cognitive development would contribute to children's entry into the educational system without disadvantages (Anderson et al., 2003; Okado et al., 2014). In the medium term, adequate cognitive and socio-emotional development assists in constructing healthy relationships (Ryzin et al., 2018). Finally, in the long term, it may result in greater educational achievement, employability, sharing of rights and duties in society and a brighter future compared to their parents (Pick & Sirkin, 2010). On the other hand, poorer and socially disadvantaged children tend to be unable to reach their cognitive potential.

Poverty and child cognitive development. The impact on the brain

Poverty is one of the most harmful factors affecting a healthy child's development (Sheridan et al., 2022). A classic review (Brooks-Gunn and Duncan, 1997) from the United States about the impact of poverty on child health has shown that children living in poverty during their early and preschool years presented lower rates of educational achievement compared to children who experienced poverty later in life. Cognitively, children living below the poverty line were 1.3 times more likely to experience learning disabilities than those not below the poverty threshold (Brooks-Gunn and Duncan, 1997). More recently, studies in other countries confirm the damaging impact of poverty on child development. Poverty has been associated with deficits in child cognition in Ecuador (Fernald & Hidrobo, 2011), Colombia (Rubio-Codina et al., 2013) and five other countries in Latin America (Schady et al., 2015) and, in the United States, studies relating the impact of income directly in the brain’s development have been enlightening this discussion (Noble, McCandliss and Farah, 2007; Noble, Engelhardt, et al., 2015; Noble, Houston, et al., 2015; Noble and Giebler, 2020; Troller-Renfree et al., 2022).

The correlation between poverty and developmental disadvantages in various areas of life is well-established in the literature on child development. The literature presents studies that correlate children living in poverty with performing worse than their more advantaged peers on intelligence tests (Noble, McCandliss and Farah, 2007), being less

likely to complete high school, as well as being less able to enter college and receive a degree, and more likely to be poor and underemployed as adults (Sheridan et al., 2018). Increasingly, studies are using methods that can help to establish a causal relationship between the impact of poverty on the size, shape and functioning of a young child's brain. The study by (Noble et al., 2015) showed a notable relationship between parental educational attainment and family income with discernible variations in the surface area of the cerebral cortex. Specifically, children originating from families with an annual income below $25,000 exhibited a reduction of 6 per cent in cortical surface area compared to their counterparts from families earning more than $150,000 annually. This association was discernible across various cerebral regions; however, it manifested with prominence in regions responsible for linguistic processing, impulse control regulation, and other facets of self-regulation. These cognitive areas have consistently demonstrated marked disparities along socioeconomic boundaries.

Specifically focussed on the impact of income, a systematic review (Cooper & Stewart, 2021) examined the relationship between income and child development in aspects such as child health, cognitive development, emotional development, and behaviour. The initial review identified 34 studies; the updated version of that review added 27 studies (Cooper & Stewart, 2021). The result indicated the impact of income on child health in all the aspects analysed, especially in those children with lower family income. A new finding from this review is that children in lower-income families have worse cognitive performance, social behaviour, and health outcomes because they are poor, and this result was not necessarily correlated with other household and parental characteristics. Specifically on the impact of income on cognitive development, the reviews showed that income in early childhood matters most for cognitive development. In contrast, income in later childhood and adolescence has a more significant impact on behavioural outcomes. Moving the discussion of the impact of poverty on the brain to discuss its impact on society, cognitive development below its potential is detrimental to the individual, but it also impacts the advancement of an entire society.

Poverty and child cognitive development. The impact on society

From an economic point of view, there is a robust field of research demonstrating that early childhood development directly influences society's economic, social and health outcomes. The economic argument shows that early childhood investment has the greatest financial return for society(García et al., 2016; Heckman et al., 2014). A well-known example is the Heckman equation. The equation demonstrates that investing in early childhood development directly has spill over effects on subsequent investments in education and later-life interventions. This idea underscores the principle that early investments create a foundation that enhances the impact of subsequent investments. Heckman argues that interventions targeting the earliest years of life are particularly effective due to the plasticity of the developing brain during this period, leading to more substantial and lasting effects (Heckman, 2008). Regarding the long-term impact, Garcia et al. (2016) comprehensively analysed the life-cycle benefits of an early childhood programme targeting disadvantaged families. Their findings demonstrated the significant long-term benefits of the programme, including improved educational outcomes, increased earnings, and reduced involvement in criminal activities.

Not only from an economic point of view but also from a philosophical point of view, Sen (1999) argues that investing in early childhood is an ethical demand as an effective means of breaking the cycle of intergenerational poverty and guaranteeing the progress of societies. These economic and philosophical approaches are based on the premise that such investments yield high returns over the life course in terms of improved educational attainment, increased earning potential, reduced social costs, and greater economic productivity. Given this scenario, understanding the impact of social policies implemented on a large scale on cognitive development has emerged as a topic of significant relevance in the academic, economic, and public policy spheres.

Cash Transfer Programmes (CTPs) and their impact on children

It is well known that child development is not the sole responsibility of the health or the educational sector. For decades, studies on the social determinants of health indicate the need for a more holistic understanding of health and what interventions impact health (Marmot & Bell, 2012). Social policies have consistently addressed the

determinants of child health, such as poverty and access to health care, housing, and education (de Andrade et al., 2015). One social policy used to target some critical social determinants of child health is Cash Transfers Programmes (CTPs).

The schemes date from the 90s, beginning in Latin American countries (Fiszbein et al., 2009), and they expanded to other countries in the global south. According to the Economic Commission for Latin America and the Caribbean, there were 30 different versions of CTPs in 20 countries in Latin America (Cecchini and Madariaga, 2011; Cecchini and Soares, 2015). CTPs are generally based on cash transfers to poor households, in most cases to mothers or caregivers, and CTP can be conditional or unconditional. Conditional Cash Transfer schemes are characterised by the transfer on the condition that the money will be invested in certain areas of a child's development. In most programmes, the conditions are related to health and education. Unconditional cash transfer programmes provide cash transfers to low-income families to alleviate financial constraints and promote human development without any condition related to the use of money.

Related to the results of CTPs, a vast literature has provided substantial evidence to support the positive impact of the programmes on child health. There are several studies on the impact of CTPs on reducing child mortality, health inequalities, improving school attendance and performance, and the adherence of mothers to prenatal care (Lagarde, Haines and Palmer, 2009; Glassman et al., 2013; Baird, Ferreira et al., 2014; Owusu-Addo and Cross, 2014; Kabeer and Waddington, 2015; Bastagli et al., 2016). Also, evidence shows that they improve both the quality and quantity of food for low-income families (Monteiro et al., 2014; Martins and Monteiro, 2016), and the programme impacted child health inequalities (Rasella, Aquino and Barreto, 2010). CTPs, in association with established national health systems, significantly impacted children's health care and the use of health services (Shei et al., 2014). Despite the positive outcomes observed in child mortality and general health outcomes, the evidence on the impact of CTPs on child cognitive development remains mixed.

While there is extensive research on cash transfers and various aspects of health and development, the field of research explicitly linking CTPs to child cognitive development

is not as robust. The existing literature on the topic has yielded mixed results. For example, a study examining the *Oportunidades* programme in Mexico found that participating in the conditional CTP was associated with improved cognition and language development in children (Fernald, Gertler and Neufeld, 2009). A study of the medium-term impacts of a CTP on the cognitive and behavioural outcomes of young children in Nicaragua was also positive (Macours, Schady and Vakis, 2012). A study investigating an extensive CTP in Ecuador reports mixed results, with gains in cognitive development observed only among those children whose mothers had higher cognitive abilities. This study suggests that even though cash transfers potentially provide resources that support child development, the effectiveness of the transfer might be contingent on the mother's cognitive abilities (Paxson & Schady, 2007).

Considering the intricate interplay among poverty, cash transfer policies, the role of mothers, and cognitive development, coupled with the growing interest in evaluating social policies aimed at reducing early-life inequalities, this thesis examines the impact of CTPs on child cognitive development within the context of maternal contribution. Based on the literature, a hypothesised pathway is proposed.

THEORETICAL HYPOTHESISED PATHWAY

CTPs could contribute to the cognitive development of children living in poverty or extreme poverty via two primary mechanisms (Wolf et al., 2013). The first mechanism is associated with the direct impact of receiving money. Increased financial resources might empower parents to enhance the living environment for their children, such as improving housing conditions and access to electricity, gas stoves, or telecommunications services. Another avenue is to enable the purchase of goods that could directly influence child growth and development, such as an adequate and balanced diet. The second mechanism may be related to child outcomes indirectly through the psychological well-being of family members. Increased cumulative cash transfers and the certainty of receiving money regularly could also be linked to improvements in parental mental health by impacting subjective feelings of financial strain and deprivation, consequently leading to fewer symptoms of depression, anxiety, and other mental health disorders. Both mechanisms affect the sense of control mothers have in their living environment.

Mechanism one: CTPs alleviate financial constraints and enhance access to resources for low-income families

CTPs offer additional financial resources to low-income families (Tommasi, 2019), alleviating the burden of poverty and augmenting access to resources supportive of child cognitive development (Paxson and Schady, 2007; Schady et al., 2015). This additional income empowers families in three primary ways: by enabling them to invest in household improvements, enhance nutrition and healthcare, and afford quality early childcare or enrichment activities that promote cognitive development.

First, parents with greater purchasing power tend to invest in household conditions and equipment, improving living standards. For instance, families can acquire refrigerators, upgraded flooring, and obtain other construction materials, addressing various housing conditions associated with poverty, including overcrowding (Blair et al., 2011; Goldschmidt et al., 2008; Sylva et al., 2011), inadequate urban housing (Crookston et al., 2011), poor sanitation (Santos et al., 2008), and exposure to environmental

contaminants like mould (Jedrychowski et al., 2011), factors negatively impacting childhood intelligence scores.

Secondly, nutrition programs have shown positive effects on cognitive development, and CTPs may indirectly enhance cognitive development by addressing nutritional deficiencies. Cash transfers enable families to purchase nutritious food, thus improving nutrition and subsequently enhancing cognitive development in children. Parents can use cash transfers to acquire nutritious food and essential medicines (Guo & Harris, 2000), mitigating nutritional deficiencies and fostering better cognitive development in children. Studies focusing on nutritional interventions in low-income populations have demonstrated the favourable impact of such programs on cognitive development (Watanabe et al., 2005). For example, children exposed to nutritional interventions in Guatemala exhibited improved reading comprehension and cognitive development test scores in adulthood (Maluccio et al. 2009; Hoddinott et al. 2008).

Additionally, increased financial resources from cash transfers enable families to afford quality early childcare or enrichment activities that stimulate cognitive development. Families may allocate funds to purchase books, newspapers, or age-appropriate toys, providing cognitive stimulation to children (Becker & Thomas, 1986). This investment in early childhood education and stimulation contributes to improved cognitive outcomes in children. Moreover, as CTPs are expected to facilitate increased expenditures on critical inputs for child development, such as nutrient-rich foods, early stimulation activities, and material household needs, they may also lead to notable behavioural changes among beneficiaries.

Mechanism Two: CTPs and indirect effects on mothers' mental health and parenting practices

CTPs not only provide financial relief to low-income families but also have the potential to improve the mental health of parents, especially mothers. This mechanism addresses the psychological well-being of family members, significantly impacting the care, support, and nurture provided to children in the household. By alleviating stress and enhancing mental health, CTPs indirectly contribute to fostering a positive environment for child cognitive development. This indirect effect covers three areas intricately

related: maternal mental health, parental stress and parenting practices, and mothers' sense of control in their living environment.

Firstly, maternal mental health has been demonstrated to be a crucial determinant of child development. Mothers with good mental health are more likely to develop positive bonds with their children and be emotionally available for their needs (Grote et al., 2007; Okeke, 2021; Powell-Jackson et al., 2016; Wald et al., 2018). Maternal depression, for instance, represents a significant burden on the family, with detrimental effects on marital relationships, parenting, and the mother-child bond (Wachs et al., 2009). Characteristics such as depression, anxiety, and stress before, during, or after pregnancy, as well as stressful events for the child, such as parental separation and conflicts, harm the child's cognitive capacity. Studies have consistently shown that maternal mental health significantly influences the quality of caregiving and emotional availability, which are essential for optimal child cognitive development (Beck, 1998; Black et al., 2007; Conroy et al., 2012; Galler et al., 2000; Grace et al., 2003; Kiernan & Huerta, 2008; Laplante et al., 2008; Patel et al., 2003; Sutter-Dallay et al., 2011).

Secondly, CTPs may indirectly influence child cognitive development by reducing parental stress and improving parenting practices. By alleviating financial stress, these programmes contribute to reducing parental stress levels and enhancing parenting practices (Magnuson et al., 2022). Improved parenting practices, such as providing a nurturing and stimulating environment, have positively impacted child cognitive development. For example, research from Jamaica (Powell et al., 2004) demonstrated the long-term effects of early stimulation and parenting interventions on child development outcomes. While nutritional supplements showed short-term benefits, stimulation interventions continued to significantly positively impact child development in later years (Powell et al., 2004).

Lastly, I hypothesise that CTPs affect mothers' sense of control in their environment (Lupien et al., 2009; Hjelm et al., 2017; Merz et al., 2019; Troller-Renfree et al., 2020, 2023; Wiltshire et al., 2021; Magnuson et al., 2022). Control in the living environment includes the socioeconomic and psychosocial conditions in which people live, and the lack of or limited control in the living environment triggers numerous adverse physical and mental health outcomes for both mothers and their children (Laverack, 2006; Whitehead et al., 2014, 2016). The cash received from the CTPs may allow the mother to exercise more choice over different dimensions of life. For example, the mother's choices related to household resources, movement/mobility, legal and political resources, fertility and reproductive rights, access to food and nutrition, education, employment, and healthcare (Whitehead et al., 2014). In this context, another crucial variable is maternal education.

Maternal education

Maternal education is an important determinant of a child's cognitive capacity. The relationship between maternal education and the level of child cognitive development is well-established in the literature (Blair et al., 2011; Crookston et al., 2011; Hillemeier et al., 2011; NICHD Early Childcare Research Network, 2005; Oddy et al., 2003; D. N. Santos et al., 2008; Veldwijk et al., 2011). In low- and middle-income countries, children of women with low levels of education are more likely to be exposed to a range of factors negatively directly influencing cognitive development, such as inadequate diet, poorer sanitation conditions (Wachs, 2005), and receiving less cognitive stimulation (Von Der Lippe, 1999), compared to children of women with higher levels of education (Brody & Flor, 1998; Christian et al., 1998). Additionally, research indicates a relationship between maternal cognitive performance and children's cognitive development levels. Even in situations of social and financial vulnerability, mothers with higher years of formal education tend to have children with better performances in cognitive tests and school performance, as observed in studies on CTPs and child cognitive development (Paxson & Schady, 2007; Fernald et al., 2008; Macours, Schady and Vakis, 2012).

Although the mother is the primary beneficiary of most CTPs worldwide and plays a crucial role in impacting the child's cognitive development, promoting changes in maternal education levels is not one of the objectives of CTPs, neither in their initial constitution nor in their updated versions over the years. Therefore, maternal education was not included in the pathway, but it will be considered a variable to be controlled in the analyses of the studies in this thesis. However, not all variables related to mothers show clear results about their effects on child cognitive development.

Maternal variables with inconclusive results regarding their effect on child cognitive development

These variables include parental characteristics such as maternal age and maternal employment. Concerning maternal age, the association with cognitive capacity is contentious in the literature. Some studies suggest that higher maternal age is associated with better cognitive performance in children, a finding observed after adjusting for socioeconomic factors and stimulation (Cornelius et al., 2009; Crookston et al., 2011; D. A. Lawlor et al., 2005; Saha et al., 2009; Veldwijk et al., 2011). However, other researchers have not found any association between maternal age and intelligence (Bennett et al., 2008; Fagan & Lee, 2012; Hillemeier et al., 2011; Sylva et al., 2011).

Regarding maternal employment, some studies indicate that maternal work during the child's first year is negatively associated with children's intelligence scores (Brooks–Gunn et al., 2002; Waldfogel et al., 2002), particularly with durations exceeding 30 hours per week. Conversely, other studies suggest that maternal employment is associated with better performance on intelligence tests (Waldfogel et al., 2002; Willford et al., 2006), especially when employment occurs during the child's second and third years of life. The discrepancy in effect direction could be explained by the failure to control childcare quality, mother-child interactions, and the nature of employment.

Limitations of the hypothesised pathway

While CTPs have emerged as a powerful tool for poverty reduction and to boost child cognitive development, there are potential limitations that could influence their effectiveness:

1. Usage of Funds: Families might not utilise the funds received optimally on resources which enhance child cognitive development, such as spending on educational resources, nutritional food, or childcare services.
2. Role of Parental Education and Cognitive Skills: The impact of cash transfers on a child's cognitive development could be influenced by parental education level and cognitive skills. Parents with higher cognitive abilities could use these resources more effectively for their child's cognitive development.
3. Short-Term Receipt of Benefits: CTPs received for only a short period may not lead to significant or long-term effects on cognitive development.
4. Execution and Monitoring: Implementation loopholes, inadequate monitoring, and misuse of funds might limit the effectiveness of CTPs.
5. Contextual Factors: The success of these transfer programmes can be influenced by various social, cultural, and economic conditions in different countries.

To investigate the potential relationship of the components highlighted in the description of the hypothesised pathway, my PhD research aimed to explore the effect of CTPs on child cognitive development and the role of the mother. As presented, the conditions and connections influencing child cognitive development are numerous, but to operationalise them, this PhD research centres on the Brazilian *Bolsa Família Programme*, widely regarded as the world's most extensive conditional cash transfer initiative. Additionally, it leverages the Pelotas Birth Cohort, one of the largest birth cohorts in low and middle-income countries, which offers a scientifically robust and reliable longitudinal dataset for assessing cognitive development countries (Santos et al., 2014).

Brazilian Conditional Cash Transfer, Bolsa Família Programme

In Brazil, the Bolsa Família Programme represents a cornerstone of social welfare initiatives, launched in 2003 by the government of President Luiz Inácio Lula da Silva. It

is one of the largest social welfare programs in the world, aimed at reducing poverty and inequality by providing cash transfers to low-income families. The program operates under the Ministry of Social Development and is a key component of Brazil's broader social protection system. BFP provides cash transfers to low-income families, primarily mothers or caregivers, and combines elements of both conditional and unconditional cash transfer schemes, providing financial assistance to families while promoting investments in human capital through conditionalities related to health and education (Fiszbein et al., 2009; Cecchini & Soares, 2015). Initially, it targeted around 3.6 million families but expanded to 14 million families by 2016, equivalent to around 21% of Brazil's total population.

The primary objective of BFP is to alleviate poverty and promote social inclusion by providing financial assistance to vulnerable families. The program targets households in extreme poverty (with per capita income below a certain threshold) and those living in poverty (with per capita income below another threshold). BFP operates through a well-structured system that identifies eligible beneficiaries using a national registry of low-income families. Cash transfers are made directly to female heads of households, usually mothers, to ensure funds are allocated to benefit children's welfare, health, and education. The amount received varies depending on family composition and income level, with additional payments for pregnant women, breastfeeding mothers, and families with children under 15.

Bolsa Família includes conditionalities aimed at promoting human capital development among beneficiaries. Families are required to comply with health and education conditionalities, such as ensuring regular school attendance and vaccinations for children and pregnant women. By linking cash transfers to these conditions, BFP aims to break the intergenerational cycle of poverty by improving access to essential services and fostering human capital accumulation. Numerous studies have shown positive impacts of Bolsa Família on various socio-economic indicators, including reductions in child mortality rates (Rasella et al., 2013), improvements in school attendance (Santos et al., 2019)., increased access to healthcare services (Rasella et al., 2010; Shei et al., 2014), and enhanced nutrition outcomes (Martins and Monteiro, 2016),.

Challenges and future directions of BFP

Despite its remarkable achievements, the Bolsa Família Programme faces several challenges that warrant careful consideration for its continued effectiveness and sustainability. One of the primary challenges is related to program administration and oversight (Jones, 2017). As Bolsa Família operates on a massive scale, covering millions of beneficiaries across Brazil's diverse regions, ensuring efficient and transparent administration poses logistical and bureaucratic hurdles. Improving administrative capacity and implementing robust monitoring and evaluation mechanisms are essential to prevent leakages, fraud,' and mismanagement of funds (Jones, 2016).

Moreover, the targeting effectiveness of Bolsa Família remains a subject of debate. While the program successfully identifies and reaches millions of low-income families, there are concerns about the accuracy of targeting methods and the inclusion of ineligible beneficiaries (Barholo, 2016). Addressing targeting errors and refining eligibility criteria are critical to maximising the program's impact and ensuring that resources reach those most needed. Additionally, there is a need to consider geographical disparities in poverty and access to services, ensuring that remote and marginalised communities receive adequate support.

Another challenge relates to the sustainability of Bolsa Família in the face of economic and political uncertainties. The program's funding relies heavily on government budgets, making it susceptible to budgetary constraints and political priorities, as observed in the previous election. The elected president in 2019 terminated the program, launched a similar program under a different name, and significantly changed the program's implementation model. Program experts vehemently criticised these changes, reducing the program's focus and reach and increasing fraud risks. Strengthening the financial sustainability of Bolsa Família through diversified funding sources, fiscal planning, and social consensus-building has been discussed as an urgent measure to safeguard its long-term viability.

Looking ahead, Bolsa Família has to evolve to address emerging socio-economic trends and persistent structural inequalities. While cash transfers play a crucial role in poverty alleviation, they should be complemented with holistic approaches that address the

root causes of poverty, such as unequal access to education, healthcare, and employment opportunities (Jones, 2016, 2017). Investing in education and skills training programs, expanding access to quality healthcare services, and promoting income-generating activities among beneficiaries can enhance the program's transformative potential and empower families to break the cycle of poverty. An example of a city impacted by BFP is the city of Pelotas in the Rio Grande do Sul state, Brazil.

City of Pelotas

Pelotas, situated in the southernmost state of Rio Grande do Sul, Brazil (appendices 1), is a city grappling with a complex economic landscape marked by social inequalities and varying poverty levels. With a population exceeding 340,000 inhabitants, Pelotas is one of the largest cities in the state and serves as a significant economic, cultural, and educational centre in the region. Situated on the banks of the São Gonçalo Channel, Pelotas boasts a strategic location near the Atlantic coast, contributing to its historical importance as a port city and commercial hub. However, beneath its surface lies a city deeply affected by economic disparities and social challenges.

Pelotas's economy has historically relied on agriculture, particularly rice, beans, and livestock production. Despite its agricultural wealth, the city faces persistent economic challenges, with a significant portion of its population living below the poverty line. According to data from the Brazilian Institute of Geography and Statistics (IBGE), Pelotas has a poverty rate of approximately 20%, highlighting the extent of economic hardship experienced by many residents.

Social inequalities are prevalent in Pelotas, with income, education, and access to basic services disparities. The city's outskirts are home to marginalised communities grappling with inadequate infrastructure, limited access to healthcare, and substandard living conditions. These inequalities contribute to social exclusion and perpetuate cycles of poverty, particularly among vulnerable populations such as Afro-Brazilians and indigenous communities.

In addition, Pelotas is an important educational centre in southern Brazil, hosting several universities, colleges, and research institutions, including the Federal University

of Pelotas (UFPel). These academic institutions have contributed to the city's intellectual vibrancy and innovation ecosystem, attracting students, scholars, and professionals from across the country and abroad. The university is globally recognised for its birth cohort studies.

The 2004 Pelotas Birth Cohort

The Pelotas Birth Cohort studies are affiliated with the largest birth cohort programmes globally and are particularly significant within the context of developing countries, as stated by the coordinating institution (http://www.epidemio-ufpel.org.br/site/content/studies/). For the purpose of this PhD research, the focus will be on the 2004 cohort due to its comprehensive dataset concerning child development. Additionally, this birth cohort commenced one year after the introduction of the BFP. This cohort offers a reliable and robust information collection concerning child cognitive development.

The 2004 Pelotas Birth Cohort, conducted by the Center of Epidemiological Research (CPE) and the Postgraduate Programme in Epidemiology at the Federal University of Pelotas (UFPel), Brazil, is the third cohort in a series of studies. Its predecessors include the initial Birth Cohort, which originated in 1982, followed by a second cohort in 1993, and a fourth cohort launched in 2015. These cohorts collectively comprise a substantial participant group exceeding 15,000 individuals, with an 11-year interval separating each group.

The dataset comprises 4,231 infants born from January 1 to December 31, 2004 (Appendices 2). The gender distribution of the new-borns was nearly equal, with 48.1% representing female neonates and 51.9% representing male neonates. This dataset covers the complete population of infants born in the Pelotas Hospitals during the mentioned period. Pelotas, located in the southern state of Rio Grande do Sul, Brazil, is the third most populous city. In 2004, the estimated population of Pelotas was approximately 300,000 inhabitants. The dataset has been enriched through six data collection sweeps, incorporating interviews, psychometrically validated instruments, and observational measures.

Data collection involved conducting survey interviews, primarily in the primary respondents' homes, mostly mothers (Santos et al., 2014). The dataset used in this research comprises information gathered from five data collection sweeps (at 3 months, 1 year, 2 years, 4 years, and 6 years) subsequent to the perinatal baseline (Appendices 2), representing various stages of children's cognitive development. This offers a scientifically robust and reliable longitudinal dataset for assessing cognitive development.

Implementation challenges and system issues in Pelotas

When evaluating the impact of social policies on child development, the Pelotas Cohort Study emerges as a valuable resource for understanding the long-term effects of interventions such as Bolsa Família. By tracking participants over time, the Pelotas Cohort provides invaluable insights into the effectiveness of interventions like Bolsa Família in shaping child outcomes and addressing early-life inequalities.

Despite its intended benefits, implementing the BPF in Pelotas has encountered several challenges and system issues that may impact its efficacy. Administrative complexities, bureaucratic hurdles, and resource constraints have been identified as barriers to the seamless provision of cash transfers to eligible families (Cecchini & Madariaga, 2011). Additionally, disparities in access to information, logistical constraints, and programmatic inefficiencies have contributed to gaps in service delivery and uneven distribution of benefits among recipients.

These implementation challenges underscore the importance of examining the contextual factors influencing the effectiveness of social policies like Bolsa Família in addressing poverty and promoting child development. By understanding the intricacies of program implementation and system issues, policymakers and stakeholders can identify areas for improvement and enhance the impact of interventions aimed at reducing early-life inequalities.

The hypothesised pathway based on the data available at the 2004 Pelotas Birth Cohort

Ideally, all variables presented in the comprehensive pathway would be incorporated into my cohort analysis. However, these variables were evaluated based on their availability in the 2004 Birth Cohort, the quality of data collection, and the reliability of each variable.

The data available on the 2004 Pelotas Birth Cohort and the decision-making process to include or exclude variables

The questionnaires included a range of information relevant to various domains, such as characteristics of the mother, family, and domicile, along with details about the parents' race and education level. Further exploration covered childcare and feeding, examining aspects like access to food, breastfeeding, and the child's eating habits. Child health parameters were meticulously examined, encompassing sleeping habits for both the child and mother, health conditions such as diarrhoea, instances of child hospitalisation, characteristics related to low birth weight, vaccination records, accidents, mortality rates, as well as details about nappies, toilet use, and cognitive and socioemotional development of the child.

Additionally, the questionnaires probed into expenses related to labour and health, including spending on health, public or private healthcare, and prenatal health services. Maternal health and contraception data was collected covering contraceptive methods, abortion, the number of pregnancies, and instances of mother hospitalisation. The mother's health habits, encompassing smoking and alcohol consumption, frequency of exercise, and chronic diseases like blood pressure and diabetes, were thoroughly examined. The scope extended to community support, investigating religious and community childcare support, and third-party childcare. Anthropometric measures were included, such as the mother's and child's weight and height. Finally, standardised tools for mother and child were implemented, ranging from mental health self-reporting questionnaires to intelligence tests and observational techniques, like observing the relationship between mother and child. Unfortunately, most of these

data were collected only at baseline and not repeated during the evaluation of outcomes over time, i.e., the data were not collected in the following data collection sweeps, which prevents their use as variables for mechanisms 1 and 2 described in the pathway.

Another point of consideration is the information regarding data collection. Originally, all questions related to the components of the two mechanisms in the pathway were to be considered for inclusion. This would include variables derived from external observation, self-reported measures, and psychometrically validated measures. An extensive and detailed table organising all questions into potential variables is available in Appendix 3. Additionally, the cohort publicly provides its 'data collection guide' for each stage, considered key information for choosing variables. However, although the steps and points of care in data collection at each of the six data collection sweeps (perinatal, at 3 months of child age, 1 year, 2 years, 4 years, and 6 years) are described in detail, the observed questions do not describe observer training details in the questionnaire application guide. They lack information regarding the average observation time for completion. Self-reported questions were also excluded, motivated by the perceived fragility of their structure and the potential for manipulation by respondents. Thus, aiming to include only consistent data, the decision was to exclusively utilise psychometrically validated instruments for the Brazilian population, chosen for their reliability and outcome robustness.

This decision led to the creation of a theoretical hypothesised pathway that considers only the data available in the 2004 Pelotas Birth Cohort (Figure 1). This new pathway comprises a series of interconnected assumptions, each crucial in elucidating the relationships among CTPs, mothers' control in their living environment, mothers' symptoms of depression, and, ultimately, child cognitive development.

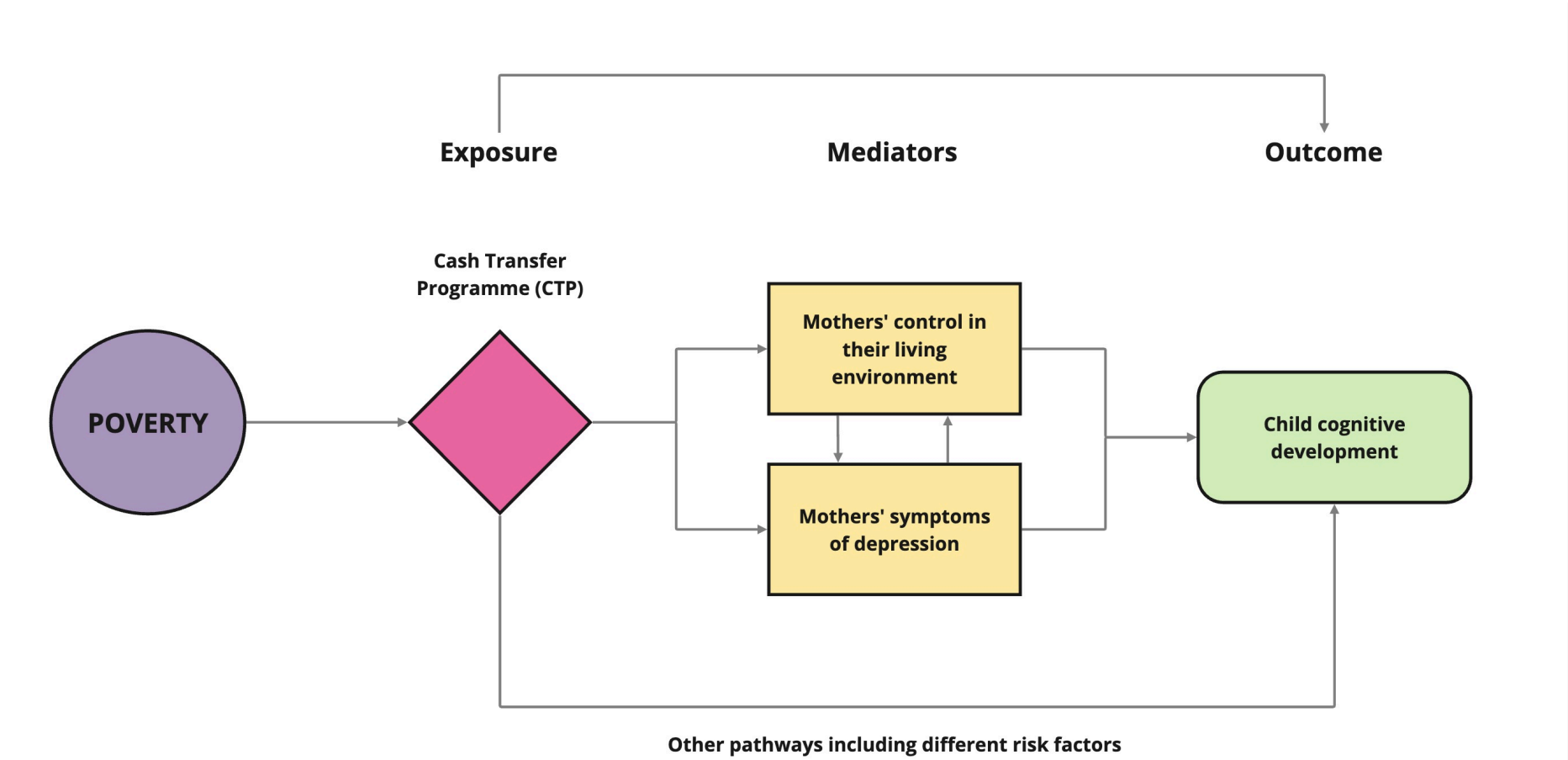


Figure 1: The hypothesised pathway based on the literature and the data available at the 2004 Pelotas Birth Cohort.

I will expand on the vital components of the theoretical hypothesised pathway to present an understanding of the characteristics and definition used in this PhD research.

Components of the theoretical hypothesised pathway based on the data available at the 2004 Pelotas Birth Cohort

Cash Transfer Programme (INTERVENTION)

Cash transfer programmes (CTPs) have been presented as an intervention focused on poverty alleviation. The model behind the CTPs is the material supplement and its expected consequence in alleviating the influence of poverty in people's everyday lives (Cecchini & Madariaga, 2011; Schilbach, Schofield, & Mullainathan, 2016).

Format of Cash Transfer Programmes (CTPs)

CTPs are based on cash transfers to poor households, primarily to mothers or caregivers living below the poverty line, expecting the money to be invested in child-related outcomes (Engle, Fernald et al., 2011). Generally, the transfer's monetary value depends on the family's composition, household income, and the country's economy. When the World Bank first launched CTP, the total transferred should be at most one-third of the country's minimum wage where the programme was implemented (Fiszbein et al., 2009); this rule was not adopted over time by the countries as they were implemented or expanded their local CTPs.

Programmes are divided into two broad schemes: Conditional Cash Transfer (CCT) programmes and Unconditional Cash Transfer (UCT) programmes. In CCTs, the amount is delivered on the condition that the money will be invested in children's well-being, most commonly in education and child health. In this case, indicators such as school attendance, vaccination, health check-up appointments, and prenatal care in the case of pregnant women, for example, are monitored (Lagarde, Haines and Palmer, 2009). In UCT programmes, there are no conditionalities or monitoring of how the money is used (Barrientos & Dejong, 2006).

Aims and results of the CTPs

Short-term goal

In the short term, CTPs aim to reduce child mortality and improve children's access to health care and, in some countries, access to education. There is extensive research on the impact of CTPs on reducing child mortality and inequalities in child health (Rasella et al., 2013, 2018; Crea et al., 2015; Fenn et al., 2017). For example, a mixed ecological study found that Brazilian CTP and the national primary health care service positively reduced child mortality (Rasella et al., 2013). This study analyses data from 2,853 Brazilian municipalities (out of 5,565) and found decreased child deaths related to poverty conditions such as diarrhoea, malnutrition, and respiratory infections. A systematic review of the effectiveness of CTPs on child health in low-middle-income countries indicates a positive impact of CTPs on the social determinants of health (Owusu-Addo and Cross, 2014). The highlighted mechanisms included child health care, child and maternal nutrition, morbidity risk reduction, immunisation coverage and child poverty mitigation.

Long-term goals

In the long term, the CTPs were developed to promote human development and interrupt the intergenerational transmission of poverty (de Andrade et al., 2015). However, CTPs' long-term results are inconsistent across countries. For education, an improvement in school attendance is observed, but no robust results were found on improvements in academic performance (Ponce and Bedi, 2010; Saavedra and Garcia, 2012; García and Saavedra, 2017). One of the explanations for this inconsistency is the quality of the public education system where the CTP is implemented. Even if the programme tends to increase school attendance, school performance will not be impacted if the quality of education is precarious. Impact schooling and employment is another long-term goal. A longitudinal, qualitative study with current and former beneficiaries of one of the world's most extensive CTPs indicates that a lack of successful schooling and lower employment rates stopped the expected positive human capital development (Jones, 2016, 2017). A critical view is that CTPs alone are not enough to break the poverty cycle, and the children of families receiving money from the

programmes are still excluded from more advanced educational levels and high-paying jobs (Molyneux, Jones and Samuels, 2016). Where gender is concerned, CTP is part of a controversial debate.

Controversies about the impact on the mothers

Providing benefits to mothers is a method aimed at enhancing their material well-being, enabling them to better meet their and their children's needs. Additionally, the adoption of CTPs strategically seeks to promote gender equity and serve as a safeguard against unforeseen economic disruptions (Carroll et al., 2022). However, the existing literature on CTPs raises pertinent concerns, particularly regarding the perpetuation of traditional gender roles, including domestic responsibilities historically ascribed to women (Molyneux and Thomson, 2011). These considerations gain paramount importance, given CTPs' potential to influence household dynamics and gender relations (Urbina, 2020). For instance, a book examining a conditional CTP explores unintended consequences of the 'conditions' on women as a mechanism to reinforce gender inequalities (Cookson, 2018). An examination of Mexico's Prospera conditional CTP further reveals inadvertent consequences, reinforcing gender and racial hierarchies, thus prompting inquiries into its effectiveness in promoting development and gender equality, especially within indigenous communities (Gil-García, 2015). These findings set the stage for exploring the extent of mothers' control in their living environment.

Mother's control in their living environment (MEDIATOR)

This construct was summarised for the thesis from four reviews evaluating the relationship between people's control and health and well-being (Whitehead et al., 2014). The first study critically reviewed theories about the relationship between 'control over destiny' in the living environment and socioeconomic inequalities in health (Whitehead et al., 2016). The second was a review of empirical studies about the relationship above, the third was a review of interventions to increase control and health-related impact (Orton et al., 2014),and the fourth was a review of observational studies about the health impacts of women's low control in their living environment in societies with profound gender discrimination (Pennington et al., 2018).

According to these combined reviews, control in the living environment is an essential social determinant of health (Allen et al., 2014; Marmot & Bell, 2012) and has been named for different theories as 'control over destiny' (Syme, 2004), autonomy (Marmot, 2004), power to exercise choice (Albee, 1982) and 'capabilities' (Frediani, 2010) to name a few. For this PhD thesis, mothers' control in their living environment is identified as "an individual's or group power over decisions that affect their daily lives" (Whitehead et al., 2016). Since it was a construct summarised for this thesis, I will present the basis of this component below.

Model of control in the environment

The studies by Whitehead et al. (2014) on control in the living environment offer clues as to how maternal behaviour, operating at different levels, can contribute to promoting better living conditions and health. Control in the living environment (which includes the socioeconomic and psychosocial conditions in which people live) can be seen as a component of psychological, personal, and collective well-being that impacts health outcomes. Thus, a lack of or limited control in the living environment leads to health inequities.

To identify the possible pathways between control in the living environment and the generation of health inequalities, Whitehead et al. (2014) carried out a wide-ranging literature review that allowed them to categorise these pathways into three interrelated explanatory levels: micro/personal, meso/community and macro/social. To do this categorisation, the authors used the perspective of social determinants of health and the model proposed by Dahlgren and Whitehead (Dahlgren & Whitehead, 2021). It is worth noting that these paths were drawn from existing scientific literature. Although they offer important clues, they do not exhaust all the possible elements, paths, and connections in which maternal behaviour could operate.

At the micro/personal level, there is evidence that a position of social disadvantage is associated with beliefs of low control, which are associated with various adverse health outcomes. Explanations of the pathways that lead to health inequality point out that people's social status influences their access to resources necessary for health, well-being, and control

over their destinies, affecting critical decisions that affect their lives. This can lead to chronic stress, which triggers more significant physical and mental health problems. Lower beliefs about control over the environment are involved in this process. For example, children in families with lower social positions can be socialised to have low-control beliefs. These beliefs can persist and be amplified into adulthood, which impacts expectations about what to achieve in life since they are usually subject to low expectations from other important people (families, teachers, potential employers, among others) (Whitehead et al., 2016)

Low control beliefs can lead to contrasting psychological responses that can result in worse physical and mental health: (a) anger and hostility – which can lead to chronic stress and unhealthy behaviours such as smoking and drinking; (b) low self-efficacy – which can lead to depression as it affects hope for the future; (c) chronic exposure to stressors due to low control beliefs – which can directly affect control over metabolic disorders (lower endocrine and immune function, higher risk for cardiovascular diseases). Low control beliefs and actual low control are interrelated, and one can induce the other. Beliefs of low control can reflect actual low control, i.e., the everyday reality of life.

The meso–community level adopts notions that community/collective control goes beyond individual circumstances and encompasses the strength generated by people coming together to have greater influence over material and social conditions in their immediate neighbourhoods in the living space. Explanations of the paths that lead to health outcomes address the places where people live and the interactions established. Less favoured places (in terms of socio-environmental structure and access to essential services, among others) and the interaction of groups in this context can give rise to a sense of collective threat and powerlessness, placing people in the face of chronic stressors, which over time damage their health (Whitehead et al., 2014). However, the interactions between people and the place where they live can also generate community empowerment by collectively challenging the material conditions of life and seeking changes to this reality, which can lead to collective control over health.

Theories at the macro/social level (Figure 2) consider that cultural, social, or political processes generate varying degrees of exclusion and discrimination against certain groups in society,

which results in low *status* and, consequently, low control over access to satisfy health needs. The mechanisms for this process start from the social context as a whole, interacting with other levels. Racism, sexism, classism, and ableism, for example, operate at the level of social structures and produce different experiences for population groups, influencing the degree of control these groups feel they have and have over their lives. To illustrate this path (Figure 2), Whitehead et al. (2014) points out the hypothetical pathways between the low status of women in societies with evident gender discrimination and health and well-being outcomes. In sexist environments, women's low status can lead to reduced control over their access to health services, food and nutrition, education, employment opportunities, fertility and reproductive rights, and higher rates of domestic violence against women and girls. This process produces poorer health outcomes than women in societies with lower gender discrimination (Whitehead et al., 2014).

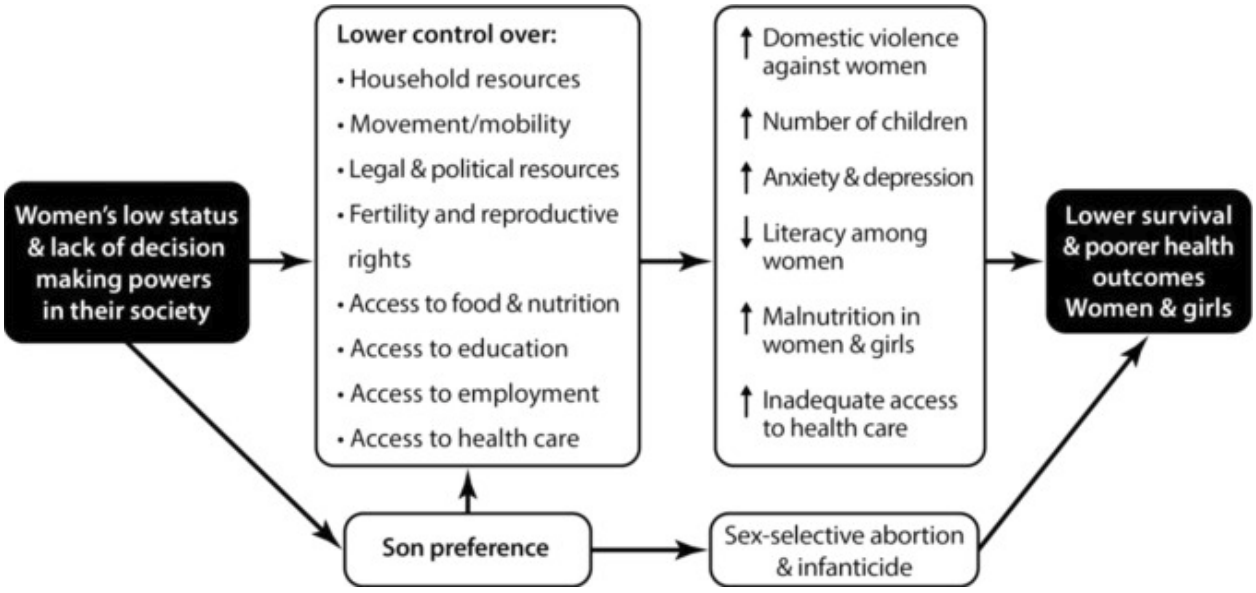


Figure 2: Pathways from women's low status in society to worse health outcomes *Source:* Whitehead et al., 2016.

Control over decisions in daily life is a fundamental social determinant of health. The above considerations make it possible to understand that actions on low control in the living environment should be part of strategies to combat health inequalities. Many proposals to promote decision-making power aim to increase people's ability to act in the environment to

achieve equal access to resources that favour decent living conditions and guarantee rights, well-being, and health. In this direction, CTPs might enable greater control over the living environment, contributing to better living conditions and reduced health inequalities.

For this PhD, I will concentrate on the macro/social aspect of the model. I will evaluate the impact of CTPs on 8 dimensions (Figure 2) of women's control in their living environment: (1) household resources, (2) movement/ mobility, (3) legal and political resources, (4) fertility and reproductive rights, (5) access to food & nutrition, (6) access to education, (7) access to employment and, (8) access to healthcare.

Mothers' level of depression (MEDIATOR)

Specifically for early childhood, studies indicate a causal relationship between mothers' mental health and their children's physical and mental health (Kaiser et al., 2017; P. Kim et al., 2017; Troller-Renfree et al., 2020). Depression in mothers is negatively related to children's regular development (Baranov et al., 2017). Depressed mothers tend to exhibit ineffective parental strategies and emotional neglect, which may adversely affect the child's cognitive development. Depressive mothers are generally less responsive to their child's needs, which may manifest in ineffective parenting, such as neglect or not paying substantial attention to the child's emotional needs and well-being (Walker, Wachs, Meeks Gardner, et al., 2007). In a reciprocal relationship, mothers experiencing depression often encounter challenges in establishing a secure attachment with their children (Kullik & Petermann, 2013; McKee et al., 2018; Psychogiou & Parry, 2014; Tan & Holub, 2015). The impact of maternal depression appears to both influence and be influenced by the vulnerability of the mothers' control in their living environment.

However, recent studies on unconditional cash transfers have found null or negative mental health outcomes among mothers (Jacob et al., 2022; Jaroszewicz et al., 2022; Liebman et al., 2022; Magnuson et al., 2022; Pilkauskas et al., 2023). This might be explained by receiving insufficient cash support, which may increase the salience of unmet needs and, therefore, produce feelings of distress (Jaroszewicz et al., 2022). Research on conditional income programs evaluating maternal mental health needs to be conducted, as well as evaluations

comparing conditional and unconditional programs and including measures of variability in purchasing power, frequency, and stability of money receipt in the CTPs.

Cognitive development (OUTCOME)

Cognitive development is a construct intricately influenced by genetic and environmental factors, with the interaction between the two playing a significant role (Asbury et al., 2005; Hanscombe et al., 2012). Although a substantial portion of cognitive variability between individuals is attributable to genetic factors, environmental factors and social context also play a significant role in determining cognitive ability (Walker et al., 2007). It is important to emphasise that these factors are changeable and susceptible to interventions aimed at caring for and stimulating children (Engle et al., 2011).

Cognitive development is the primary outcome of this research, and, to this end, the focus will be on how to measure cognition. The literature on cognition is broad and controversial in its definitions and characteristics. For this thesis, cognition and intelligence will be understood as the same construct, as I will use the psychometric approach. Thus, intelligence/cognitive development is "a global concept that involves an individual's ability to act purposefully, think rationally, and deal effectively with the environment"(Boake, 2002; Cruz, 2005).

Psychometric approach

This approach considers cognitive performance as hierarchically organised. Specific cognitive functions, such as sequential reasoning, language, associative memory, spatial relations, etc., are categorised at the first level. The second level encompasses broader cognitive abilities, including fluid intelligence, crystallised intelligence, general memory and learning, and visual and auditory perception. At the pinnacle of this hierarchy lies general intelligence or "g" (Colom et al., 2004; Plomin & Spinath, 2002, 2004). Various intelligence tests exist, but most attempt to evaluate the same intelligence construct (i.e., "g"). Some tests employ words or numbers and require specific cultural knowledge, while others use shapes or designs, relying solely on universal concepts.

As a convention, the results of global intelligence tests are typically converted to a scale with a mean of 100. In almost all modern tests, the standard deviation of scores is equivalent to 15 points. Historically, the term 'IQ' was often used to describe intelligence test scores. It originally referred to an 'intelligence quotient,' calculated by dividing mental age by chronological age, although this procedure is no longer used. Nowadays, test scores follow a normal distribution and are expressed in terms of average values and the spread of scores around the mean. They are based on the performance of a large and representative sample of individuals from diverse socioeconomic and ethnic backgrounds (Colom et al., 2004; Saklofske et al., 2003; Sternberg & Grigorenko, 2006). Thus, individuals receive scores that reflect their performance relative to others of the same age. This model leads to assumptions about the origins of intelligence.

The existing literature includes studies addressing early predictors of children's cognitive performance, particularly in developed country contexts (Lawlor et al., 2005). Among the mechanisms underlying these determinants, the studies show that the predictors may not only have an individual impact but may also be cumulative or coexist with other factors (Camargo-Figuera et al., 2014; Figuera, 2015).

For this PhD research, I aimed to evaluate the impact of CTPs on child cognitive development mediated by mother's control in their living environment and mother's symptoms of depression. To achieve this, I conducted a systematic review and two quasi-experimental studies. The quasi-experimental studies were based on the Brazilian Conditional Cash Transfer, *Bolsa Família Programme* as the intervention, and the 2004 Pelotas Birth Cohort as the database.

To illustrate, each study aims to explore a part of the pathway.

Three studies/papers for the PhD research

Study/Paper 1: Systematic review of evidence about the impact of cash transfer programmes on mothers' control in their living environment.

- Research question: What is the evidence that cash transfer programmes impact mothers' control over their living environment? If they do, in which dimension(s)?

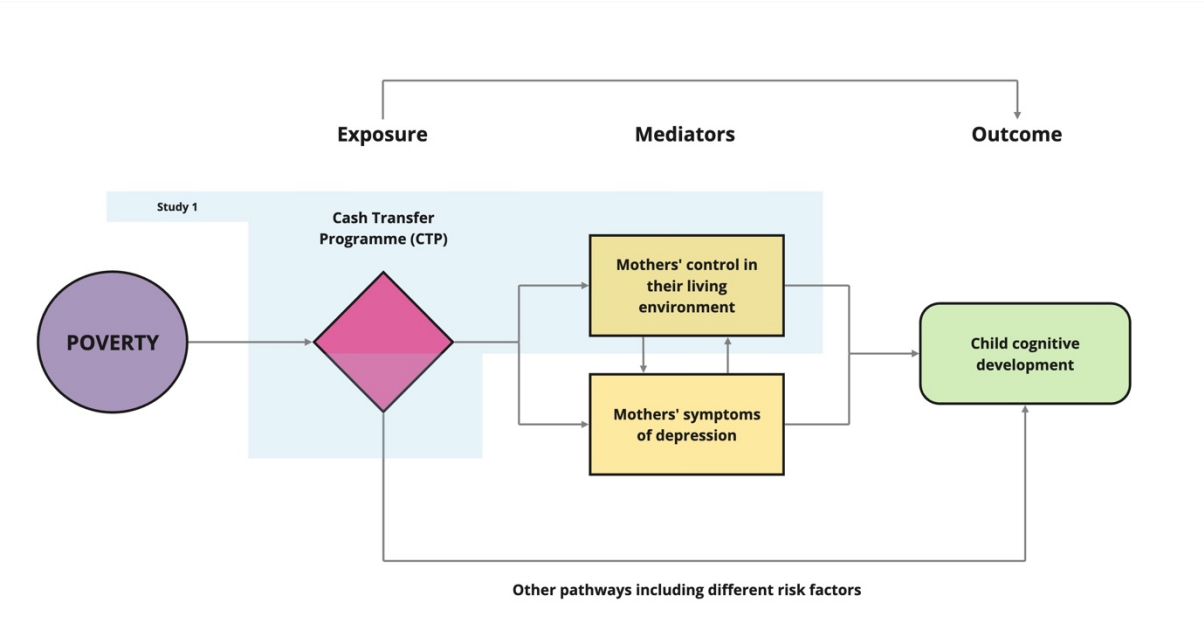


Figure 3: Study 1

Study/Paper 2: Longitudinal data analysis of the impact of the conditional cash transfer programme, the Brazilian *Bolsa Família* Programme (BFP), on child cognitive development.

- Research question: What is the impact of the BFP on children's cognitive development at age six?
- Method: A quasi-experimental study using data from the Pelotas Birth Cohort 2004, comparing children from low-income families with and without receipt of BFP.

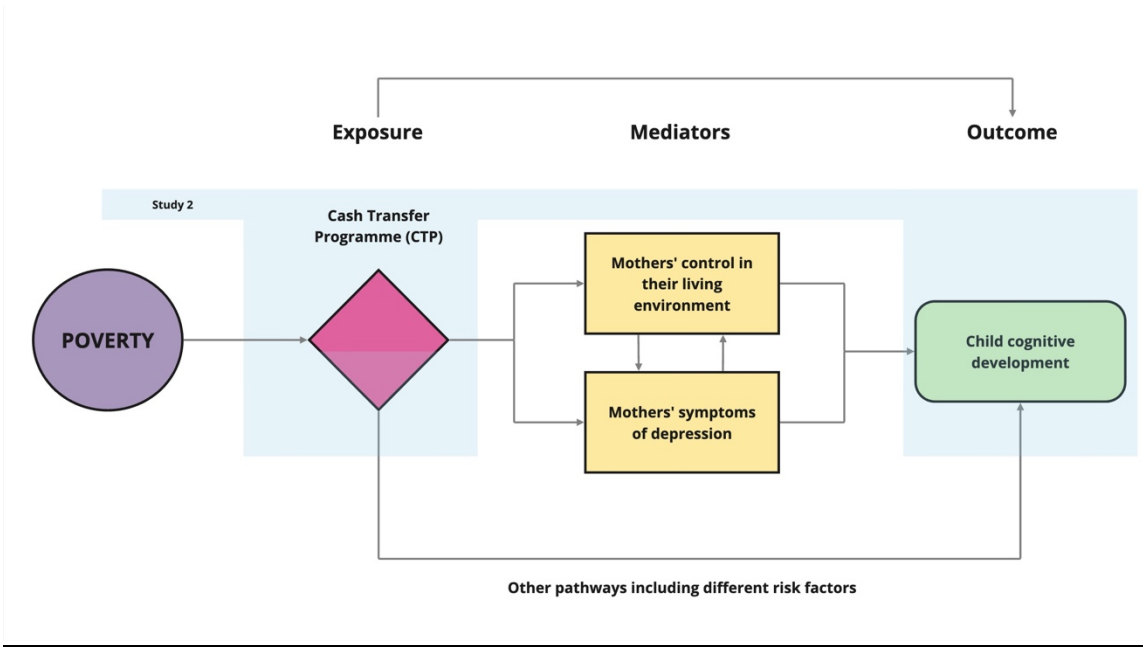


Figure 4: Study 2

Study/Paper 3: Longitudinal data analysis of the impact of the *Bolsa Família* on mothers' control in their living environment and mother's symptoms of depression.

- Research question: What is the impact of the BFP on mothers' control in their living environment, mother's symptoms of depression and the relationship between mothers and their children?
- Method: Study 3 is a quasi-experimental study using data from the Pelotas Birth Cohort 2004, comparing mothers from low-income families who received and did not receive BFP.

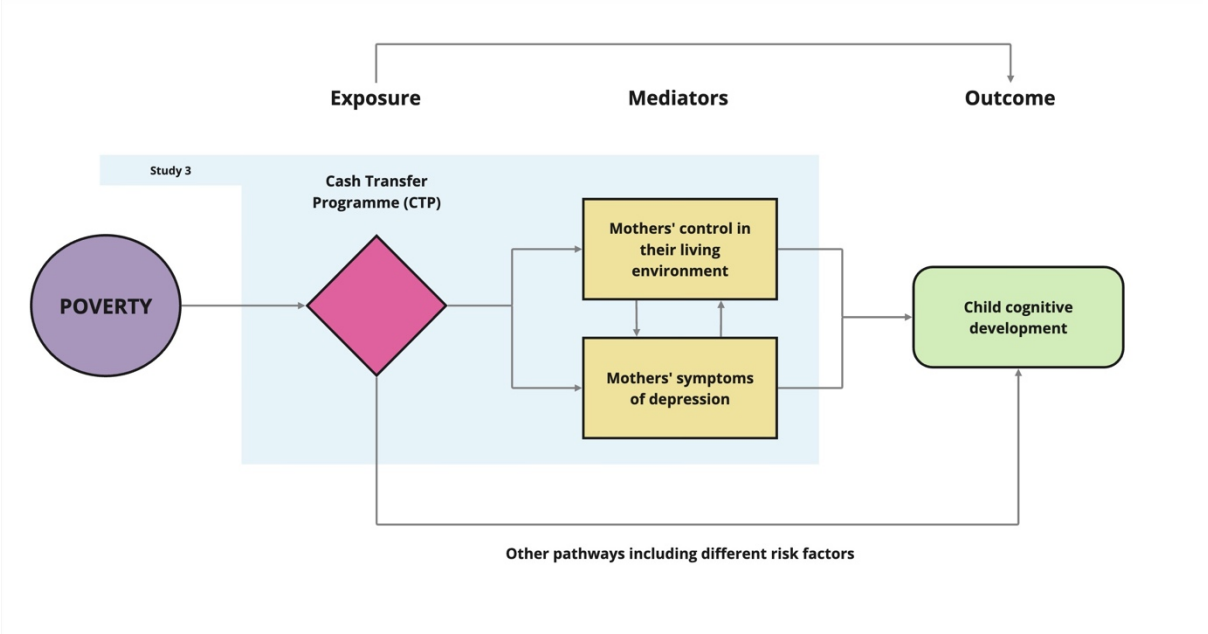


Figure 5: Study 3

SYSTEMATIC REVIEW

PhD context for Study1/Paper 1

Knowing the evidence about the impact of CTPs on mothers' control in their environment was the first gap identified in this thesis and the starting point for the proposed theoretical model for my PhD research. Much is known about the impact of CTPs on children, but little is known about the impact on outcomes related to mothers and even less about mothers' perception of the impact on themselves. However, with its eight dimensions of analysis, the construct 'control in the environment' required a thorough search for studies measuring women's recognition of their control.

Unlike other studies, this review did not include maternal well-being as an outcome nor incorporate distal health outcomes such as the number of prenatal care visits or health service utilisation (for example). This decision was made because I could not infer that these outcomes would necessarily result from an increased sense of control. For instance, outcomes related to healthcare utilisation can be direct consequences of conditionalities (in studies of conditional programmes) or the proximity of services to one's residence rather than being attributed to a change in environmental control. On the contrary, it can be seen by mothers as an imposition of what to prioritise using their time, as more recent research has shown. Not least because the construct control in the environment presupposes that the mother would have more autonomy in deciding where and how to use the CTP money. To avoid these conceptual biases, I thoroughly searched for terms, questions and measures that indicated mothers' change in their control. As a result, I excluded studies that indicated results such as the number of hospital births and medical consultations. Another relevant point was the time factor.

During the gap between searching for primary data and submitting the thesis, the COVID-19 pandemic changed the profile of cash transfer policies worldwide. Emergency CTPs were created during the COVID-19 pandemic, and existing CTPs have been significantly expanded, as have changes to beneficiary inclusion conditions, amounts of cash, and monitoring forms. Therefore, the following review could be updated before it is submitted for publication up to the pandemic's beginning. The following review focuses on the mothers' control in their environment who participated in CTPs before the COVID-19 pandemic.

PAPER 1: CASH TRANSFER PROGRAMMES AND MOTHERS' CONTROL IN THEIR LIVING ENVIRONMENT: A SYSTEMATIC REVIEW

Abstract

Researchers in Cash Transfer Programmes (CTP) have increasingly recognised the crucial role of mothers in poverty alleviation and social protection, with a growing focus on women's health. However, the impact on more subjective concepts, like mothers' control in their living environment, is unknown. This systematic review conceptualises the construct and defines eight control dimensions, investigating whether CTPs influence mothers' control and which dimensions are affected. After searching 17 databases, 3071 records were found and went through the screening phase and 8 studies were included, primarily from Latin America and one from Africa. Results reveal heightened control over financial resources, especially in food purchasing, although predominantly for basic survival needs. A novel finding is the positive impact of CTPs on small livestock ownership, signifying a savings strategy in rural settings. Sexual and reproductive rights outcomes vary across urban and rural areas, while employment findings indicate complexity. This includes a notable decrease in formal employment among women and a prevalence of informal, temporary, and self-employment, emphasising the need to address broader socioeconomic contexts and support systems. The absence of studies on other dimensions, such as mobility, legal resources, education, and healthcare access, underscores a gap in the literature. Understanding the intricacies and potential benefits of CTPs, this review underscores the urgency of inclusive policies tailored to enhance mothers' control in their environment and improve the well-being of their families.

Keywords: mother, control in the living environment, cash transfer programme.

INTRODUCTION

The mothers' role in the CTPs

Cash Transfer Programme (CTP) researchers have increasingly recognised the role of mothers in poverty alleviation and social protection (Wolf et al., 2013). Mothers living in poverty are responsible for receiving cash in almost all CTPs worldwide (Devereux & Sabates-Wheeler, 2004). While the specific programme design and implementation strategy may vary from one country to another, the underlying rationale for directing cash transfers to mothers remains consistent. The rationale assumes that when women have control over cash transfers, they are more likely to invest in their children's health and education, leading to improved outcomes (Kirkwood et al., 2021).

There are many studies on the impact of CTPs on children. There is robust evidence on the impact of CTP on reducing child mortality (Rasella et al., 2010, 2013, 2018) and on different health outcomes and child development (Gertler, 2004; Shei et al., 2014; Zembe-Mkabile et al., 2014). For example, research has found positive effects on child development, including physical health, cognitive abilities, and socio-emotional well-being (Fenn et al., 2015; Paes-Sousa et al., 2011). However, reviews on the impact on women/mothers benefiting from the programmes are more recent and scarcer.

There are studies on the impact of CTPs on outcomes regarding women's behaviour concerning the use of health services, prenatal care numbers, contraceptive use, and formal employability (Barber and Gertler, 2010; Ambler and Brauw, 2017; Hunter, Patel and Sugiyama, 2020; Sugiyama and Hunter, 2020; Urbina, 2020). These results are considered extra positive effects of CTP, given that the programmes were initially developed to reduce infant mortality and improve children's health and well-being. However, the impact on more subjective concepts like empowerment, agency and control over resources hits a controversial discussion around gender roles.

The idea that cash transfers might reinforce gender roles has been extensive in recent years. Reinforcing traditional gender roles and the burden of conditionalities in conditional programmes are critical components in discussing the impact of CTPs on mothers. Studies have examined these programmes' gendered assumptions and

implications, particularly in Latin America. For example, the *Progresa/Oportunidades* programme in Mexico has been criticised for its selective and gendered construction of social needs, which can lead to the re-rationalisation of gender roles and responsibilities (Molyneux, 2006), including that of the female in a domestic capacity (Molyneux & Thomson, 2011). The emphasis on motherhood as a critical factor in the success of these programmes can perpetuate traditional gender norms and burden women to fulfil certain conditions to receive cash transfers (Armand et al., 2020; Bradshaw & Víquez, 2008; Dygert, 2017; Nagels, 2021). In addition, the conditionalities may include difficulties women face related to the requirements for children's education, healthcare, or other specific behaviours (Cookson, 2016; Cookson et al., 2023). However, it is essential to note that the impact of cash transfer programmes on this discussion about gender and maternity roles may vary depending on the context and the presence of complementary policies and interventions (Bonilla et al., 2017).

Thus, the literature presents its contradictions in the place occupied by mothers in cash transfer policies, which, on the one hand, recognise the importance of women in the family context and children's health and development, but on the other hand, can inadvertently perpetuate the idea that mothers' primary role is to look after the children and be solely responsible for guaranteeing programme conditionalities, in the case of conditional programmes. This raises crucial questions about the impact of these policies on these contradictions and mothers' ability to exercise control in their environment. Therefore, studying in-depth the effect of these programmes on mothers' sense of control in their living environment becomes relevant, as it can offer critical insights into this complex context of the impact of CTPs on mothers. To this end, the following systematic review introduces the construct of mothers' control in their living environment.

Mothers' control in their living environment

The concept used in this systematic review was based on four other reviews assessing the relationship between people's control and health and well-being (Whitehead et al., 2014, 2016; Orton et al., 2014; Pennington et al., 2018). For this systematic review, mothers' control in their living environment is defined as "an individual's or group's power over decisions that affect their daily lives" (Whitehead et al., 2016). Therefore, in

line with this definition and as indicated by the four cited systematic reviews, women's control in their living environment can encompass control over eight dimensions: 1) household resources, 2) movement/mobility, 3) legal and political resources, 4) sexual and reproductive rights, 5) access to food and nutrition, 6) access to education, 7) access to employment, and 8) access to healthcare. This concept shares similarities with other terms, such as power, empowerment, self-determination, and agency. In more traditional health studies literature, the concept is akin to "control over destiny" (Syme, 2004), autonomy (Marmot, 2004), the power to exercise choice (Albee, 1982), and capabilities (Frediani, 2010; Sen, 1999).

Whitehead et al. (2014) exemplify this dynamic by delineating hypothetical pathways stemming from the low status of women in societies, leading to adverse health and well-being outcomes. In environments characterised by sexism, women's diminished status may restrict their control over access to vital health services, nutritional resources, educational opportunities, employment prospects, fertility, and reproductive rights, resulting in elevated rates of domestic violence against women and girls. Ultimately, they contribute to poorer health outcomes than women in societies with lower gender-based discrimination. In summary, the existing literature emphasises the importance of control in the living environment in the context of maternal behaviour and its impact on health outcomes.

It is interesting to note that control, according to the literature, is divided into the 'actual' control pathways and the 'perceived' control pathways (Whitehead et al., 2016). 'Actual' control pertains to the extent of influence individuals can exert over their living environment through their economic and social resources. This level of control is recognised in terms of control of money, power, information, prestige, and environment. On the other hand, 'perceived control' is self-explanatory and relates to one's perception of their ability to manipulate their actual control or effect change in their life using the resources at their disposal. Both control components are mutually influential, with one potentially influencing the other. Both were considered in this study.

Control in the living environment covers a broad spectrum, including socioeconomic and psychosocial conditions, which profoundly affect psychological, personal, and collective well-being. Such control is fundamental to maternal decision-making; however, disparities in access to this control, often the product of social inequality, contribute to health inequalities (Whitehead et al., 2014). Thus, it is clear that interventions to improve control over mothers' living environment, such as CTPs, have significant potential to impact mothers benefiting from the programmes and reduce the impact described above. Understanding how CTPs affect mothers' sense of control is essential, as it can have profound implications for these women's and their families' well-being. An increase in the sense of control can improve women's mental health, their quality of life and, in the medium and long term, their children's child development. However, the impact on one or more of the eight dimensions mentioned above has yet to be explored in the existing literature.

This systematic literature review aims to analyse and synthesise the available evidence on the impact of CTPs on mothers' control in their environment. The analysis will look at studies investigating a variety of CTPs in different contexts and populations. The results of this review will contribute to a more comprehensive understanding of the implications of these programmes for mothers and provide insights for more effective social policies.

METHODS

Protocol and registration

This review has followed the Preferred Reporting Items for Systematic Reviews (PRISMA) guidelines (Moher et al., 2009). The study protocol was published in the International Prospective Register of Systematic Reviews (PROSPERO), CRD42019146871.

Research questions and searches

The systematic review aimed to answer whether the CTPs impact mothers' control in their living environment and, if they do, which dimension(s) of control would be affected.

17 databases were searched in May 2019: PubMed, Cochrane Library, MEDLINE, EMBASE, ProQuest (Applied Social Sciences Index & Abstracts (ASSIA); British Nursing Database; PAIX Index; Sociological Abstracts; CINAHL; EconLit; PsycINFO; Scopus; Social Science Citation Index (Web of Science); Social Policy and Practice; IDEAS: Economics and finance research; The Campbell Library and; TRoPHI – Trials Register of Promoting Health Interventions.

The search strategy included "Cas– Transfer*" as the main keyword. Based on previous systematic reviews on CTPs, other variations were included, for example ((*income OR contingent* OR condition* OR uncondition* OR incentive* OR cash-based*) AND transfer*) AND (women OR woman OR girl* OR mother* OR matern* OR female*) Subject heading terminology and syntax of search terms were adapted according to the requirements of the individual databases. The search did not have language restrictions or initial date limitations.

Inclusion criteria

Studies with the following criteria were included:

P – Population: targeted mothers over 16 years old as the beneficiaries of the cash, including pregnant women living in any country where the programme was implemented
I – Intervention – conditional or unconditional CTP
C – Comparison: mothers who are in the same life circumstances but were not beneficiaries of the CTPs
O – Outcomes: measuring outcomes related to at least one dimension of the mothers' control in their living environment

The decision to include mothers aged 16 and above was based on the aim to encompass all programmes targeting women/mothers, with enough studies available to address the sub-question of whether there would be a difference in mothers' sense of control in their environment relative to the age at which they became mothers. However, the programmes identified that included young women did not require them to be mothers as a condition. There are programmes focused on young girls who are not necessarily mothers, which generally have different outcomes from those in this

study. For instance, a programme in Malawi assessed the effectiveness of a CTP for schooling in adolescent girls (Baird et al., 2011). More recently, another study published a 10-year follow-up on the impact of cash transfers on schooling, learning, fertility, and the labour market (Barham et al., 2024), revealing differences between boys and girls. Additionally, there are studies on CTPs in HIV prevention, particularly in African countries (Fieno & Leclerc-Madlala, 2014; Pettifor et al., 2016).

Table 1: Dimension of mothers' control in their living environment and examples

Dimension	Examples
(1) household resources	- Household decisions on a place of residence - Household decisions on the routine of the household - Autonomy in the household decisions over other members of the family, visitors and family time for recreation and travel planning - Control on how to use the household resources, including the use of the money
(2) movement/ mobility	- Freedom to travel outside of the neighbourhood and unaccompanied by others - Freedom to visit friends and family and go shopping - Autonomy to move house - Autonomy to move to another neighbourhood or city
(3) legal & political resources	- Feeling the ability to be involved in the community decision-making/politics or community representative organisation - Feeling/desire to participate in local community decisions
(4) sexual and reproductive rights	- Self-efficacy and sexual negotiation - Decision-making on contraceptive methods
(5) food & nutrition	- A decision on what food to buy and eat
(6) education	- Women's interest/motivation to study - Decision-making on return to the education system

(7) employment	- Economic autonomy:
	  - Participation in income-generating activity
	  - Control of resultant income
	  - Perception of household economic responsibility

(8) access to health care	- Authority to see a doctor when she needs - Authority to spend money on medicine when she or her child requires it

Only studies published in peer-reviewed journals with the following designs were included: randomised control trials; quasi-experimental evidence from non-random interventions obtained by the following methods: controlled before-and-after, interrupted times series, propensity score weighting, regression discontinuity design or difference-in-difference and cohort studies.

Exclusion criteria

Regarding the type of intervention, CTPs where the women were not the direct beneficiaries of the cash, emergency relief CTPs implemented as one-off interventions, and cash interventions related exclusively to the following modalities: voucher programmes, premium-based health insurance schemes, informative campaigns, and microcredit programmes were excluded. In addition, CTPs used in humanitarian contexts were excluded.

Through a thorough second analysis of all pre-included studies, efforts were made to filter out those that exhibited distal outcomes, a task made feasible with the passage of time and a deeper understanding of the outcomes under scrutiny. Distal outcomes typically involve a complex chain of intermediate factors and may require a longer duration to become apparent. Specifically, in the context of this review, distal health outcomes pertain to health-related indicators not directly influenced by the CTP but potentially impacted through indirect pathways. Examples include long-term health metrics such as overall health status, disease prevalence, or healthcare utilisation patterns over an extended period.

This review departed from prior studies by deliberately excluding considerations of maternal well-being and distal health outcomes, such as prenatal care visits or healthcare service utilisation. This exclusion was motivated by the challenge of linking these outcomes to an enhanced sense of control. For instance, while an uptick in healthcare usage might initially appear indicative of heightened control, it could equally be influenced by program stipulations or the geographical proximity of services. Consequently, studies reporting outcomes such as hospital births or medical consultations were purposefully excluded to ensure alignment with this conceptual framework, enhancing clarity and coherence within the analysis.

Furthermore, books and book chapters, opinions, working papers, letters and editorials, conference annuals, protocols, theses, dissertations, and monographs were excluded.

Full-text screening

The search results were downloaded into COVIDENCE software. One of the authors initially screened the title and abstract of each identified record for relevance, eliminating records clearly outside the scope of the review. Then, records were selected for full-text screening. Full-text reports of all potentially relevant studies were assessed to determine whether they met the predefined inclusion criteria.

First, I established whether a record undergoing full-text screening meets the inclusion criteria for the review. The full text of these potentially eligible papers was retrieved. The PRISMA flow chart (Figure 1) documents search results and selection decisions. An independent reviewer then checked the included papers' random sub-sample. Any disagreement between the two reviewers over eligibility was resolved through discussion between the reviewers.

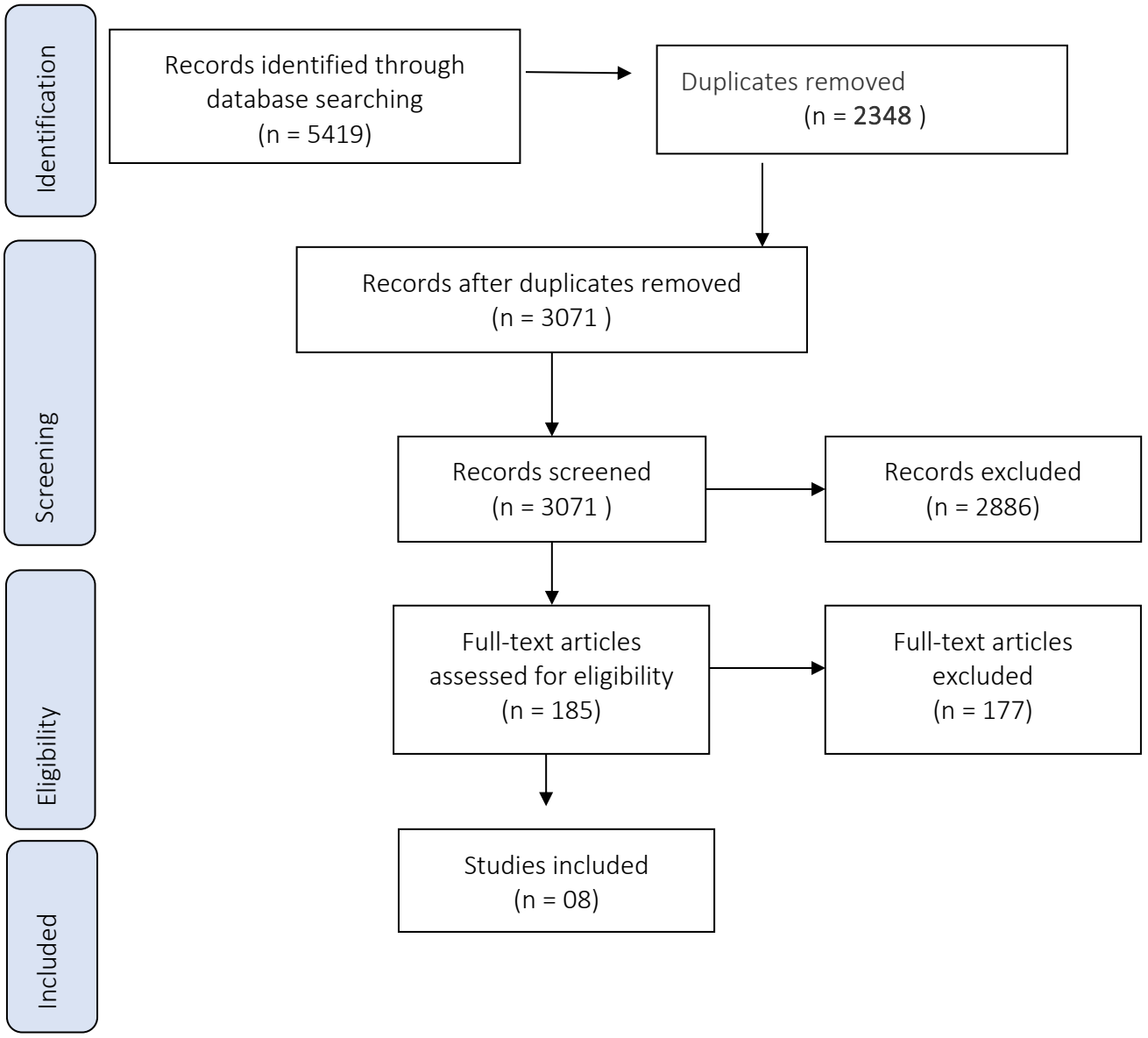


Figure 1: PRISMA

Data extraction and management

I extracted data for each study included in this systematic review while an independent reviewer checked data from a sample of the included studies. COVIDENCE Software was also used in this phase. When the data extraction components were discrepant, both reviewers discussed and resolved the conflicts. The data extraction form recommended by Cochrane Public Health Group's Guide for Developing a Cochrane Protocol' was

adapted to extract the data. Summaries of each dimension of control are available in Tables 2, 3, 4 and 5.

Critical appraisal assessment

The risk of bias in randomised controlled trials (RCTs), quasi-randomized trials, controlled before-after studies and interrupted time-series studies was assessed using the critical appraisal tool developed by Cochrane RoB1, as outlined in the Cochrane Handbook for Systematic Reviews of Interventions (Higgins et al., 2011). This assessment was conducted using COVIDENCE, and the studies were evaluated based on criteria including sequence generation, allocation concealment, blinding of participants and personnel, blinding of outcome assessment, incomplete outcome data, and selective reporting. Each study was categorised as having a low, unsure, or high risk of bias. The outcomes of this critical appraisal assessment are presented in the final column of Table 2.

Data synthesis

A synthesis of the studies' results was organised narratively. This narrative synthesis reported the results separately for each dimension of the mothers' control in the living environment. An extraction of patterns from the data was followed by discussing similarities and differences between the findings.

RESULTS

In the screening phase, 3,071 studies were assessed, and only eight were included in the final analysis (Table 2). The earliest publication among these selected studies dates to 2008. Geographically, seven of the eight studies were conducted in Latin American countries, with four originating from Mexico, one from Brazil, one from Uruguay, and one from Chile. The remaining study was situated on the African continent in Zambia.

In terms of contextual settings, five of the included studies were conducted in rural environments, while the remaining three encompassed both urban and rural contexts. Methodologically, the study designs demonstrated quantitative robustness, with five employing experimental models (Randomised Controlled Trials – RCTs) and three

adopting quasi-experimental models, consisting of one Propensity Score Matching, one exclusively Regression Discontinuity Design (RDD), and one study using both RDD and Difference-in-Differences (DiD) approaches.

Sample sizes varied, ranging from 613 observations to 32,308. Three studies had sample sizes below 5,000 observations, whereas five studies featured sample sizes exceeding 6,000. Four of the eight studies presented results across multiple dimensions of control in the living environment. Consequently, six studies reported findings related to Dimension 1, 'household resources'; two studies focused on Dimension 4, 'sexual and reproductive rights'; two studies addressed Dimension 5, 'access to food and nutrition'; and another two studies examined Dimension 7, 'access to employment. No studies were identified for Dimension 2, 'movement/mobility'; Dimension 3, 'legal & political resources'; Dimension 6, 'education'; and Dimension 8, 'health care'.

Author, year	Country, context	Study design and sample size	Programme details	Dimension of mothers' control in their living environment
Bergolo, Galván (2018)	Uruguay, urban and rural	RDD. 613 households with 605 women and 492 men. Households with children under 18 belong to the evaluation optimal interval of the predicted income score.	Asignaciones Familiares-Plan de Equidad (AFAM-PE), CCT. Monthly payment (25% of national minimum wage value)	Dimension 1 – Household resources AND Dimension 7. Access to employment
De Brauw, Gilligan, Hoddinott, Roy (2014)	Brazil, urban and rural	Propensity score weighting analysis based on repeated surveys. Comparison 1 (comparing beneficiaries with non-beneficiaries in 2005): 2733 and Comparison 2 (comparing beneficiaries who have been in the programme for longer with beneficiaries recently added to the programme): 4105. Married women as a household	Bolsa Família, CCT. Monthly Payment	Dimension 1 – Household resources AND Dimension 4 – Sexual and reproductive rights
Feldman, Zaslavsky, Ezzati, Peterson, Mitchelll, (2009)	Mexico, rural	RCT. 6157 households for the 2-year follow-up and 1737 for the 5-year follow-up. Female household heads are termed 'titulares'.	Opportunities, CCT	Dimension 4 – Sexual and reproductive rights
Handa, Peterman, Davis & Stampini (2008)	Mexico, rural	RCT, 10,188 households. No details mentioned	Progresa, CCT.	Dimension 1 – Household resources
Handa, Seidenfeld, Davis, Tembo & Zambia Cash Transfer Evaluation Team (2016)	Zambia, rural	RCT, 2519 households. Mothers with a child under five years in three districts with the highest rates of child mortality	Zambia's Child Grant Programme (CGP), UCT. US$12 per month	Dimension 1 – Household resources AND Dimension 5 – Food & Nutrition
Rubalcava, Teruel, Thomas (2009)	Mexico, rural	RCT, 10694 households. Similar to other Progresa studies	Progresa, CCT. 30 pesos per capita per month	Dimension 1 – Household resources AND Dimension 5 – Food & Nutrition

Scarlato, D' Agostino, Capparuci (2016)	Chile, urban and rural	RDD and DiD. 32,308 households. The treatment group had 15,712 observations, and the control group of 16,595.	Chile Solidario, Maximum duration of 5 years. The first 2 years, the 'Puentes programme', following 3 years, 'Bono de Proteccion Familiar' with a decrease in transfer amount over time and exit strategies for beneficiaries. Monthly Payment	Dimension 7. Access to employment
Tommasi (2019)	Mexico, rural	RCT, 9017 observations. Sample of married couples, parents with one to three children (under 12 years old)	Progresa, CCT. Bi-monthly payment	Dimension 1 – Household resources

Table 2: Summary of the studies included.

Dimension 1 – Mothers' control of household resources

Subsequent sub-sections will explore in further detail the identified variables and their corresponding outcomes within each dimension of mothers' control in their living environment.

Descriptive of the characteristics and design of the studies

In an earlier study conducted in 2008 and a later publication in 2019, 6 studies were included. The geographical distribution of the studies was as follows: 5 were conducted in Latin America, with 3 in Mexico, 1 in Brazil, and 1 in Uruguay. One study was conducted in Zambia, Africa. Among the 6 programmes analysed, 3 were the Mexican Conditional Cash Transfer (CCT) programme, *Progresa/Oportunidades*. The remaining 3 programmes were conditional CTPs in Latin America, while the programme in Zambia was unconditional. Furthermore, 5 programmes were implemented in rural contexts, while the Brazilian CCT programme was implemented in rural and urban areas.

Four studies used an RCT design, one employed an RDD, and one used a propensity score weighting design. The sample sizes varied, ranging from 613 to approximately 10,000 households.

Variables

The studies examined how mothers utilised the CTP funds-specific aspects related to maternal control over resources and the demand for food (Table 2). The studies also investigated women's decision-making power in purchasing durable goods and children's healthcare expenses. Additionally, the studies compared how women utilised the CTP funds to regular income, considering factors such as who determines the amount spent on food at home and women's bargaining power in decision-making.

Main findings

Savings

The treatment households own significantly more livestock as a saving strategy. The Zambia study (Handa, Seidenfeld, Davis, Tembo & Zambia Cash Transfer Evaluation Team, 2016) indicates that the programme impacts owning any livestock by 21 percentage points, an increase of 50 per cent from the baseline share. For this study, the livestock ownership is chickens (15-point increase) and cattle (8-point increase), followed by goats and ducks with a 3-point increase each. The study in Mexico (Rubalcava et al., 2009) shows that the mothers in the programme own significantly more chickens and turkeys, cows and horses and donkeys. Related to savings in cash, the Zambia programme revealed that the mothers saved more in the 24-month follow-up. The baseline was 16 per cent; in 24 months, follow-up was 47 per cent, while the control was 22 per cent. Only the unconditional programme had savings in cash.

What do mothers use the money for?

One study (Tommasi, 2019) on the specific demand for food shows that the mothers in the treated group control 8% more resources than those in the control group. This number climbs to 36% when considering only the mothers with little control of resources at the baseline. In comparison, another study indicates changes in the use of money for purchasing durable goods and children's health expenses (Brauw et al., 2014).

Do women use the money from the CTP as they use any other income?

The studies show an increased probability that women in eligible households perceive that they make decisions by themselves. The money is seen as the mother's extra cash. In one of the studies (Handa et al., 2009), 5.4% of women declared to have exclusive control over their extra income at the baseline; this number jumped to 39.7% at the 2-year follow-up. Another study (Tommasi, 2019) indicates that after attending the programme in Mexico, the mother declared an increase of 12% of her control relative to the father. Rubalcava et al. (2009) concluded that "the evidence indicates that additional income in the hand of women results in shifting resources towards investments in small livestock, nutrition, and children."

Dimension 2 – Mothers' control of movement/ mobility

No studies.

Dimension 3 – Mothers' control of legal & political resources

No studies.

Dimension 4 – Mothers' control of sexual and reproductive rights

Descriptive of the characteristics and design of the studies

Only two studies were included in the analysis, both conducted in Latin America. One study focused on the *Bolsa Família* programme in Brazil, while the other examined the *Oportunidades* programme in Mexico. Both programmes were conditional cash transfer (CCT) programmes. However, there were differences in their implementation and assessment. *Bolsa Família* was a national programme covering rural and urban areas, while *Oportunidades* was exclusively implemented and assessed in rural areas.

The studies on dimension four employed two different study designs: one used an RCT design and the other employed propensity score weighting. The sample sizes varied, with the number of households studied ranging from 2733 to 6157.

Variables

The variables analysed in this study can be categorised into contraceptive use and birth spacing (Table 3). Contraceptive use was assessed based on two key variables. Firstly, the study examined women's decision-making power regarding contraception, which provides insights into the autonomy and agency of women in family planning decisions. Secondly, the occurrence and frequency of the use of modern contraceptives were analysed, shedding light on the actual utilisation of effective contraceptive methods among the beneficiaries. Birth spacing was measured by analysing the timing of births among the programme beneficiaries over a six-year evaluation period.

Findings

Contraceptive use

The most significant result is the difference between urban and rural areas. The study with the Brazilian programme (Brauw et al., 2014) indicated a 10% increase in women's perception of their decision-making power. When this indicator is evaluated only for women in urban contexts, this figure jumps to 16-18%. For the Brazilian study, it is essential to note that there is an unintended effect in the rural area, where there was no difference in the variable women's decision-making power regarding contraceptive use. In addition, there was the possibility of a reduction in the overall rate of decision-making power in rural contexts.

The study with the Mexican programme (Feldman et al., 2009), which exclusively evaluates rural areas, indicated a difference between beneficiaries at the two-year follow-up. The holders had a 2.3% increase from the baseline, whereas the controls had a 0.7% increase. On the other hand, no statistically significant differences exist in the occurrence and frequency of contraceptive use at the six-year follow-up. There is a difference in the characteristics of the groups. At a 2-year follow-up, the comparison was between a group that did not participate in the programme and a group that participated. At a 6-year follow-up, the comparison was between two groups that participated in the programme for an extended period (control group for 4 years and experimental group for 6 years). The difference between the groups at the 6-year follow-up needs to be considered in the analyses of the results.

Birth spacing

Only one study evaluated this variable, and there was no statistically significant difference in the number of childbirths in the 6-year interval. The average birth interval for both groups was about 28 months.

Dimension 5 – Mothers' control of access to food & nutrition

Descriptive

Only two studies were included in this analysis, one conducted in Latin America and the other in Africa. The Latin American study focused on *Progresa*, the Mexican conditional programme, while the African study examined Zambia's Child Grant Program, an

unconditional programme. Both were implemented in rural areas. The studies employed an RCT design. The number of households studied ranged from 2519 to 10694.

Variables

The variable analysed in this study focuses on the decision-making process regarding what to buy and eat (Table 4). This variable is closely related to food insecurity, which includes the inability to make choices about food consumption due to limited access to food.

Findings

The results indicate the change in the choice of what to buy to eat from mothers' beneficiaries of the CTPs. According to Handa et al. (2016), participants in the unconditional programme in Zambia increased the amount spent on food (76%). They chose to buy different foods from the foods consumed before participating in the programme. The findings show that participants started buying more cereals and meats and reduced consumption of roots and tubers. This change also indicates an increase in the diversity of the participant's diets. The study of the Mexican programme (Rubalcava et al., 2009) also indicated an increase in the nutritional quality of the food consumed. Households in the treatment group consumed more vegetables (Difference: 0.59 SD: 0.09), fruit (Difference: 0.16, SD: 0.02), meat (1.64, SD: 0.14) and fewer tortillas and beans (Difference: -2.48, SD: 0.20). In this particular study, there was an assessment not only of diet diversity but also of nutrient intakes, indicating that programme participants consumed foods with higher nutritional quality.

The results for reducing household food insecurity (decline of 2.5 percentage points) are congruent with the findings of Handa et al. (2009). However, they are noteworthy in showing the impact on the severe food insecurity subgroup, with a reduction of 18 percentage points.

Dimension 6 – Mothers' control of education

No studies.

Dimension 7 – Mothers' control of access to employment

Descriptive of the characteristics and design of the studies

The analysis included two studies, one conducted in Chile and the other in Uruguay, focusing on CTPs implemented in urban and rural areas. The Chilean programme utilised an RDD and DiD analysis. The Uruguayan programme employed an RDD design. The sample sizes varied across the studies, ranging from 613 households to 32,308 observations.

Variables

The variables analysed in these studies focus on various aspects of the labour market and employment status (Table 5). It includes the following dimensions: labour market status (working or not), type of contract (regular, full-time, temporary, or permanent), employment sector (self-employed, private, or public), women's registered employment, and women's unregistered employment.

Findings

The findings related to the labour market and employment status reveal mixed effects. Firstly, for the entire sample, one study (Scarlato et al., 2016) for the Chilean programme showed that participating in the programme led to a 5% increase in the likelihood of being employed. However, when focusing specifically on women, the programme had an even more significant impact, with a 6.9% increase in the chance of employment. Regarding the type of contract, the programme positively affected the probability of having a regular employment contract, with a 9% increase. However, this effect was statistically significant only for men. There was no significant variation in the probability of being permanently employed. On the other hand, the programme increased the probability of having a temporary job, with a 9% increase for men and a 5% increase for women (Scarlato et al., 2016).

Regarding the employment sector, the programme affected men and women differently. There was a 6% increase in the probability of being self-employed for women, while there

was no significant variation for men. For the entire sample, the programme increased the probability of working in the private sector by 5% and in the public sector by 2%. However, a significant variation in the probability of being in the public sector was observed only for women (Scarlato et al., 2016). The Chilean programme distinguishes itself by incorporating a comprehensive framework comprising 53 'minimum conditions.' This programme outlines a vast set of prerequisites across six dimensions, encompassing multifaceted aspects of deprivation: identification/legal documentation, health, education, family dynamics, housing, and employment and income.

For Bergolo and Galván (2018), when examining women's registered employment with the Uruguayan programme, the findings indicate that eligible women responded to the programme by significantly reducing their registered employment. Non-employment increased from 9% to 13%, while registered employment saw a reduction between 17.6% and 21.3%. These results remained consistent even when adjusting for household socioeconomic status. Regarding women's unregistered employment, eligible women showed an increase in the probability of being in an informal job. However, the estimates were not statistically significant. Unregistered employment increased between 6.8% and 8.8% (Bergolo and Galván, 2018).

Dimension 8 – Mothers' control of health care

No studies.

Tables -Results of studies separately for each dimension of mothers' control in their living environment

Table 3: Summary of findings on **Dimension 1 – Household resources**

Author, year, country	Study design and sample size	Variable measured	Finding	Appraisal assessment
Tommasi (2019), Mexico	RCT, 9017 households.	Women's bargaining power	The mother is estimated to control 47% of household resources in Progresa and 42% of non-Progresa eligible villages, roughly an increase of 12% in her control relative to the father.	Low risk of bias
		Maternal control of resources on demand for food	Mothers in the treated group control 8% more resources than those in the control group.	
Handa, Peterman, Davis & Stampini (2008), Mexico,	RCT, 10,188 households.	Women's decision-making regarding the expenditure of women's extra income	Progresa significantly affects a woman's decision-making in one realm: the ability to spend her extra cash. (Baseline: 5.4% of women had exclusive control over their extra income, 2 years follow-up: 39.7%)	Low risk of bias
De Brauw, Gilligan, Hoddinott, Roy (2014), Brazil	Propensity score weighting analysis based on repeated surveys. Comparison 1: 2733 and Comparison 2: 4105.	Women's decision-making power regarding the purchase of durable goods and children's health expenses	The increases in decision-making power regarding the purchase of durable goods and children's health expenses are significant at the 5% level or better rather than at the 10% level, and an additional coefficient estimate is significant at the 10% level; that is, an increase in women's decision-making regarding children's clothes. (Standard errors: - Durable Goods: Comparison 1: 0.041* - Children's health expenses: Comparison 2: 0.038**)	Low risk of bias
Bergolo, Galván (2018), Uruguay	RDD. 613 households	Who decides how much to spend on food at home?	There is an increased probability that women in eligible households perceive that they make decisions by themselves. (Increase by women by 12.2%)	Low risk of bias
		Who decides how to spend any additional	There is an increased probability that women in eligible households perceive that they make decisions by themselves.	

		money received (e.g. from work, new state transfer and gifts.	(Increase by 6.7 (0.037) -1.2% (0.037))	
Handa, Seidenfeld, Davis, Tembo & Zambia Cash Transfer Evaluation Team (2016), Zambia	RCT, 2519 households.	Saving by: - Owning livestock – Amount saved in last three months	The programme impact on owning any livestock is 21 percentage points, from the baseline share. (Ownership of: - Chickens: 15-point increase, - Goats: 3-point increase, - Ducks: 3-point increase, - Cattle: 8-point increase. – Any savings last three months: baseline was 16 per cent, and in 24 months, follow-up was 47 per cent (control was 22 per cent). – Log amount saved last three months: baseline: 1.74 ZMW, in 24 months follow-up was 5.29 ZMW (control was 2.31 ZMW).	Low risk of bias
Rubalcava, Teruel, Thomas (2009), Mexico	RCT, 10694 households.	Saving (financial savings and saving by owning some livestock)	The CTP households own significantly more cows, horses, donkeys, and particularly more chickens and turkeys. (Number of chickens and turkeys: Difference: 0.36. Number of cows: Difference: 0.16 .Number of horses and donkeys: Difference: 0.07)	Low risk of bias

Table 4: Summary of findings on **Dimension 4 – Sexual and reproductive rights**

Author, year, country	Study design and sample size	Variable measured	Finding	Appraisal assessment
De Brauw, Gilligan, Hoddinott, Roy (2014), Brazil	Propensity score weighting analysis based on repeated surveys. Comparison 1: 2733 and Comparison 2: 4105	Women's decision-making power regarding the use of contraception	Bolsa Família associated with a nearly 10 per cent increase in women being the sole decision-makers regarding contraception use. Standard errors for contraception: Comparison 1: 0.045**, Comparison 2: 0.037** In urban areas, the impacts on contraception are even larger and more significant, with increases in the range of 16-18%. Meanwhile, Bolsa Família was not associated with a significant increase and possibly even reductions in women's decision-making power in rural areas.	Low risk of bias
Feldman, Zaslavsky, Ezzati, Peterson, Mitchelll, (2009), Mexico	RCT. 6157 for the 2-year follow-up and 1737 for the 5-year follow-up.	Contraceptive use	Heads of household (titulares) were more likely to use modern contraceptives than were women in the control group after the 2-year follow-up. However, there was no difference in probability of use between those who had been beneficiaries for 4 six years (the control group) and those in the intervention arm who had been in the scheme for 5-years 2 years follow-up: The titulares had a 2.3% increase from the baseline, whereas the controls had a 0.7% increase. A difference in log odds of 0.16 (p = 0.02). The number is not statistically significant for the 5 years follow-up.	High risk of bias
		Birth spacing	Holders and controls had a similar likelihood of experiencing subsequent childbirths. Average of 28 months, hazard ratio = 1.04; p = 0.41	

Table 5: Summary of findings on **Dimension 5 – Food & Nutrition**

Author, year, country	Study design and sample size	Variable measured	Finding	Appraisal assessment
Handa, Seidenfeld, Davis, Tembo, & Zambia Cash Transfer Evaluation Team (2016), Zambia	RCT. 2519 households	The decision of what to buy and to eat	There is a clear shift away from roots and tubers (primarily cassava) and towards protein-dairy and meats, indicating improvements in diet diversity among CGP recipients. The spending on food increased by 76% (Zambia's currency-ZMW 11.60). The largest share of this increase goes to cereals (ZMW 4.54) and meat (ZMW 2.44), and there is a reduction in tubers (ZMW 0.92).	Low risk or UNSURE
		Food insecurity: limited or uncertain access to adequate food	The programme reduces a household's food insecurity score by 2.5 percentage points. The receipt of the programme arm had a higher percentage of people 'not severely food insecure' (36 per cent) compared to the control group (16 per cent).	
Rubalcava, Teruel, Thomas, D. (2009), Mexico	RCT. 10694 households	Choose what to buy and eat	Households in the treatment group consumed more and higher-quality nutrients (more vegetables, fruit, meat and fewer tortillas and beans). Calories: Difference: 94. Protein per calorie: Difference: 0.06. Vegetable: Difference: 0.59. Fruits: Difference: 0.16. Meat: Difference: 1.64. Tortillas and bean: Difference: -2.48.	Low risk of bias

Table 6: Summary of findings on **Dimension 7. Access to employment**

Author, year, country	Study design and sample size	Variable measured	Finding	Appraisal assessment
Scarlato, D' Agostino, Capparuci (2016), Chile	RDD and DiD. 32,308 observations.	Labour market related to status (working or not)	For the total sample: 5% increase in employment after participating in the programme. For women: 6.9% more chance of being employed	Low risk of bias
		Type of contract (regular, full-time, temporary, or permanent)	The programme is associated with an increased the probability of having a regular employment contract of 9%, but the effect was only statistically significant for men. There is no significant variation in the probability of being permanently employed. The programme is associated with an increase the probability of having a temporary job (men 9%, women 5%)	
		Employment sector (self-employed, private, or public)	The programme is associated with an increased probability of women in the intervention arm being self-employed of 6%, while no significant increase was shown for men. For the whole sample, the programme was associated with an increased probability of working in the private (5%) and public (2%) sectors, but there is only significant increase in the probability of being in the public sector for women (2%)	
Bergolo, Galván (2018), Uruguay,	RDD. 613 households	Women's Registered Employment	Eligible women respond by significantly reducing their registered employment. Overall, non-employment increased by 9% and 13%. For registered, there was a reduction between 17.6% and 21.3%. Similar results when adjusting for household socioeconomic status	Low risk of bias
		Women's Unregistered Employment	Eligible women increased their probability of being in an informal job. However, estimates are not statistically significant. For unregistered jobs was an increase between 6.8-8.8%.	

DISCUSSION

History and original objectives of the CTPS

The first point that stands out among the results is the small number of studies included and the initial publication date. Only eight studies were selected from an initial screening of 3,071: the first publication dates back to 2008. These results suggest that academic interest in this topic has a relatively recent historical basis. This temporal context seems coherent with the history of CTPs since they were initially developed and implemented to reduce infant mortality and improve health-related outcomes in children (Cecchini & Soares, 2015; Nagels, 2021). Only more recently has the mother come to be seen as a critical figure in CTP and as study outcomes related to mothers.

The geographical distribution may also follow this historical trajectory since the first CTP programmes were implemented in Latin American countries in the 1990s and, more recently, expanded to the African continent. Suppose the studies on the African continent follow the same history as the Latin American studies. The impact of the programmes on mothers, especially in a more subjective content, such as control in the environment, will only gain strength in the coming years once the studies on child development have been consolidated.

The decision-making of the use of cash transfers and the use to buy food

This topic presents itself as an intersection between dimensions 1 and 5 since the results indicate that mothers in the treatment groups tend to have more control over resources and that they tend to invest in buying food. The money tends to have been taken as the 'mothers' money' (Handa et al., 2009). Especially concerning the demand for food, the results suggest that CTPs can strengthen mothers' decision-making power in family nutrition (Harris-Fry et al., 2018; Ramírez-Silva et al., 2013; Zembe-Mkabile et al., 2018).

Specifically for dimension 5, the results of this analysis highlight the impact of CTPs on the decision-making process of mothers regarding what to buy and eat, both in the Mexican conditional programme (Rubalcava, Teruel and Thomas, 2009) and in the

Zambian unconditional programme (Handa et al., 2016), both of which used a randomised clinical trial (RCT) design for evaluation. Strikingly, the results indicate that participants in the unconditional CTP in Zambia increased the amount they spent on food by 76 per cent (Handa et al., 2016). Almost all the money was invested in food, which led to the discussion of food insecurity, which was also confirmed in the study (with a reduction of 18 percentage points). There is a clear link between being able to decide what to buy and eat and food insecurity for the most economically vulnerable mothers. Another result is the quality of the diet.

Beneficiaries chose to buy different foods from those consumed before participating in the programme, increasing their consumption of cereals and meat, and reducing their consumption of roots and tubers, for example. Evidence shows that families in the treatment group consumed more vegetables, fruit and meat and fewer tortillas and beans (Rubalcava et al., 2009). However, these results are limited to a sample of just two studies. In the literature, the discussion about the quality of the diet of CTP beneficiaries is inconclusive. Studies on the diet of children of women who benefit from CTP show improved diet quality and little significant change (Ramírez-Silva et al., 2013; Monteiro et al., 2014; Martins and Monteiro, 2016).

In summary, the evidence that mothers have more control over the money received through the programmes compared to other sources of income highlights the importance of these programmes in improving women's economic empowerment, as observed in the studies of dimension 1. However, this money still seems almost exclusively used to buy food (Brauw et al., 2014; Handa et al., 2016; Rubalcava et al., 2009). Especially in more vulnerable populations, the impact tends to be more significant, as the baseline is even more disadvantaged (De Brauw et al., 2014) or is in a condition of severe food insecurity (Handa et al., 2016).

Savings and livestock ownership

An innovative finding of this review is the results that suggest that there are CTPs with a positive impact on household savings, specifically regarding small animal husbandry and cash savings. Significant increases in the ownership of small livestock, animals, and poultry, such as chickens and ducks, indicate a savings strategy adopted by families in

rural contexts. This is the first time that results have been found on this issue of saving through small animals; other reviews on the impact of mothers on the use of money have not mentioned these singularities. These results are part of very recent findings. For example, newer research (Nkomoki et al., 2019) highlights the importance of livestock ownership in improving food security and nutrition, and other studies published consistent positive effects of CTP on livestock ownership and income (Kafle et al., 2019). Regarding cash savings, it is interesting to note that only the one unconditional programme offered data on cash savings. This finding aligns with the discussion on unconditional programmes as schemes that tend to offer greater autonomy in making decisions (Baird et al., 2014).

Differences between rural and urban contexts

The implementation contexts of the studies, divided between rural environments and urban and rural contexts, highlight the importance of considering the different dynamics that can arise in urban and rural areas regarding cash transfer policies and mothers' control in the environment. It is interesting to note the marked difference in dimension 4, sexual and reproductive rights.

The results of this systematic review point to the complexity of the impact of CTPs on the sexual and reproductive rights of beneficiary mothers. While there was evidence of an increase in decision-making power in urban areas, of around 16-18% for the Brazilian programme (Brauw et al., 2014), this improvement was not uniform and, in some rural areas, there may even have been a reduction in women's decision-making power. In addition, the results on contraceptive use varied, with an increase observed in rural areas but without significant differences in the long term (Feldman et al., 2009). Birth spacing was not significantly affected. These variations highlight the influence of geographical context and group characteristics on the impact of these programmes, emphasising the need for further research to understand their effects on mothers' sexual and reproductive rights. Although the results are informative and interesting for considering the differences in the impact of CTPs in urban and rural contexts, the limited number of studies in dimension 4, only 2 studies, prevents more conclusive interpretations.

Employability and gender issues

The results of studies on the impact of CTP on beneficiary mothers' access to employment present mixed and intriguing results. For example, Scarlato, Agostino, and Capparuci (2016) showed that participation in the programme increased the likelihood of employment for the overall sample; the positive effect of obtaining regular employment contracts was observed mainly in men. However, Bergolo Galván (2018) found that the programme significantly reduced registered employment among women, increasing unemployment and decreasing formal employment. The results of both studies, although mixed in their outcomes, present a clear indication of the need for methods that are sensitive to the differences in the characteristics of the jobs performed by men and women, and not only on the beneficiaries of the CTP, which takes up the discussion about the controversial impact of the CTP on gender differences (Gil-García, 2015; Nagels, 2021; Scott et al., 2017). In summary, when stratifying the results by status, type of contract, and employment sector, it becomes evident that a significant proportion of women are engaged in informal, temporary, and self-employed jobs. In cases where women have regular employment, it is predominantly in the public sector, albeit in a small proportion (2.5%) (Scarlato, D'Agostino & Capparuci, 2016).

This distinctiveness of the number of conditions of the Chilean programme (Scarlato, D'Agostino & Capparuci, 2016) precipitates an essential discourse on the burden of conditionalities(Cookson, 2018). Notably, one of its consequences is the discernible impact on women's employability despite the nuanced and sometimes contentious nature of this employability. The mothers of these programmes must meet the requirements of 56 conditions to remain in the programme. Consequently, these women may find themselves increasingly marginalised within the ambit of such social policies, further diminishing their prospects for integration into the labour market. As observed by an ethnographic study, the challenges for families, especially mothers, to register and ensure that the conditionalities are met become onerous in their daily lives (Cookson, 2016; Cookson et al., 2023).

A point for discussion arises from the observation that the lack of services targeted at reducing care responsibilities may explain why women "prefer" self-employment over regular and full-time jobs. The word "prefer" prompts a deeper exploration of the

reasons behind women's employment choices. This point raises the discussion of whether women are in informal employment by choice or is the only option for women with low education and limited professional experiences in a competitive market, as observed in studies about the impact of poverty on women (Banerjee et al., 2017). Alternatively, maternity might fit with self-employment as the only viable option for women who need to reconcile childcare and home responsibilities in environments with scarce childcare services. This discussion highlights the need to consider the broader socioeconomic context, including the possibility of insufficient provision of extra-familial childcare, employment support, and training opportunities for women (Nagels, 2021). It is worth remembering that although the results discussed here are rich in the characteristics of mothers' employability and in the results compared between male and female beneficiaries, these results refer to only two studies (Bergolo & Galván, 2018; Scarlato et al., 2016). For more conclusive discussions, other studies will need to be included.

Lack of studies on critical dimensions

The lack of studies on essential dimensions such as 'movement/mobility', 'legal & political resources', 'education' and 'health care' highlights the need to explore new fronts of research on CTPs and mothers, as well as opening up the discussion on the absence of studies on such crucial dimensions as social determinants of health (Dahlgren & Whitehead, 2021; Eckersley, 2015; Marmot & Allen, 2014; Syme, 2004). Each of these dimensions can play a critical role in influencing maternal health and, in the long term, child development and this family's active participation in society.

In particular, the absence of studies on the dimension of 'access to education' sheds light on a crucial dimension for women that is so well-established in the literature as a social determinant of health (García & Saavedra, 2017; Gugushvili et al., 2018; Jones, 2016), on their status and social participation (Layte & Whelan, 2014), but also on education as a pathway to social mobility for mothers and their families out of poverty (Pick & Sirkin, 2010). It is peculiar that social determinants directly related to child health and development, such as maternal education and access to health care, have not been included in any study. If, on the one hand, all conditional income programmes, 7 out of 8 of the included studies here, include children's school attendance and the use

of health services (such as vaccinations and routine appointments) as conditionalities for receiving the CTP benefit, on the other hand, no studies on the dimensions of education and access to health care were found for mothers.

Strengths and limitations

The strengths of this study include its originality, extensive database search (17 databases based on economics, health, psychology, public policy, and sociology, for example), and the richness of information found in the included studies. The studies included in the analysis provided valuable insights and data for the research question. The different study models adopted, emphasising RCTs and quasi-experimental approaches, show methodological robustness and quality assessment, showing a low risk of bias for most studies.

There are also some limitations to consider. The databases searched were conducted in May 2019 and need an update to include more recent studies. However, any update should not include studies on the impact of CTP during the period of the COVID-19 pandemic, as this is a period with specific stressors, for example, for maternal mental health in a more intense way, which would be a bias for this review. Additionally, the limited number of studies in specific control dimensions made it impossible to conclude the results found. Still, on the reduced number of studies included, sub-questions related to the duration of the mother receiving the benefit, the mother's age, and the difference between conditional and unconditional programmes were not analysed as proposed in the protocol. This limitation arose due to the need for more data from the included studies.

Research agenda

Future research could focus on better understanding the mechanisms by which these programmes affect mothers. Other research could also discuss adverse factors of increased control over resources. For example, concerns are emerging regarding the potential for an increased risk of marital violence. However, this was not the scope of this review and can be included in future research. Future research could involve qualitative methods such as ethnographic studies, interviews, and surveys to better

understand the experiences and perspectives of mothers participating in these programmes. Also, the database could include the grey literature, as several reports in the area of international development use cash transfer policies and have not necessarily been published in peer-reviewed journals. Another essential characteristic to be analysed would be the ethnicity and race of the mothers.

CONCLUSION

The central question of whether the CTPs impact mothers' control in their living environment was answered by a narrative synthesis of the studies on each of the eight dimensions of mothers' control, followed by a discussion of the results for themes. The results indicate recent academic interest in the impact of CTP on the dimensions of control in the mother's living environment. Most of this interest is still in Latin American studies, with the potential to expand to more studies on the African continent.

There are indications of an increase in beneficiary mothers' control over financial resources. However, these resources tend to be directed mainly towards the purchase of food. Most of the studies talk about the use of money to buy food and the impact of reducing food insecurity, raising the question of how much the amount of money seems to impact just the most basic survival needs. Innovative results indicate that CTPs positively impact small animal husbandry, revealing a savings strategy in rural contexts, a recent finding not addressed in previous reviews on the impact of mothers on the use of money. On sexual and reproductive rights, CTPs have complex impacts and differ between urban and rural areas. While there was evidence of increased decision-making power in urban areas, this improvement was not uniform. In some rural areas, there may even have been a reduction in women's decision-making power. Regarding employment and gender bias, the findings support the argument that women with low skills and capital are more likely to engage in informal employment than to find formal employment. These insights emphasise the need for policy interventions that address gender biases and provide adequate support for women accessing regular, full-time employment opportunities.

The principle that CTP is 78fundamental to alleviating poverty indicates the severe and multiple degrees of vulnerability these families are subjected to, and the results seem

to be limited to basic survival needs (food for themselves and their families and reducing food insecurity). However, the mothers continue to live in poverty. It may be that the lack of studies on dimensions such as 'movement/mobility', 'legal & political resources', 'education' and 'health care' is associated with the complexity of these dimensions and the need for a set of vulnerabilities to have been remedied before these women/mothers can make changes in these dimensions of control in their environment.

Understanding the impact of mobility, legal resources, and mothers' education could inform the formulation of more comprehensive and targeted policies for better family and child development. This systematic review speaks to such micro-level subjective transformations rather than broader transformations of poverty status, in which evidence of substantial and enduring change requires longitudinal data (Molyneux, Jones and Samuels, 2016)

Finally, CTPs have positively impacted women's savings, resource control, and decision-making power. These findings highlight the potential of cash transfers to empower women and improve their economic situation. However, it is essential to note that CTPs alone may not address broader issues such as gender inequality and eliminating poverty. To achieve transformative change, CTPs need to be complemented by comprehensive policies that address structural barriers, promote gender equality, and provide support for holistic development.

QUASI-EXPERIMENTAL STUDIES

PhD context for Study 2/Paper 2 and Study 3/Paper 3

Access to the databases

Access to the databases was an extended process, as detailed in the timeline below (Figure 1). The initial engagement with the Pelotas Cohort researcher commenced in September 2018, culminating in the final requested data's reception by May 2023. Concurrently, interaction with another researcher possessing data from the *Cadastro Único*, a database maintained by the Ministry of Social Development, provided crucial insights into the reception of the BFP.

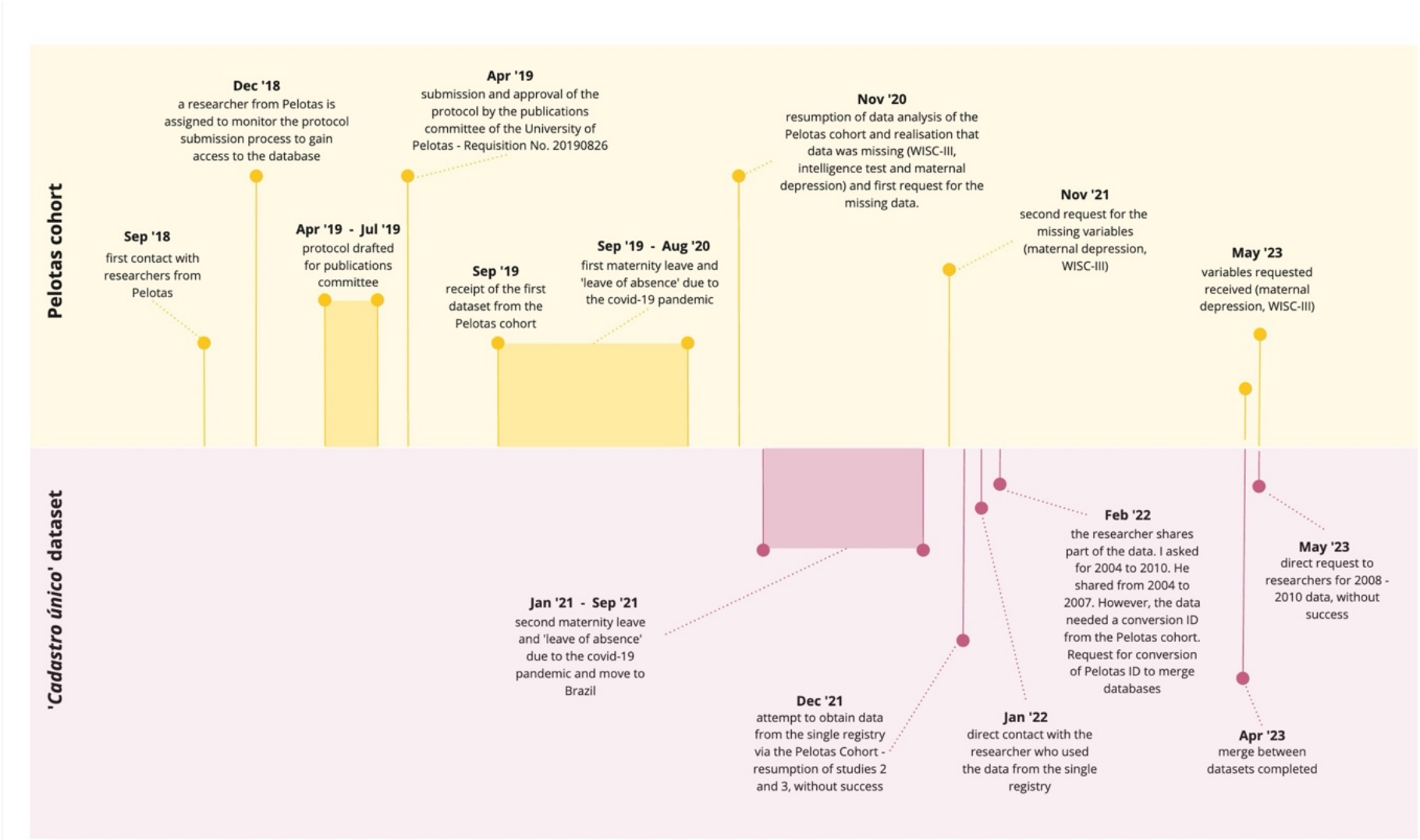


Figure 1: Access to databases timeline

Stages

The initial stage involved reading all questionnaire items from the Pelotas Cohort across all analysis periods and categorising them into variables and analysis periods (Appendices 3). This step was crucial for developing the Pelotas Cohort Publication Committee submission protocol.

Codebook

The protocol submission and the receipt of the initial database were rapid. However, the received database lacked key variables for my thesis, such as intelligence tests and depression scales. Upon reviewing the first database version, I realised no “codebook “ was available. Consequently, I created this material to comprehend the available data.

While awaiting the missing data, I analysed the available data and assessed its feasibility. During this period, I crafted a comprehensive codebook for the database (Appendices 4). This process required significant effort to organise, like assembling a patchwork quilt. It involved drawing from various literature sources on poverty, child development and the mothers’ control. The resulting codebook encapsulated over 800 variables sourced from the Pelotas cohort database, offering insights into missing data, response frequencies, and variable characteristics.

Variables

As I received the data, I cleaned and organised the datasets, transforming questions into variables and creating those that would be actively utilised. A crucial step in this process involved a comparative analysis between the data from questionnaire application guidelines (from the Pelotas Cohort) and previous studies employing the same variables. This comparison led to the decision to exclusively utilise psychometrically validated instruments for the Brazilian population, chosen for their reliability and outcome robustness.

The details of the variable choices, comparing the planned/idealised with the reality of the included data, can be observed in Figure 2.

	PERINATAL	3 MONTHS	1 YEAR	2 YEARS	4 YEARS	6 YEARS
CHILD COGNITIVE DEVELOPMENT						WISC – Wechler Intelligence Scale for Children Mother's perception of child readiness and performance at school
CHILD SOCIOEMOTIONAL DEVELOPMENT					CBCL – Child behaviour test Interaction with other children	Interaction with other children
CHILD MENTAL HEALTH						DAWBA - Development and Well-Being Assessment for Children and Adolescents
MOTHER AND CHILD RELATIONSHIP				External observation of mother and child interaction	External observation of mother and child interaction	CTSPS - Parent-Child Conflict Tactics Scale
MATERNAL DEPRESSION	Self-perception of depression	Edinburgh Postnatal Depression Scale (EDPS) SRQ 20 - Self Reporting Questionnaire (for non-psychotic disorders)	Edinburgh Postnatal Depression Scale (EDPS) Self-perception of depression	Edinburgh Postnatal Depression Scale (EDPS) Self-perception of depression	Edinburgh Postnatal Depression Scale (EDPS) Self-perception of depression	Edinburgh Postnatal Depression Scale (EDPS)

Variables Planned But Not Used Variables Used

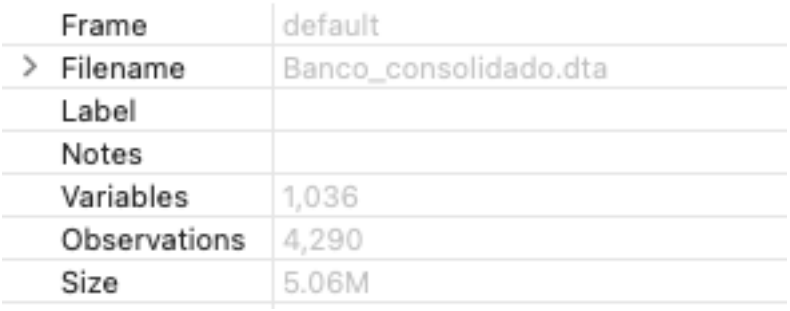
Figure 2: Comparison of planned and adopted variable choices

Merging datasets

The ID enabling the merge between the Pelotas Cohort dataset and the *Cadastro Único* receipt data was only obtained in 2023. The database provided rich details about the BFP, including whether beneficiaries received the programme each month between January 2004 and December 2007. It also indicated whether they withdrew the money from the bank and the amount received. It also presented information similar to the four other Brazilian social programmes. However, the Pelotas Cohort dataset was in a 'wide' format, while the *Cadastro Único* data was in a 'long' format.

```
Data                                Long   ->   Wide
-----------------------------------------------------------------------------
Number of observations            33,075   ->   1,003
Number of variables                    3   ->   49
j variable (48 values)         Ano_mes_1   ->   (dropped)
xij variables:
                                   sacado   ->   sacado2004_1 sacado2004_10 ... sacado2007_9
-----------------------------------------------------------------------------
```

I noticed that merging both datasets would require familiarity with STATA. Upon transforming the *Cadastro Único* data into a 'wide' format and successfully executing the merge, my new database comprised slightly over 1,000 variables. This new dataset necessitated another round of data cleaning.



Study design

The initial aim was to implement a Regression Discontinuity Design (RDD)

I structured the database with the cleaned data and organised outcome variables to accommodate the analysis design. Initially, the goal was to conduct a Regression Discontinuity Design (RDD). However, the data did not prove amenable to this design. The selection of RDD was based on its robustness in controlling confounding factors in studies where experimental methods are not feasible. Additionally, RDD has been widely used as a reliable design for assessing the impact of CTPs on various outcomes in developing countries.

Examples include the evaluation of *Comunidades Solidarias Rurales* in El Salvador (Brauw, 2012), the CESSP Scholarship Programme in Cambodia (Filmer & Schady, 2011), Honduran PRAF in Honduras(Galiani & McEwan, 2013), PANES in Uruguay (Manacorda et al., 2011), and the *Bono de Desarrollo Humano* in Ecuador (Ponce & Bedi, 2010).

However, I had already encountered indications that conducting an RDD with Pelotas data would pose challenges. A thesis using the same dataset for a different outcome had a similar intention of employing RDD, but it was infeasible at that time (Labrecque, 2017). The author explained that the data were not linked when the thesis was conducted, and the household per capita income used to assign the programme was not strictly enforced. However, having since linked the data, I believed it would be possible to run an RDD.

Income variable

A careful and critical examination of the data has led me to realise that the primary variable, 'income', was not entirely reliable. In the Pelotas Cohort, the income variable was self-reported, potentially allowing respondents to bias the information. Moreover, the prevalence of informal employment, common among impoverished populations, added a layer of uncertainty to the data. Informal employment introduces variability in the total income from month to month. Consequently, the income for one month may have differed from that reported in another month, with the questionnaire capturing information from the month preceding the interview. An additional consideration, specific to beneficiaries of the BFP and other social programmes, was that recipients tend to include the funds from these programmes as part of their self-reported monthly income.

RDD Assumptions

In RDDs of CTPs worldwide, determining eligibility and establishing the cut-off point for creating the experimental and control groups involves using the 'income' variable. However, given the income variable's recognised characteristics and low reliability in the Pelotas Cohort, one of the critical assumptions of RDD could not be satisfied.

The RDD design relies on several assumptions for the validity of the estimated treatment effect. These assumptions include: the following assignment to treatment is based on a running variable; the running variable is continuous; the functional form of the relationship between the running variable and the outcome variable is continuous; there are no other confounding variables that affect both the running variable and the outcome variable; and there is no manipulation of the running variable. The 'income' variable from the Pelotas Cohort would precisely violate the last assumption, as it, being the running variable, could be manipulated by individuals to alter the probability of treatment assignment. Once the

running variable was manipulated, the causal interpretation of the estimated treatment effect would be compromised. Thus, the RDD was no longer recommended.

Comparison groups

As explained in the subsequent papers, four control groups were created as an alternative. Establishing multiple control groups ensured that some confounding variables would be controlled. This approach provides more robust control over potential influences and enhances the reliability of the comparative analysis.

Move from mediation analysis to outcome analysis.

Following the pathway proposed in the introduction of this thesis, variables about the mothers were initially understood, based on the literature, as potential mediators of infant cognitive development. However, this hypothesis was not substantiated as detailed in the subsequent paper 2. Given the null result found on paper 2, pursuing a mediation analysis for paper 3 became impractical.

Consequently, the variables initially conceived as potential mediators in the proposed pathway were reframed as outcomes. Furthermore, there was a shift in instruments to measure them as outcomes. While, if considered as mediators, variables from earlier points in time would have been utilised, conducting an outcomes study led to the choice of validated instruments containing questions associated with dimensions of maternal control and mothers' symptoms of depression. Details of this choice are described in paper 3. Thus, mothers' control in their living environment and maternal depressive symptoms were redefined as outcomes.

PAPER 2: CASH TRANSFER AND CHILD COGNITIVE DEVELOPMENT IN BRAZIL: EVIDENCE FROM THE 2004 PELOTAS BIRTH COHORT

Abstract

This study addresses a critical gap in knowledge regarding the impact of the *Bolsa Família* Programme (BFP) on cognitive development in early childhood. A longitudinal approach was adopted using data from the 2004 Pelotas Birth Cohort and the Brazilian Ministry of Social Development dataset (Cadastro Único) to examine the association between BFP exposure during a child's first years and cognitive development at age 6. Four distinct control groups were established for comparison, each focusing on different factors such as per capita income, wealth index, early and later years, and receiving other social benefits during early years. Contrary to the hypothesis, the study findings indicate no significant impact of the BFP on the cognitive development of 6-year-old children. An in-depth analysis of the correlation between income per capita and cognitive development reveals a potential 5.9-point increase associated with a 100-reais income per capita increment for BFP beneficiaries. However, the mean per capita allocation from the BFP was only 17 reais, suggesting that observed cognitive enhancement might be contingent on more substantial financial support. It is crucial to interpret these results cautiously, avoiding premature conclusions or disqualification of the BFP, considering its proven positive effects on various other child development indicators. The study contributes valuable insights to the international literature on the impact of cash transfer programmes on cognitive development and is pioneering in BFP studies.

Key-words: cognitive development, WISC-III, *Bolsa Família* Programme, cash transfer programme, Pelotas Birth Cohort

INTRODUCTION

Most of the world's children living in poverty are in low and middle-income countries. According to a special series in *The Lancet* about early child development, it was estimated that more than 250 million children under 5 years old in low and middle-income countries were at risk of not reaching their potential development (Black et al., 2017). In most cases, these children were exposed to extreme poverty or stunting, constituting 43% of the total population in this age group. Living in poverty has been associated for decades as one of the primary risk factors for low cognitive development in childhood.

Numerous studies have illuminated the intricate relationship between socioeconomic status and cognitive abilities, shedding light on the profound impact that poverty can have on a child's cognitive development (Duncan et al., 2011; Farah et al., 2006; Hamadani et al., 2014; Noble et al., 2007; Noble et al., 2015). Research has revealed that individuals who experience persistent poverty tend to exhibit lower intelligence scores than those who have never experienced poverty (Farah et al., 2006; Hamadani et al., 2014). The timing of poverty exposure during a child's developmental trajectory emerges as a crucial factor, as poverty experienced at an early stage of development has been linked to diminished intelligence (Najman et al., 2009; Tomalski et al., 2013). Moreover, the duration of exposure to poverty has shown an alarming correlation with cognitive outcomes, with prolonged periods of economic hardship posing even graver consequences (Schoon et al., 2012). Studies indicate that, with each additional exposure to poverty, intelligence scores tend to decrease, underscoring the cumulative and long-lasting nature of the detrimental effects of poverty on cognitive development (Otero et al., 2003). Therefore, the earlier children are exposed to poverty, the higher the likelihood of their cognitive development being compromised; public policies aimed at poverty reduction should concentrate on the early years of a child's life. One such social policy that addresses poverty reduction and improvement in children's health is Cash Transfer Programmes (CTPs).

While there is extensive research on CTPs and various aspects of child health and development, the research explicitly linking them to child cognitive development is perhaps not as robust. A significant contribution to the literature on this subject comes from a study

by Paxson and Schady (2010). They investigated the effect of CTPs in Ecuador and reported a positive correlation between cash transfers and improvements in cognitive development measurements in children. Similarly, a study (Fernald et al., 2009) found that CTP in Mexico significantly improved cognitive, language, and motor development in young children. Another relevant study in this aspect (Macours, Schady and Vakis, 2012) explored the medium-term impacts of a CTP on the cognitive and behavioural outcomes of young children in Nicaragua. The study found that the transfer programme substantially impacted cognitive development, with children in households receiving transfers performing better on cognitive ability tests.

On the other hand, one study (Baird, McIntosh and Özler, 2011) investigating a programme in Malawi found no significant effect on cognitive development. The authors suggest this might be due to the short timeframe of the study or the specific context of Malawi, which might limit the effectiveness of cash transfer interventions. Another study (Fernald et al., 2009) investigating an extensive cash transfer programme in Ecuador reports mixed results, with gains in cognitive development observed only among those children whose mothers had higher cognitive abilities. No significant improvement was noticed for children whose mothers had lower cognitive skills. In the context of poverty and CTPs, Brazil has remarkable figures in both areas. Approximately half of Brazilian children live in poverty, while the country hosts one of the world's largest conditional CTPs, the *Bolsa Família* Programme (BFP).

A UNICEF publication (Paz & Arévalo, 2018) revealed that 49.7% of Brazilian children live in poverty or experience multiple deprivations, spanning key domains such as education, information, housing, sanitation, water access, and child labour. National data analysis indicated that 18 million Brazilian children (34.3%) struggle with monetary poverty, living in households with monthly incomes below US$100. Among them, 6 million (11.2%) contend solely with income deprivation, while 12 million (23.1%) face deprivation in at least two critical categories. Launched in 2003, the BFP was designed to consolidate various pre-existing cash transfer initiatives, including *Bolsa Escola* (focused on promoting education), *Auxílio Gás* (aimed at assisting in cooking gas expenses), *Bolsa Alimentação* and *Cartão Alimentação* (both centred around ensuring access to adequate food and nutrition), aimed at

addressing specific challenges faced by low-income households. Initially serving around 3.6 million families, the programme rapidly expanded its reach, eventually encompassing approximately 14 million families by 2016, equivalent to roughly 21% of Brazil's total population.

Most of the evaluation studies of BFP have primarily focused on assessing its impact on child health and education. Previous research has explored the effects of BFP in reducing child mortality rates, particularly concerning poverty (Rasella et al., 2013), enhancing food availability and improving dietary habits (Martins and Monteiro, 2016), as well as increasing access to healthcare services (Rasella, Aquino, & Barreto, 2010; Shei, Costa, Reis, & Ko, 2014). In education, a systematic review has also presented promising outcomes regarding the influence of BFP on school attendance and dropout rates (Santos et al., 2019).

Nevertheless, despite the significant progress made across various dimensions of child health and access to education, there exists a gap in the knowledge concerning the impact of BFP on cognitive development, as no studies have explored this aspect thus far. The current study addresses this research gap by examining how BFP affects cognitive development, measured by intelligence scores. This research represents the inaugural attempt to analyse this relationship by linking exposure to BFP during a child's early years (first three years) to cognitive development during childhood (at age 6) using a high-quality birth cohort linked to a government database. The hypothesis is that BFP during a child's early developmental years may enhance cognitive development at 6.

METHODS

This study adopted a longitudinal approach to evaluate the impact of the BFP on the cognitive development of 6-year-old children, utilising data from the 2004 Pelotas Birth Cohort and a dataset sourced from the Brazilian Ministry of Social Development via the Federal Government's Single Register for Social Programs (*Cadastro Único*).

Study site- Pelotas City

Pelotas, located in the southern region of Brazil, stands as the third most populous city in Rio Grande do Sul, with an estimated population exceeding 340,000. Situated approximately 150 kilometres from the southern border of Brazil, neighbouring Uruguay, Pelotas sustains its economy through a diverse mix of agriculture, services, and industry. Pelotas exhibits a lower Gross Domestic Product (GDP) per capita, a diminished illiteracy rate, and an elevated Human Development Index (HDI) compared to national statistics.

Datasets

2004 Pelotas Birth Cohort

The 2004 Pelotas Birth Cohort, conducted at the Federal University of Pelotas (UFPel) in Brazil, is the third cohort in a series of longitudinal cohort studies. This research initiative commenced with the first Birth Cohort in 1982 and a subsequent cohort in 1993. A fourth cohort was initiated in 2015. The Pelotas Birth Cohort Study is one of the largest birth cohorts in low- and middle-income countries. All these cohorts remain active, with ongoing follow-up assessments.

This research focuses on the 2004 cohort, owing to the richness of its dataset, particularly about child development. Furthermore, the inception of this birth cohort closely aligned with the introduction of the BFP in Brazil in 2003, rendering it a pivotal point of investigation. The dataset comprises a series of six data collection sweeps, conducted at the 3-month, 1-year, 2-year, 4-year, 6-year, and 11-year intervals following birth, with retention rates of 95.7%, 94.3%, 93.5%, 92%, 90.2%, and 86.6%, respectively (Santos et al., 2011). Data collection at the perinatal wave occurred within 24 hours after birth at the hospital. These assessments incorporate various data sources, including structured interviews, validated psychometric tools, and observational measures. A comprehensive description of the 2004 cohort methods is available elsewhere (Santos et al., 2011; 2014).

Cadastro Único – Brazilian Ministry of Social Development

The dataset regarding the receipt of the BFP was sourced from an original database initially made available by the Brazilian Ministry of Social Development through the Federal Government's Single Register for Social Programs (*Cadastro Único*) for another research study (Jeremy et al., 2018). The original database provided information not only about BFP recipients but also about other social assistance programmes (*Bolsa Escola, Auxílio Gás*, *Bolsa Alimentação* and *Cartão Alimentação*). The database contained detailed information for each programme, including whether the beneficiary had withdrawn the funds from the bank, i.e., whether they had utilised the money for each month spanning from January 2004 to December 2007, and the corresponding payment amounts.

Linkage

The linkage between the national data from the Ministry of Social Development and the 2004 Pelotas Cohort was accomplished using unique IDs provided by the Pelotas Cohort team. All necessary precautions were taken to safeguard data confidentiality and ensure participants' anonymity. Manual adjustments were made when participant records did not match, resulting in the exclusion of six observations.

Exposure: *Bolsa Família* Programme (BFP)

The BFP was initiated nationally in Brazil in 2003, and eligibility criteria have changed over time. This study focuses on how the BFP operated in 2004.

Eligibility: Families become eligible for participation in the BFP by enrolling in the 'Ca*dastro Único*'. The Ministry of Social Development then assesses registered families to determine their compliance with programme eligibility criteria and suitability for enrolment[1]. The key characteristics defining eligibility for BFP benefits include:

- *Income criteria:* a family's monthly income per person should not exceed R$ 100 (approximately £20).

[1] https://www2.camara.leg.br/legin/fed/lei/2004/lei-10836-9-janeiro-2004-490604-publicacaooriginal-1-pl.html

- *Computerised selection:* The enrolment selection process was conducted using a computerised system that considers various factors, including family size, age composition, and declared income.
- *Responsible family member:* The individual must be at least 16, preferably a woman.
- *Prioritisation of families:* The entry follows this order: 1. Families identified as priorities, including *quilombola* (ethnic-racial groups), indigenous communities, recyclable material collectors, families dealing with child labour, and those with members liberated from slave-like labour; 2. Families with the lowest per capita monthly income; 3. Families with the most children and adolescents aged 0 to 17.

*Benefi*t: Once accepted, families received monthly BFP payments for two years, regardless of income fluctuations. Payment amounts varied based on family size, age, and declared income. The average BFP benefit was R$72.81 (approximately £15), representing less than 30% of the monthly minimum wage in 2004 (R$240 or approximately £50). Beneficiaries received an ATM card for withdrawals from *Caixa Econômica Federal*, one of Brazil's federal banks.

Conditionalities: Extremely poor and poor families were subject to health and education conditionalities. These included compliance with childhood immunisation schedules, growth, and development monitoring for children under 7, school enrolment and attendance for children aged 6-17, prenatal care for pregnant women, and health care controls for breastfeeding mothers. Schools and health centres monitored the conditionalities.

Outcome measure: cognitive development at the age of 6 years

In this study, cognitive development is understood as intelligence, following the concept established by Wechsler (Cruz, 2005). Thus, intelligence is "a global concept that involves an individual's ability to act purposefully, think rationally, and deal effectively with the environment". Wechsler is also the author of the Wechsler Intelligence Scale for Children-III (WISC-III), the psychometric measurement utilised in this research (Cruz, 2005).

At the 2004 Pelotas Cohort, during a subsequent follow-up when children reached 6, mothers or primary caregivers participated in interviews conducted by trained psychologists utilising the WISC-III. This psychometric test was validated for the Brazilian population

(Wechsler, 2002; Figueiredo, 2001) and was employed to assess children's intelligence. The WISC-III comprises four subtests: verbal (similarities and arithmetic) and performance (block building and picture completion).

Due to time constraints, a short-form version of the scale (Kaufman et al., 1996) was utilised, demonstrating a correlation exceeding 0.90 with intelligence score as measured by the full-scale version. Intelligence scores were utilised in two formats: as a total score, ranging from 40 to 120 points, and as a z-score, applying the following thresholds:

- For the total score, the traditional cut-off value is 70 points.
- For the z-score, intelligence scores were converted into z-scores, and a z-score below -1 was defined as a low score at age 6.

Covariates

The covariates included in this study were selected based on the literature on social determinants of health and a predictive model of cognitive development determinants assessed explicitly for the 2004 Pelotas Cohort (Camargo-Figuera et al., 2014).

- *Maternal characteristics during the perinatal period:* maternal schooling (years of formal education completed) and maternal age.
- *Household income and wealth score at perinatal*: the number of people living in the house; total household income (categorised into monthly cash income and income in minimum wages); income per capita (total household income divided by the number of people living in the same house); and a National Wealth Index questionnaire, named IEN (Barros et al., 2005). IEN is explained in detail in the following section—comparison groups.
- *Maternal Depressive Symptoms*: They were assessed during the perinatal period, at 1 year, 2 years, and 4 years follow-up using the Edinburgh Postnatal Depression Scale (EPDS). This 10-item scale, designed initially for postpartum depression identification, provides total scores ranging from 0 to 30, with higher scores indicating more severe depressive symptoms. Maternal depressive symptoms were defined using a validated cut-off score of ≥10 for screening major depressive episodes among adults from the general population in Brazil (Matijasevich et al., 2014).

Ethical considerations

In all follow-ups, mothers or legal guardians gave written consent to participate in the study, and the Research Ethics Committee of the Medical School of the Federal University of Pelotas approved all follow-up waves.

Comparison groups and data analysis

Participants

The full dataset comprises 4,231 infants born from January to December 2004, 99% of hospital births in all five hospitals in the urban area within the city limits of Pelotas. The present study's inclusion criteria required complete sociodemographic data collected during the perinatal period and cognitive data at age 6. Children with chronic illnesses, physical impairments, or severe mental conditions that could be linked to very low scores on psychometric assessments of cognitive development were excluded.

In numerical terms, the Pelotas Cohort dataset, containing data on WISC-III assessments at 6 years of age, comprised 3,533 observations. Meanwhile, the dataset derived from the *Cadastro Único*, which includes families receiving the BFP, covered 1,003 observations between January 2004 and December 2007. A study participants' flowchart is presented in Figure 1.

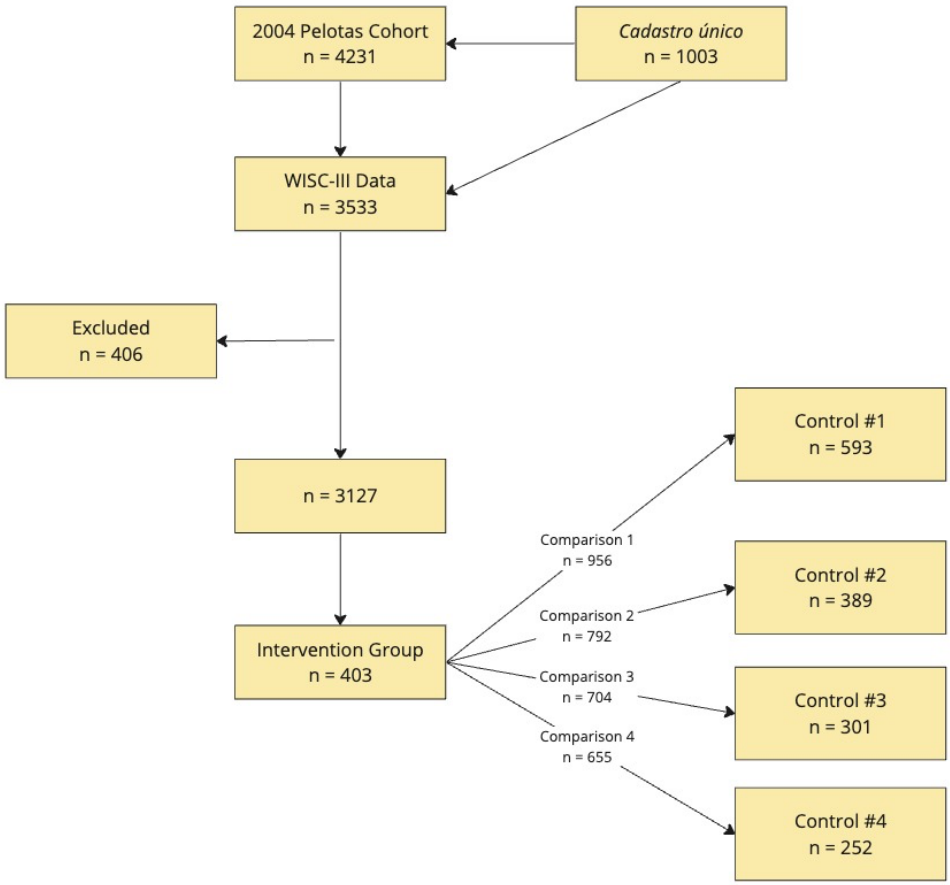


Figure 1: Study flow chart

The study targeted specific parameters to discern the expected differences in the WISC-III scores at the age of 6 years. To achieve this, I compared the average outcomes of the intervention group with those of four control groups, each designed for a distinct comparison:

I. **Comparison 1 – Per capita income below 100 Brazilian Reais:** This comparison assessed children who consistently received BFP versus those who did not but had the same income eligibility cut-off for BFP.
II. **Comparison 2—Wealth Index (IEN): The study** compared children in the intervention group who consistently received BFP with those who did not but had a lower wealth index, specifically falling into the IEN 1 strata (the poorest households).
III. **Comparison 3 – Early and later years:** This comparison examined children in the intervention group who received BFP consistently during the first 2 years of life (between 2004 and 2005) with children in the control group who initiated BFP receipt in 2006 or 2007 (after reaching 3 years of age).
IV. **Comparison 4 – Receiving another social benefit in early years:** In this comparison, children in the intervention group who received BFP consistently with those who were part of the *Cadastro Único* and were receiving other social benefits at the perinatal stage.

Intervention group – consistent BFP recipients (403 observations)

The linkage dataset, with 1,003 observations of individuals who received BFP, does not distinguish between those who received BFP for only a brief period and those who received benefits for nearly the entire duration of the years under analysis.

To address the observed heterogeneity and draw upon the literature emphasising the importance of consistent receipt of social benefits and the significance of childhood early years for cognitive development, the intervention group was defined to include children who received the programme for a minimum of 42 months (3 years and 6 months) during the initial 48 months of their lives (4 years). A total of 403 observations were included. The same intervention group was utilised in all four created comparisons.

Control 1 – per capita income below 100 reais (593 observations)

The dataset provided by the Ministry of Social Development lacked precise information on the total income of each participant. Consequently, income variables were derived from the

Pelotas Birth Cohort, consisting of a broad question ("How much is your family income?"), which did not specify whether participants chose to include BFP amounts or not. This posed a challenge to the reliability of the per capita income variable. As a result, the income variable, total household, and per capita income, was solely used as a cut-off point for creating the control group and not for the intervention group. The 100 reais per capita threshold adhered to the programme's eligibility criteria. A total of 593 observations were included.

Control 2 – IEN – wealth index (389 observations)

Within the Pelotas Cohort, an additional socioeconomic measure available was the National Wealth Index questionnaire – IEN (Barros & Victora, 2005). Principal component analysis condenses various household characteristics into a singular metric representing the household's wealth index. These characteristics involved inquiries regarding the educational achievement of the primary household, the number of bedrooms, the number of bathrooms (including those with shower and toilet facilities), the number of televisions, vehicles, and ownership (yes/no) of assets such as radios, refrigerators, DVD or video tape players (remembering, the index were applied in 2004), freezers/duplex refrigerators, washing machines, microwaves, telephone lines, computers, and air conditioners.

The wealth index facilitates the classification of households into five wealth strata. Utilising reference values tailored to Pelotas, the wealth indexes were stratified as follows:

- IEN 1 – first strata= 20- 280 points (poorest households)
- IEN 2 = 281-367 points
- IEN 3 = 368-475 points
- IEN 4 = 476-618 points
- IEN 5 = 619-1478 points (wealthiest households)

Although BFP eligibility is traditionally determined based on per capita household income, insights from researchers (Barros & Victora, 2005; Schmidt et al., 2017) who have scrutinised the focus and coverage of BFP within the Pelotas cohort suggest that the first strata of the wealth index, as constructed above, serves as a reliable proxy for BFP eligibility. This stratum represents the poorest population, those who would qualify as beneficiaries of BFP in Pelotas. The IEN tends to be less susceptible to respondent manipulation and information

errors than the variable household income. A total of 389 observations were in IEN 1 and were included.

Control 3 – early years of life (301 observations)

As per the existing literature, the initial years of life tend to have the most significant impact on brain development (Bick & Nelson, 2017; Holz et al., 2015; Merz, Wiltshire, et al., 2019; Rakesh & Whittle, 2021; Tierney & Nelson, 2009; Tomalski et al., 2013). Hence, the focal point of this comparison group was the timing of BFP receipt. Both the intervention and control groups received BFP. However, the intervention group received it during the early years of life, continuing until at least the age of 4 (i.e., through 2007, for which there was available data). In contrast, the control group did not receive BFP during the first 2 years of life (in 2004 and 2005) but began receiving it from age 3 onwards. A total of 301 observations were included, and there was no overlap of observation between the intervention and this control group.

Control 4 – receiving another social benefit in early years (252 observations)

This comparison group was established to ensure that the intervention and control groups were assessed concerning their level of financial vulnerability using official data. *Cadastro Único* was used to achieve this requirement, as the Brazilian system identifies and registers families in poverty and extreme poverty.

Historically, as explained in the introduction, BFP was designed to consolidate and streamline various pre-existing social programmes. Therefore, this control group was formed during this historical transition and comprised children from families that received one of the other programmes during the first two years of life (2004 and 2005) but did not receive BFP during the same period. A total of 252 observations were included.

Statistical analysis

The analysis was initiated with a descriptive analysis, which entailed calculating means and their associated 95% confidence intervals. The distribution of the data was also checked. A

descriptive analysis was performed for the entire dataset, including data for the WISC-III and specific subgroups, including the BFP intervention and four control groups. Next, the associations between BFP beneficiaries and various exposure and outcome variables were explored via a multivariate analysis.

To check the relationships further, I utilised linear regression models. These models helped to assess whether changes in total WISC-III scores were significantly associated with BFP participation. For the WISC-III z-score, I employed logistic regression. This allowed me to classify intelligence outcomes into “Low intelligence score” and “High intelligence score” categories. By applying these models, I compared outcomes across the four distinct comparison groups, seeking a nuanced understanding of any impact.

Additionally, multiple regression analyses were used to confirm the findings. This statistical approach facilitated the control of covariates, such as socioeconomic and demographic characteristics. The covariates listed included maternal age, maternal education, household per capita income, and maternal depressive symptoms at 1 year, 2 years, and 4 years after childbirth. All statistical analyses were executed using STATA 18.

Sensitivity analysis

A BFP subgroup analysis was conducted to ascertain whether the utilised sample was sensitive enough to detect differences in the primary outcome. This involved initially dividing the overall sample into two groups: those who received BFP and those who did not, without controlling for income or other BFP-related criteria. In addition, I further explored the relationship between the total BFP received between 2004 and 2007 and WISC-III scores. This approach enabled me to gauge the responsiveness of our sample in capturing variations in our primary outcome, shedding light on the effectiveness of our study design.

Throughout the analyses, the covariates maternal education and household per capita income exhibited a statistically significant relationship to WISC-III results. Although it is essential to note that this article’s primary focus did not aim to evaluate the causal relationship or association between these variables and cognitive development, this

additional analysis was undertaken to provide a comprehensive understanding of the results presented in the subsequent sections.

RESULTS

Sample differences

Of the 3,721 cohort children assessed during the 6-year follow-up, 3,533 had available data on the WISC-III, the intelligence test. However, the four comparison groups and the subsequent analysis excluded 406 children with chronic illnesses, physical problems, or severe mental conditions.

Table 1 provides a comprehensive overview of sample characteristics, including means and standard deviations, for the entire sample, the consistent BFP intervention group and the four control groups.

Table 1: Sample description: Sociodemographic characteristics and means of WISC-III, from Pelotas 2004 Birth Cohort and *Cadastro Único* datasets.

	Total sample		**BFP** - intervention group		**Control 1** - per capita income =<100 reais		**Control 2** - wealth index – IEN 1 (poorest households)		**Control 3** - early and later years of childhood		**Control 4** - receiving other social benefit	
	N=3127		**N=403**		**N=593**		**N=389**		**N=301**		**N=252**	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Maternal characteristics at perinatal												
Maternal schooling (years)	8.1	3.4	6.1	2.7	6.3	2.6	6.1	2.5	6.2	2.7	5.6	2.5
Maternal age	20.1	6.8	20.8	6.1	18	6.9	17.2	6.6	20.3	7.1	22.5	7.4
Household income at perinatal												
Number of people living in the house	3.7	1.8	4.6	1.8	4.8	2.1	3.5	1.9	4.2	1.8	4.9	1.8
Monthly household income	793.9	1098.4	408.4	269.5	301.1	148.2	299.9	198.5	399.7	340.1	373	334.6
Income in monthly minimum wages	3.1	4.3	1.6	1	1.2	.58	1.2	.78	1.5	1.3	1.4	1.3
Per capita income	270	426	96.7	65.5	66.1	26	107.7	88.5	111.1	105.1	87.9	97.6
National Wealth Index – IEN at perinatal												
IEN score	427.7	197.5	304.2	115.3	318.6	139.8	201.9	51.8	317.3	122.3	305.8	127.9
IEN quintile	2.9	1.4	2.1	1	2.1	1.2	1	0	2.2	1.1	2.1	1.1
Maternal Depressive Symptoms												
*EPDS – 1 year after labour**	7.1	4.9	8.7	5.6	8.1	5.2	7.9	5.4	8.2	5.2	8.4	5.3
*EPDS – 2 years after labour**	7.2	5.1	8.4	5.6	8.4	5.5	8	5.3	8.2	5.3	8.7	5.5
*EPDS – 4 years after labour**	7.2	5.4	8.4	6.2	7.9	5.5	7.4	5.4	8.7	6..6	8.5	6.1
WISC – III at 6-year follow-up												
Score total	78.6	15.9	71.1	14.3	71	13.4	70.34	13.9	71.7	12.8	69.5	11.6
z-score	.01	.99	-.44	.8	-.45	.83	-.5	.87	-.41	.8	-.5	.72

BFP – Bolsa Família Programme, N – number of observations, SD – standard deviation, IEN – Wealth Index questionnaire.
*Edinburgh Postnatal Depression Scale (EPDS): Higher scores indicate more severe depressive symptoms.

BFP and overall sample

Significant disparities emerged when comparing the overall sample to the consistent intervention BFP group from 2004 to 2007. In particular, on average, maternal education levels were two years higher in the overall sample than in the BFP group, although both groups exhibited similar maternal ages. Household characteristics revealed that the overall sample had, on average, one fewer resident than the BFP group. The most striking difference was in income, with the overall sample having an average monthly income of 794 Brazilian reais, nearly double the 408 reais for the BFP group, accompanied by notably higher income standard deviation (1098 reais for the overall sample compared to 269 reais for the BFP group). Similar income disparities were evident when examining per capita income. BFP recipients reported incomes approximately one-third of those in the overall sample, a trend also reflected in the standard deviations (476 reais for the overall sample and 65 reais for the BFP group).

The Wealth Index (IEN) also Indicates differences between the groups, albeit less pronounced than the income variables. The BFP group's mean fell within IEN 2. In contrast, the overall sample's mean placed it in IEN 3, denoting variances in wealth strata with the BFP group having less wealth. Maternal depression scores also exhibited variations between the groups, with the BFP group averaging 1.5 points higher (according to the EPDS employed in this study, higher scores suggest a greater risk of depression). However, it is worth highlighting that neither group exceeded the threshold of 10 points for major depression, with the overall sample scoring an average of 7.1 and the BFP group averaging 8.5 in all analysed years. The most notable difference emerged in the WISC-III intelligence score, with the BFP group recording an average of 71 points, slightly surpassing the 70-point cut-off for low intelligence score. In comparison, the overall sample averaged 78 points.

Comparison groups

A notable similarity becomes apparent when focusing on the consistent BFP intervention group compared to the four control groups. Maternal education consistently hovers around 6 years across all groups, averaging around 20 years, except for control groups 2 and 3, which displayed a mean age of 18 and 17, respectively. Household size also maintains uniformity,

with the BFP and control groups 1, 3, and 4 averaging around 4 residents per household. Control group 2, on the other hand, deviates slightly with an average of one fewer person. Monthly income exhibits variations among the groups, with control group 3 reporting the highest income (approximately 400 reais), followed by group 4 (313 reais), and control groups 1 and 2, both with roughly 300 reais per month. The intervention BFP group reports an income of around 400 reais. However, it is crucial to acknowledge that individuals tend to incorporate the amount received from BFP as part of their self-declared monthly income, underscoring the limited reliability of income data for the intervention group. Regarding per capita income, control group 1 exhibits the lowest per capita income (66.1 reais), followed by control group 4 (88 reais) and the intervention BFP group (96.7 reais per capita), all falling below the *Bolsa Família* eligibility threshold of 100 reais per capita. In contrast, control group 2 (107.7 reais per capita) and control group 3 (111 reais per capita) slightly surpass the BFP eligibility threshold.

BFP and cognitive development (intelligence score)

Linear and logistic regression were conducted to investigate the impact of consistent early-life receipt of the BFP on children's intelligence scores at age 6 (Tables 2 and 3).

Table 2: *Effect of BFP on child cognitive development, using WISC-III score total, at 6 years among 2004 Pelotas Birth Cohort participants (linear regression)*

	Comparison 1 – *BFP vs NoBFP and per capita income below 100 reais* N=**956**		**Comparison 2 –** *BFP vs NoBFP and wealth index – IEN (poorest households)* N=**792**		**Comparison 3 –** *BFP early years vs BFP later years* N=**704**		**Comparison 4 –** *BFP vs – NoBFP, but receiving another social benefit in early years* N=**655**	
	Coef. *CI*	R-adj	Coef. *CI*	R-adj	Coef. *CI*	R-adj	Coef. *p-value*	R-adj
WISC – III Score total	-1.69 (-3.83/ 0.45)	0.13	0.28 (-2.06/ 2.63)	0.14	-0.22 (-2.52/ 2.06)	0.17	0.91 (-1.36/ 3.18)	0.12

BFP – *Bolsa Família* Programme, N- number of observations, IEN – Wealth Index questionnaire, , CI – Confidence Interval, WISC-III – Wechsler Intelligence Scale for Children-III

*Treatment effects estimator: linear regression controlled for maternal age, maternal education, household per capita income, and maternal depressive symptoms at 1 year, 2 years, and 4 years after childbirth

Table 2 presents the results of linear regression analyses examining the association between BFP receipt during early years and total scores on the WISC-III for each of the four comparison groups. The findings indicate no statistically significant association between BFP receipt and WISC-III total scores across all comparison groups. Specifically, the p-values for these associations were as follows: Comparison 1 (p-value = 0.122), Comparison 2 (p-value = 0.811), Comparison 3 (p-value = 0.845), and Comparison 4 (p-value = 0.431).

Table 3: *Effect of BFP on child cognitive development, using WISC-III z-score, at 6 years among 2004 Pelotas Birth Cohort participants (logistic regression)*

	Comparison 1 – *BFP vs NoBFP and per capita income below 100 reais* N=**646**		**Comparison 2 –** *BFP vs NoBFP and wealth index – IEN 1 (poorest households)* N=**542**		**Comparison 3 –** *BFP early years vs BFP later years* N=**494**		**Comparison 4 –** *BFP vs – NoBFP, but receiving another social benefit in early years* N=**496**	
	OR *CI*	SE	OR *CI*	SE	OR *CI*	SE	OR *CI*	SE
WISC – III Dichotomic z-score (low intelligence and high intelligence score)	0.83 (0.57/ 1.22))	0.16	1.15 (0.77/ 1.73)	0.23	0.78 (0.50/ 1.20)	0.17	0.85 (0.56/ 1.29)	0.18

BFP – *Bolsa Família* Programme, N- number of observations, IEN – Wealth Index questionnaire, OR – odds ratio, CI – Confidence Interval
WISC-III – Wechsler Intelligence Scale for Children-III
*Treatment effects estimator: logistic regression controlled for maternal age, maternal education, household per capita income, and maternal depressive symptoms at 1 year, 2 years, and 4 years after childbirth

Table 3 displays the results of logistic regression analyses. Like the linear regression findings, logistic regression did not reveal significant associations between BFP receipt and low intelligence scores across all comparison groups. The respective p-values for these associations were: Comparison 1 (p-value = 0.359), Comparison 2 (p-value = 0.427), Comparison 3 (p-value = 0.266), and Comparison 4 (p-value = 0.455). Linear and logistic analyses were controlled for maternal age, maternal education, household per capita income, and maternal depressive symptoms at 1 year, 2 years, and 4 years after childbirth.

Sensitivity analysis

BFP X No-BFP from the overall sample

For the stratified analysis, the overall sample was divided into two groups: recipients of the

Bolsa Família and non-recipients, without applying controls related to income or specific BFP eligibility criteria. This division yielded statistically significant negative results for the WISC-III, as indicated by both linear regression (Coefficient = -4.09, p-value = 0.000, R-squared = 0.26) and logistic regression (Odds Ratio = 0.67, p-value = 0.001, Pseudo R2 = 0.13). In other words, recipients of the BFP demonstrated statistically lower intelligence scores compared to non-recipients within the overall sample. These regression analyses were conducted with a dataset comprising 2,891 observations.

Association between the amount of BFP received from 2004 to 2007 and cognitive development.

The analysis concerning the relationship between the total amount of BFP received from 2004 to 2007, and intelligence revealed a statistically significant negative association. A linear regression analysis (Coefficient = -0.13, p-value = 0.000, R-squared = 0.01) demonstrated that a 100 Brazilian reais increase in BFP benefit corresponded to a 1.3-point decrease in the WISC-III score. However, it is essential to note that this association, while statistically significant, accounts for merely 1% of the model.

Association between maternal education and cognitive development

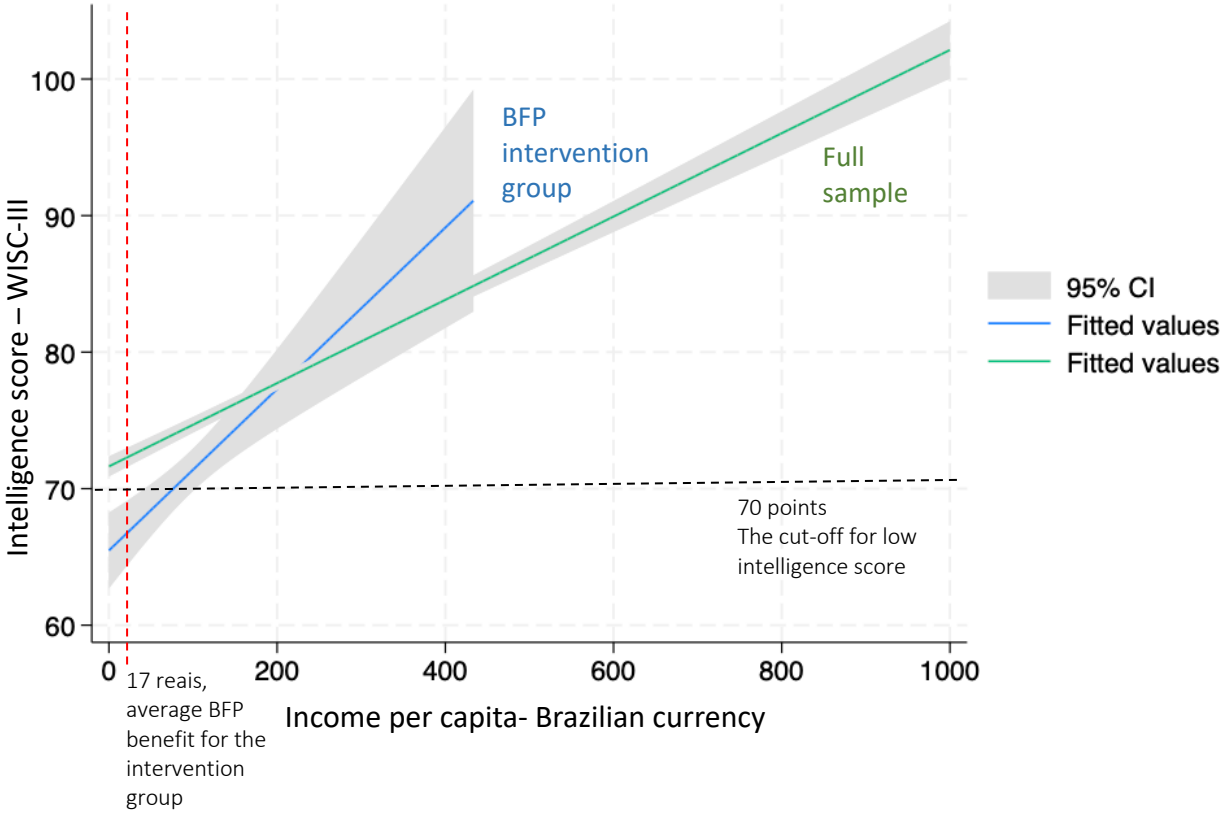
The analysis of the association between maternal education and cognitive development revealed that maternal education explains approximately 21% of the variance in WISC scores. An additional year of maternal education correlates with a 2-point increase in the WISC-III score (p-value = 0.000) for the overall sample. This effect is slightly attenuated for the consistent BFP intervention group, with a one-year increase in maternal education corresponding to a 1.6-point rise in the WISC-III score (p-value = 0.000). This result remains statistically significant.

Income per capita and its impact on cognitive development

The income per capita demonstrated an even more substantial influence. Regression analysis indicated that a 100 Brazilian reais increase (approximately 40% of the minimum wage in 2004) equated to an average increase of 1.3 points in the total WISC-III score (p-value = 0.000) for the overall sample (N = 3,148 observations). Conversely, this effect substantially

intensified for the BFP intervention group, with a 5.9-point increase associated with a 100 reais per capita increment. It is worth noting that the average WISC-III score for the intervention group is 71.1, while the overall average is 78.6 (Table 1). This convergence between the consistent BFP intervention group and the overall sample can be visually observed in Figure 1. Another result is that the average per capita amount of cash received by children in the BFP intervention group was 17 Brazilian reais.

Figure 1 *– BFP intervention group and the whole sample association between income per capita and cognitive development*



DISCUSSION

The central finding of this study refutes the study's hypothesis, i.e., indicating that there is no impact of the *Bolsa Família* on the cognitive development of 6-year-old children compared to control groups within the 2004 Pelotas Birth Cohort. This study is the inaugural investigation into the relationship between the BFP and child cognitive development. Consequently,

discussing these findings cannot be directly contextualised with prior research about the Brazilian programme. Nevertheless, the results of this study contribute to the diverse body of international literature examining the impacts of CTPs on child cognitive development.

Cash transfer programmes and child cognitive development

The relationship between cash transfer programmes and child cognitive development is intricate, as evidenced by numerous studies. For example, Fernald et al.'s (2008) research suggests that larger transfers made by the *Progresa* programme in Mexico were associated with higher levels of cognitive development, which aligns with the findings of this study indicating that an increase in per capita income could lead to improved cognitive development scores (Figure 1). However, it is crucial to exercise caution in interpreting these findings. Attanasio, Meghir, and Schady (2010) highlight that variations in the cash amounts used to measure the effects of *Progresa* may exhibit endogenous characteristics, potentially complicating result interpretation.

In contrast, Ecuador's CTP reported mixed results (Paxson & Schady, 2007). Notably, gains in cognitive development were observed primarily among children whose mothers possessed higher cognitive abilities. This suggests that while cash transfers may provide valuable resources for child development, their effectiveness could be contingent on maternal cognitive abilities. This aligns with the present study, which identified a statistically positive association between maternal education and WISC-III scores.

Additionally, a randomised control trial in Nicaragua (Macours, Schady, and Vakis, 2012) provided valuable insights. It indicated that random variations make it improbable that the positive impacts observed can be solely attributed to the programme's cash component. This insight underscores the necessity of investigating intermediate inputs and delving into the underlying mechanisms. It initiates a vital discussion regarding the determinants of cognitive development and the extent to which income transfer programmes can effectively influence these determinants.

Null results, determinants of cognitive development, and multiple vulnerabilities

Returning to the Brazilian population, a study conducted by UNICEF in 2018 (Paz & Arévalo, 2018) revealed that approximately half of Brazilian children encountered multiple challenges in various facets of their lives, encompassing education, information access, housing, sanitation, water provision, and child labour. Given this context, characterised by multiple vulnerabilities, it is noteworthy that the average financial assistance provided by the BFP equates to less than 40% of the minimum wage for families comprising more than four members. This prompts an inquiry into whether the financial support offered by the BFP is sufficiently substantial to exert a meaningful influence on the determinants of cognitive development.

A study conducted within the same dataset, focusing on the 2004 Pelotas cohort, delved into the early-life factors associated with lower intelligence scores in 6-year-old children, utilising a predictive methodology. The predominant finding underscored that a child's social environment and familial circumstances significantly contribute to cognitive abilities during childhood (Camargo-Figuera et al., 2014). These factors also surfaced in the present study, manifesting statistically significant associations with children's cognitive development among those who received BFP and within the broader sample. In the current study, maternal education elucidates approximately 21% of the variance in WISC-III scores, a proportion closely aligned with the earlier study's findings cited (Camargo-Figuera et al., 2014). Similarly, the outcomes of the analysis examining the correlation between income per capita and cognitive development for the BFP intervention group indicate a 5.9-point increase associated with a 100 reais per capita increment. In contrast, the mean per capita allocation of funds received by children in the BFP intervention group amounted to 17 Brazilian reais.

In essence, children who have been beneficiaries of the BFP programme from birth and have continued to receive unwavering support throughout their early years could potentially witness a substantial enhancement in cognitive development, an increase nearing 6 points if 100 Brazilian reais elevated their per capita income. However, the income per capita from the BFP was only 17 reais (approximately 3 British pounds). The additional 6-point gain could significantly ameliorate cognitive disparities between BFP recipient children and the general

population, as visually depicted in Figure 1. Notably, the average difference between these groups amounted to 7.5 points (71.1 for the intervention BFP group and 78.6 for the general Pelotas population). In conclusion, these findings prompt reflection upon whether the BFP exerted no discernible impact on the cognitive development of 6-year-old children in Pelotas or if the per capita BFP allocation received by these children proved inadequate in assisting them in confronting the myriad vulnerabilities they encountered, thereby failing to influence their cognitive development. This inquiry raises questions regarding the per capita funding threshold necessary to initiate meaningful enhancements in the cognitive development of Brazilian children (Cooper & Stewart, 2021; Duncan et al., 2011).

Risk of incorrect comparison groups

The results from the stratified analysis played a crucial role in assessing the sensitivity of the overall sample to yield varying outcomes on the WISC-III. The initial stratified analysis entailed comparing recipients of the BFP and non-recipients without imposing constraints related to income or specific BFP eligibility criteria. This analysis disclosed that the general BFP group displayed lower levels of intelligence than the non-recipients within the overall sample, and this disparity was statistically significant. However, it is imperative to approach this finding cautiously due to the inherent differences between the groups, as detailed in Table 1. Substantial variations in maternal age, per capita income, and maternal education become evident when contrasting the overall sample with the consistent BFP intervention and control groups.

Likewise, the association analysis results between the total amount of BFP received from 2004 to 2007 and the intelligence score unveiled a statistically significant negative relationship. In simpler terms, a higher total BFP amount received over the years corresponded to lower WISC-III scores. These findings emphasise the importance of considering sample composition and contextual variations when evaluating the outcomes derived from sensitivity analysis. While statistically significant distinctions were observed, it is crucial to acknowledge the disparities in baseline characteristics and vulnerabilities among the groups. Despite their statistical significance, both outcomes should not be hastily interpreted as implying that participation in the BFP or receiving a greater amount of BFP

leads to diminished cognitive scores. This potential misinterpretation arises from discrepancies in the composition and attributes of the comparison groups. Both sets of results indicate that children from lower-income backgrounds, characterised by reduced per capita income, are more susceptible to vulnerability, resulting in lower WISC scores. Consequently, these results align with an established body of literature associating poverty with reduced cognitive abilities (Ashiabi & O'Neal, 2007; Farah et al., 2006; Hair et al., 2015; Kim et al., 2019).

Another aspect to consider is the temporal dimension within the historical context. Since its inception, being part of the BFP and maintaining participation for an extended duration tends to signify a higher level of vulnerability. This is particularly evident in 2004, during the initial implementation of the BFP, when the programme's focus was more precise in Pelotas (Schmidt et al., 2017). Furthermore, regarding vulnerabilities, the list of priority groups identified by the Ministry of Social Development (ethnic-racial groups, indigenous communities, recyclable material collectors, those with the lowest per capita income, and families with the most children and adolescents) comprises social groups facing extreme poverty and historical social exclusion. This poses an additional challenge for the composition of the comparison groups.

Strengths and limitations

This study pioneers an investigation into the relationship between the BFP and the cognitive development of 6-year-old children. Methodological rigour underpins the research, evidenced by the creation of four distinct comparison groups to mitigate potential confounding variables. These groups included the "BFP Eligibility-Based Group," aligning closely with programme principles; the "Wealth Index Group," employing a validated wealth measurement tool to reduce participant manipulation; the "Literature-Based Group," grounded in existing cognitive development literature; and the "Historical Program Implementation Group," recognising the historical context of Brazilian social programmes and the significance of the *Cadastro Único* system. Another strength is using the Pelotas cohort and linkage with *Cadastro Único*. The Pelotas cohort and the *Cadastro Único* dataset furnished a valuable repository of reliable, comprehensive data, bolstering the study's

credibility and the validity of its findings. The study benefits from using the WISC-III, a psychometrically reliable instrument. The rare application of WISC on such a large scale further enhances the research's methodological rigour and the validity of cognitive assessments. Furthermore, the research focuses on vulnerability, thereby deepening our understanding of the interplay between poverty and child cognitive development.

This study's limited generalisability stems from its reliance on data from the Pelotas cohort, which predominantly represents a specific geographic region within Brazil. Consequently, caution must be exercised when attempting to extrapolate the findings nationally. The cohort's regional focus restricts the applicability of the results to other areas of Brazil, each characterised by unique cultural, socioeconomic, and demographic dynamics that may exert distinct influences. Additionally, methodological constraints are inherent in this research due to its reliance on a longitudinal design. While this design is valuable for examining associations, it cannot employ more robust causal methodologies like randomised controlled trials (RCTs) or quasi-experimental approaches. However, a regression discontinuity design (RDD) might not be applicable, as the study's reliance on income as a critical variable poses challenges for RDD analysis, as it disrupts one of the fundamental RDD assumptions—manipulation. Consequently, certain significant confounding variables may not have been fully addressed in this study, potentially impacting the comprehensiveness of the findings.

Research agenda

Future research could investigate the determinants of cognitive development for the BFP beneficiaries, primarily focusing on identifying key factors that shape cognitive development within this context. Additionally, researchers should analyse the mechanisms responsible for changes in cognitive determinants over time, with specific attention to maternal influences. Given the importance of the mother-child relationship, maternal mental well-being, and emotional interactions in cognitive development, a new research avenue would elucidate critical pathways for potential interventions. Expanding the scope of inquiry to encompass underexplored explanatory variables, such as race, ethnicity, gender, childcare practices, and stimulation, within the BF beneficiary population seems urgent. Lastly, conducting studies with repeated measurements to track changes over time and establish a robust baseline

would be crucial for clarifying developmental trajectories and potential variations in cognitive outcomes.

CONCLUSION

In conclusion, the results of this study, which challenge the original hypothesis and suggest no significant impact of the BFP on the cognitive development of 6-year-old children in the Pelotas population, must be interpreted with caution. While these findings may risk being misinterpreted as grounds for premature conclusions or disqualification of the BFP, it is vital to contextualise them within the broader scientific literature. The BFP has demonstrated substantial positive effects on critical outcomes such as infant mortality reduction and various positive child development indicators. Thus, the results presented here should be critically analysed, acknowledging the inherent limitations of the BFP as it is not a “silver bullet” for all childhood-related outcomes.

PAPER 3: BRAZILIAN CASH TRANSFER, MOTHERS' MENTAL HEALTH AND THEIR SENSE OF CONTROL IN THEIR LIVING ENVIRONMENT: A LONGITUDINAL STUDY

Abstract

This study addresses a significant research gap by quantitatively examining the impact of Brazil's *Bolsa Família* Programme (BFP) on mothers' sense of control and maternal depression. With a focus on the maternal figure, this research adopts a longitudinal approach, linking four years of BFP intervention to mothers' control dimensions six years later and assessing maternal depression at four time points. Multiple regression analyses were conducted using the Pelotas Birth Cohort linked to a national dataset, comparing the BFP intervention group with three control groups: (1) comparable by income; (2) comparable on a wealth index; (3) comparable on receipt of social benefits. Results from 2,940 observations, with 638 mothers in comparison 1, 546 mothers in comparison 2, and 498 mothers in comparison 3, reveal that the BFP does not significantly influence mothers' sense of control over their living environment. Moreover, there is no statistically significant reduction in symptoms of maternal depression over the 1-year, 2-year, 4-year, and 6-year follow-up periods, except for a modest impact on one comparison group at the 1-year follow-up. The average per capita value of BFP received by the intervention group, approximately 3 British pounds monthly, which represented approximately 6% of the minimum wage in Brazil in 2004, appears insufficient to bring about substantial changes in living environments and symptoms of depression. This investigation introduces a novel perspective by examining mothers' sense of control in their living environment within a longitudinal study employing quantitative data. Additionally, it marks one of the initial inquiries into the relationship between the BFP and maternal depression. While these findings do not entirely align with previous discussions on the Brazilian programme, they make a valuable contribution to the growing body of international literature examining the impacts of CTPs on mothers.

Keywords: mother, cash transfer programme, maternal depression, control, *Bolsa Família* programme.

INTRODUCTION

The significance of the maternal figure has been increasingly recognised in studies assessing the impact of Cash Transfer Programs (CTPs) on child development (Wolf et al., 2013). Nevertheless, little is known about CTPs' direct impact on mothers themselves. Numerous studies have explored the effects of CTPs on aspects related to maternal health, such as the expansion of prenatal care numbers, hospital-based childbirth, utilisation of health services, and contraceptive use (Barber & Gertler, 2009, 2010; Brownell et al., 2018; Feldman et al., 2009). More recently, a growing body of research has examined how women utilise the funds from CTPs and whether it grants them greater decision-making power over resources or enhances their agency and empowerment.

Research examining the effects of CTPs has shed light on the essential role of women as recipients and managers of money, with it often being perceived as a maternal resource. Empirical evidence underscores this notion, as exemplified by a study on the impact of *Progresa* in Mexico, which found that mothers who had resources under their control were more inclined to allocate them toward small livestock, improved nutrition, and child-related goods, including clothing (Rubalcava et al., 2009). Likewise, a comprehensive CTP study revealed significant effects on women's decision-making authority within households, alongside noteworthy improvements in children's school attendance, child health expenditures, and household purchases of durable goods (Brauw et al., 2014). Other research affirms the potential of cash transfers to bolster women's bargaining power within household settings (Ambler & Brauw, 2017). However, it is essential to note that the impact of transferring cash to women may not uniformly extend to all spheres of decision-making within households, as observed in other analyses of the Mexican CTP, where the effect was primarily on women's capacity to manage their funds, rather than on broader decision-making areas (Handa et al., 2009). These studies indicate that the issue goes beyond what women can buy and towards the possibility of having control over the money.

A creative study employed a novel identification strategy where beneficiaries of a CTP in Macedonia (Almås et al., 2018) engaged in a simulation exercise. During this exercise, women indicated how much they were willing to decline, up to the total value of the CTP payment, to

ensure that they received the cash transfer instead of their spouse. The results revealed that women were willing to accept a lower payment, provided they were the funds' direct recipients. This study provides empirical evidence that women perceive cash transfers as a potential enhancer of their decision-making power, as evidenced by their willingness to accept a reduced amount in exchange for this control. Exploring more subjective aspects, such as maternal perception of their control within their environment, offers a useful way to delve deeper into this issue.

Mothers' control in their living environment and maternal depression

The extent to which women feel in control of their life circumstances can significantly impact how they handle stress and challenges and their ability to make informed decisions for the future (Pennington et al., 2013, 2018; Whitehead et al., 2016). Mothers' control in their living environment includes 'actual control' and 'perceived control'. 'Actual control' refers to a person's ability to influence their living situation through economic and social resources, including managing finances, power dynamics, access to information, social standing, and physical surroundings. In contrast, 'perceived control' relates to an individual's sense of their capacity to use these resources to make changes in their life. It is worth noting that both forms of control can mutually influence each other. However, for this study, my focus is solely on 'perceived control' as I aim to assess mothers' subjective perceptions rather than relying on objective data regarding observed changes in terms of behaviour. The cash received from the CTP may allow the mother to exercise choice over different dimensions of life and reduce environmental stressors that are triggers for depression. A consolidated body of literature on the psychology of poverty has investigated the impact of low income on mental health (Grote et al., 2007; Hjelm et al., 2017; Lupien et al., 2009; Magnuson et al., 2022; Troller-Renfree et al., 2020, 2023), with a systematic review showing a significant association between poverty and psychological stress (Lund et al., 2010).

However, when it comes to explicitly exploring the impact of CTPs on maternal depression, the available studies remain scarce. One study examined the effects of the Janani Suraksha Yojana (JSY) CTP in India on maternal depression, revealing a 36% reduction in moderate depression among women who received payments compared to those who did not. This

observational study raised concerns about potential differences between the treated and non-treated women in their sample, particularly given that the majority (94%) of women received payments. Another study indicates that a CTP contributed to improvements in maternal mental health, with a 1–3 percentage point reduction in postpartum depression measured using the Edinburgh Postnatal Depression Scale (Okeke, 2021). The author suggests that the increased utilisation of healthcare services, driven by conditional incentives, not only improved child outcomes but also had a positive 'spill over' effect on women's mental health. Brazil has notable records in both areas regarding mothers living under the stress of low income and CTPs.

The Brazilian Mothers and the *Bolsa Família* Programme

More than half of Brazilian mothers live in poverty and are the primary providers for their families. At the same time, the country operates one of the world's leading conditional CTPs, known as the *Bolsa Família* Programme (BFP). According to a study using Brazilian national census data (Cavenachi & Alvez, 2018), the number of households in which women are the primary decision-makers jumped from 14.1 million (27.4% of the entire population) in 2001 to 28.9 million (40.5%) in 2015. Furthermore, when stratified by household income, 56.6% of households with total family income below the minimum wage had women as the head of the family in 2015. When considering racial differences, this number increased to 67.7% for black women, compared to 42.2% for white women. In most cases, these women are recipients of the BFP.

Introduced in 2003, the BFP is Brazil's CTP aimed at supporting vulnerable households as part of the government's broader efforts to combat social inequalities and alleviate poverty. Initially reaching 3.6 million families, the programme rapidly expanded to encompass 14 million families by 2016, constituting 21% of Brazil's population. Currently, the benefit goes to approximately one-quarter of Brazil's population. The BFP has key goals: poverty alleviation through direct cash transfers, enhancing access to services by requiring beneficiaries to meet conditions like education and healthcare utilisation, reducing inequality with a focus on vulnerable households, breaking the poverty cycle by mandating school attendance and healthcare, encouraging financial independence, and strengthening Brazil's

social policy. The programme tailors support based on family circumstances and operates as conditional cash transfers, requiring families to accomplish specific requirements for their children's education and healthcare.

As expected in the BFP, providing benefits to mothers is a way to increase the probability that they will have more control over their material conditions to care for themselves and meet their child's needs. Qualitative research indicates that the BFP helps families overcome everyday barriers, such as having money to pay for public transport to reach local health services for child vaccinations or health appointments and purchasing school uniforms and materials to ensure the child does not feel ashamed among their peers (Pires, 2013). However, there is an indication of possible reinforcement of traditional gender roles, including women's roles in domestic capacities inherent in the BFP. A review of qualitative studies on women's autonomy (Bartholo, 2016) has shown positive results for women's decision-making power concerning citizenship and sexual rights. On the other hand, studies discussed in this review suggest the reinforcement of mothers as the sole individuals responsible for the child's well-being and the reinforcement of a patriarchal model of motherhood and family structure. Using census data, similar outcomes indicate that women receiving BFP tend to participate less in the labour market and engage more in domestic work than fathers or other male family members (Passos & Waltenberg, 2016). Moreover, the impact of CTP on mothers' mental health is underexplored.

Limited research has been conducted on the relationship between BFP and maternal mental health. A comprehensive qualitative study investigated how the BFP influences economic autonomy, physical well-being, and mental health among mothers (Sugiyama & Hunter, 2020). This study suggests that the BFP often leverages the strong maternal identities of mothers as a means to empower them. Cash transfers give mothers increased control over household finances, giving them economic agency. This encourages better physical and mental health practices and enhances their self-worth and agency. However, these positive outcomes were not universally observed, highlighting the need for additional public policies to support maternal well-being. In a quantitative analysis, the expansion of BFP coverage correlated with reduced suicide rates, particularly in areas with sustained high programme coverage for three years or more (Alves et al., 2019).

Additionally, a study investigating the impact of the BFP on adolescent mental health included maternal depression scores as covariates. However, it did not explore or discuss maternal depression outcomes, as it fell beyond the scope of the study (Ziebold et al., 2021). Two recent studies examined depressive symptoms in BFP beneficiary mothers. The first was a cross-sectional study conducted in 30 Brazilian cities, identifying a high prevalence of postpartum depressive symptoms (Santo et al., 2021). The most recent study (Santos et al., 2023) investigated the progression of depressive symptoms of BFP mothers from the first to the second year after delivery and found that depressive symptoms were highly prevalent during the first two years postpartum. Approximately half of the women with depression at the follow-up exhibited persistent symptoms. However, BFP has not undergone a programme quantitative evaluation addressing its impact on maternal depression.

The present study addresses this research gap by investigating the impact of the BFP on mothers' sense of control in their living environment and maternal depression. This research marks the first attempt to analyse these relationships by linking four years of exposure to BFP, particularly after childbirth, to two key aspects: 1. Dimensions of mothers' control in their living environment six years later and 2. Data on maternal depression at four time points (1 year, 2 years, 4 years, and 6 years after commencing BFP receipt). Both exposure and outcomes will be examined using a high-quality birth cohort dataset linked to a government database.

In a country like Brazil, where women head 56.6% of households with incomes below the minimum wage (Cavenachi & Alvez, 2018) and with the world's largest conditional CTP, assessing mothers' control in their environment and the programme's impact on maternal depression is relevant from a public health perspective. This assessment may also support refining programme delivery and features to serve better public policies related to women, CTPs, and mental health.

METHOD

This study adopted a longitudinal approach to evaluate the impact of the BFP on mothers' sense of control in their living environment six years after commencing participation in the

programme and on the symptoms of maternal depression, utilising data from the 2004 Pelotas Birth Cohort and a dataset sourced from the Brazilian Ministry of Social Development via the Federal Government's Single Register for Social Programs (*Cadastro Único*).

Datasets

The dataset was created by linking national data from the Ministry of Social Development with the 2004 Pelotas Cohort, using unique participant IDs provided by the Pelotas Cohort team. Strict measures were taken to protect data confidentiality and participant anonymity. Manual adjustments excluded six observations.

2004 Pelotas Birth Cohort

The datasets for this study are derived from the 2004 Pelotas Birth Cohort conducted at the Federal University of Pelotas (UFPel), Brazil. This cohort is part of a more extensive series of longitudinal studies that began with the 1982 cohort, followed by the 1993 cohort, and a fourth cohort initiated in 2015. I focus on the 2004 cohort due to its rich dataset, particularly concerning mothers' mental health. This cohort's inception closely aligns with the introduction of the BFP in Brazil in 2003, making it a crucial point of investigation. Data collection involved six sweeps at the 3-month, 1-year, 2-year, 4-year, 6-year, and 11-year intervals following birth. Refer to Santos et al. (2011, 2014) for detailed cohort methods.

Cadastro Único – Brazilian Ministry of Social Development

Brazil has a national social assistance system, including the Reference Centers for Social Assistance (CRAS), which operates in marginalised communities. These centres employ social workers who focus on aiding vulnerable populations by connecting them to essential social services through the national Single Register for Social Programs (*Cadastro Único*). The Brazilian Ministry of Social Development administers this system under the Federal Government. The dataset used to examine BFP receipts was obtained from an original database initially intended for another research study (Schmidt et al., 2017). This database not only included information on BFP recipients but also covered other social assistance programmes such as *Bolsa Escola* (concentrated on promoting education), *Auxílio Gás* (aimed at helping with cooking gas expenses), *Bolsa Alimentação* and *Cartão Alimentação* (both

focussed on access to adequate food and nutrition). It provided detailed information for each programme, including whether beneficiaries had withdrawn funds from the bank, indicating monthly utilisation of funds from January 2004 to December 2007, along with the corresponding payment amounts.

Exposure: *Bolsa Família* Programme (BFP)

Regarding eligibility, BFP imposes income criteria, with a maximum monthly income per person set at R$ 100 (approximately £20). Enrolment is done through a computerised selection process, considering family size, age composition, and declared income. The primary beneficiary is preferably a woman aged at least 16. Families are prioritised based on specific categories, including ethnic-racial groups, indigenous communities, recyclable material collectors, those combating child labour, and individuals liberated from slave-like labour. Following this, families with the lowest per capita monthly income and those with the highest number of children and adolescents aged 0 to 17 are included.

Accepted families receive BFP payments monthly for two years, irrespective of income fluctuations. Payment amounts vary depending on family size, age, and declared income, with an average benefit of R$ 72.81 (approximately £15) in 2004, representing less than 30% of the monthly minimum wage. Designated beneficiaries, predominantly women (90%), receive a bank card and PIN, granting them exclusive access to withdraw the monthly entitlement without restrictions on its use. While the programme does have conditionalities and monitoring, failure to meet stipulated requirements results in a visit from a social worker, helping families facing difficulties in compliance.

Outcome measure 1: mothers' control in their living environment

In this study, the first outcome measure refers to an individual's or group's ability to influence decisions affecting their daily lives (Whitehead et al., 2016). The approach was based on concepts established in four reviews examining the relationship between individuals' sense of control and overall health and well-being (Orton et al., 2014; Pennington et al., 2013, 2018; Whitehead et al., 2016). This study focuses on 'perceived control,' which relates to an individual's subjective assessment of their capacity to manage their actual

control or make changes in their lives using the available resources. The sense of control within the living environment, as identified in the literature, encompasses eight key dimensions: 1) control over household resources, 2) freedom of movement and mobility, 3) access to legal and political resources, 4) exercise of sexual and reproductive rights, 5) availability of food and nutrition, 6) access to education, 7) opportunities for employment, and 8) access to healthcare.

During a follow-up conducted six years after the perinatal period, mothers from the 2004 Pelotas Cohort participated in interviews utilising the WHOQOL-BREF (World Health Organization Quality of Life-BREF) instrument. Developed by the World Health Organization (WHO), this tool has been validated for use within the Brazilian population. The WHOQOL-BREF evaluates various facets of an individual's quality of life across four domains: physical, psychological, and social relationships and the living environment. It comprises 26 questions, with responses ranging from 1 ('very dissatisfied') to 5 ('very satisfied'). Specific questions from the WHOQOL-BREF were linked to the dimensions of mothers' sense of control in the following manner:

Table 1: *Dimension of mothers' control in their living environment and WHOQOL-BREF questions*

Dimension of control	The topic of questions from the WHOQOL-BREF
(1) household resources	q12' has enough money for necessities q23' satisfied with housing
(2) movement/ mobility	q25' satisfied with means of transport
(3) legal & political resources	X
(4) sexual and reproductive rights	q21' satisfied with sex life
(5) food & nutrition	X
(6) education	X
(7) Employment	q18' ability to work
(8) health care	q24' satisfied with health services

The overall 'quality of life' score from the WHOQOL-BREF was included. However, specific questions unrelated to the dimensions of mothers' sense of control were omitted. These excluded questions covered a range of topics, including pain perception, the need for treatment, life enjoyment, perception of life's meaning, concentration ability, feelings of

safety, energy levels, sleep satisfaction, task performance, self-satisfaction, satisfaction with personal relationships, satisfaction with support from friends, experiencing negative emotions, getting the information she needs, accepting physical appearance, having leisure activities and, evaluating health satisfaction.

Outcome measure 2: maternal depressive symptoms

The Edinburgh Postnatal Depression Scale (EPDS) was employed to assess maternal depressive symptoms (Cox et al., 1987). This scale evaluates common depression symptoms experienced seven days before the interview. It comprises 10 questions, each corresponding to a clinical depressive symptom, such as guilt, sleep disturbances, low energy, anhedonia, and suicidal thoughts. Respondents rate each item on a scale from 0 (never or not at all) to 3 ("as usual," "very often," or "most of the time"), with some questions scored in reverse. Higher scores indicate a higher presence of depressive symptoms. The total score on the scale ranges from 0 to 30.

The EPDS was verbally administered by an interviewer to the Pelotas Cohort, following the order of questions in the instrument. Assessments occurred during the perinatal period and at 1 year, 2 years, and 4 years of follow-up. The EPDS has been translated and validated for use in the Brazilian population and has been employed in studies in Brazil (Figueira et al., 2009; Matijasevich et al., 2014; Santos et al., 2021). While the EPDS serves as a screening tool rather than a diagnostic test, I will use the term "depression" interchangeably with an EPDS score of >=10.

Covariates

The covariates included in this study were selected based on the literature on social determinants of health.

- Maternal characteristics during the perinatal period: maternal schooling (years of formal education completed) and maternal age.
- Household income and wealth score at perinatal: number of people living in the house; total household income (categorised into monthly cash income and income in minimum wages); income per capita (total household income divided by the number

of people living in the same house); a National Wealth Index questionnaire, named IEN (Barros, 2016).IEN is explained in detail in the following section – comparison groups.

Ethical considerations

In each follow-up, the study objectives and procedures were thoroughly explained to the mothers, who provided written informed consent to participate. This research received approval from the Research Ethics Committee of the Federal University of Pelotas Medical School, affiliated with the Brazilian Medical Council, ensuring the confidentiality of all information.

Comparison groups [2]

Participants

The dataset includes 4,231 mothers of children born in 2004. Of the 3,721 cohort observations conducted during the 6-year follow-up, 244 responses were excluded from the three comparison groups and subsequent analyses due to their source, originating from individuals other than the biological mothers, such as adoptive mothers, fathers, grandparents, or other guardians. Inclusion criteria included having complete sociodemographic data from the perinatal period, measurements of maternal control dimensions six years later, and maternal depression data at four time points (1 year, 2 years, 4 years, and 6 years). Data for participants in both intervention and control groups were linked to the *Cadastro Único* dataset, resulting in a match of 1,003 participants. Figure 1 displays the participant flowchart.

[2] The comparison groups and analyses are similar to those in Paper 2. However, in this study, **Comparison Group - Early and Later Years** of the Child was excluded because the study's primary focus is on mothers, and this group was created based on the literature on child development, which falls outside the scope of the research objectives.

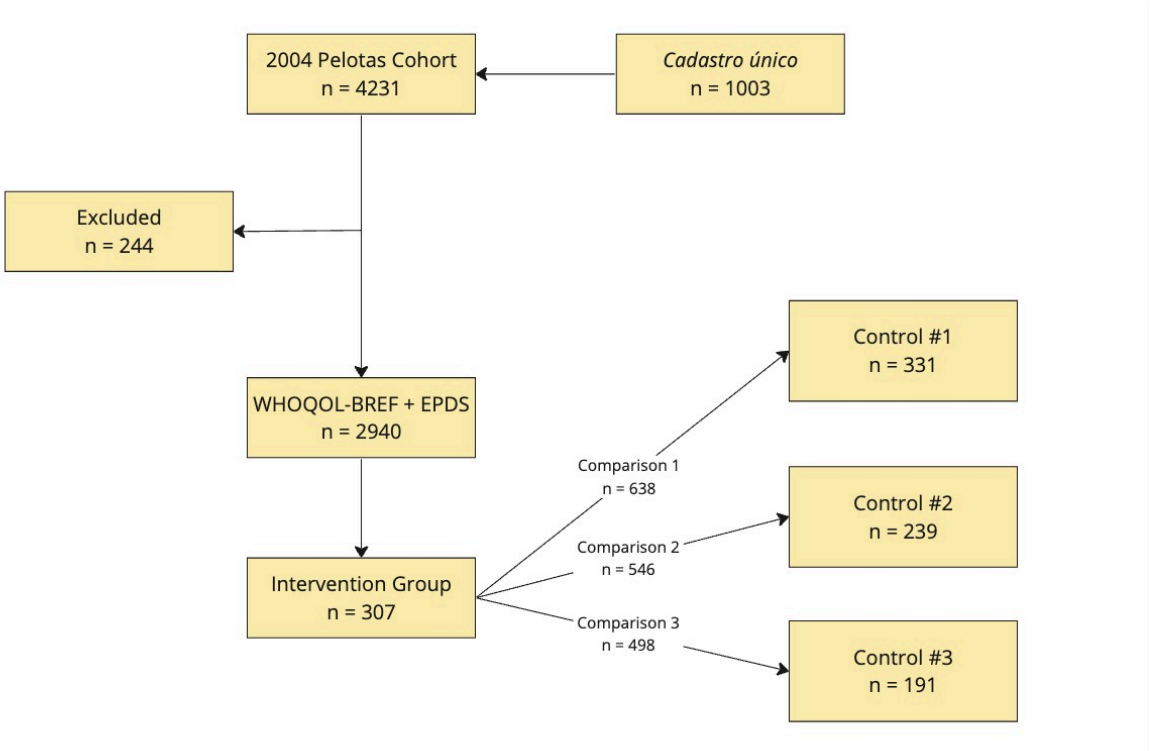


Figure 1: Study flowchart

The study targeted specific parameters to discern the expected differences in the WHOQOL-BREF and EPDS scores. To achieve this, I compared the average outcomes of the intervention group with those of three control groups, each designed for a distinct comparison:

I. **Comparison 1 – BFP versus No-BFP, but per capita income below 100 Brazilian Reais:** This comparison group included mothers who did not receive BFP but had the same income eligibility cut-off for BFP.
II. **Comparison 2 – BFP versus No-BFP, but Wealth Index 1 (IEN):** this group included mothers who did not receive BFP but had a low wealth index, falling into the IEN 1 strata (poorest households).
III. **Comparison 3 – BFP versus No-BFP, but receiving another social benefit in early years:** In this comparison, mothers in the intervention group who received BFP consistently with those who were part of the *Cadastro Único* and were receiving other social benefits at the perinatal stage.

Intervention group – BFP recipients (307 observations)

The linked dataset, with 1,003 observations of individuals who received BFP, does not distinguish between those who received BFP for only a brief period and those who received benefits for nearly the entire duration of the years under analysis. To address the observed heterogeneity and drawing upon the literature emphasising the importance of consistent

receipt of social benefits (Barber & Gertler, 2010), the intervention group was defined to include mothers who received the programme for a minimum of 42 months (3 years and 6 months) after giving birth, during the total of 48 months (4 years). A total of 307 observations were included. The same intervention group was utilised in all three created comparisons.

Control Group 1 – NoBFP and per capita income below 100 reais (331 observations)

The Ministry of Social Development's dataset lacked precise participant income data. Instead, income variables were derived from the Pelotas Birth Cohort, based on a broad question about family income, which did not specify the inclusion of BFP amounts. Income variables were used as a cut-off point for the control group, adhering to the programme's 100 reais per capita eligibility criteria. 331 observations were included.

Control Group 2 – IEN – No BFP and wealth index (239 observations)

Within the Pelotas Cohort, an additional socioeconomic measure available was the National Wealth Index questionnaire – IEN (Abarros & Victora, 2005). The construction of the IEN involves principal component analysis, which condenses various household characteristics, including the educational attainment of the primary household member, the number of bedrooms and bathrooms, and possession of assets like radios, refrigerators, and other items, into a single index that signifies the household's wealth. The five wealth strata are stratified based on reference values tailored to the city of Pelotas as follows:

- IEN 1 – First Stratum: 20-280 points (poorest households)
- IEN 2 – Second Stratum: 281-367 points
- IEN 3 – Third Stratum: 368-475 points
- IEN 4 – Fourth Stratum: 476-618 points
- IEN 5 – Fifth Stratum: 619-1478 points (wealthiest households)

Although BFP eligibility traditionally relies on per capita household income, insights from prior research conducted within the Pelotas cohort (Schmidt et al., 2017) indicate that the first wealth stratum (IEN 1), as previously defined, serves as a robust proxy for BFP eligibility. This stratum represents the most economically disadvantaged population, meeting the criteria for BFP beneficiaries in Pelotas. The IEN tends to be less susceptible to respondent manipulation and information errors than the household income variable. For this study, 239

participants from IEN 1 were included in Comparison Group 2, categorising them within the poorest wealth stratum.

Control Group 3 – No BF in early years, but receiving another social benefit (191 observations)

This comparison group was established to ensure that the intervention and control groups were assessed concerning their level of financial vulnerability using official data. I relied on *Cadastro Único*, the Brazilian system responsible for identifying and registering families living in poverty and extreme poverty. Historically, as outlined in the introduction, BFP was created to consolidate and streamline various existing social programmes. This control group was formed during this historical transition. It consisted of mothers who received one of the other programmes during the initial two years of their child's life (2004 and 2005) but not BFP during the same period. In total, 191 observations were included.

Statistical analysis

The analysis commenced with a descriptive examination involving the computation of means and their corresponding 95% confidence intervals. This descriptive analysis covered the entire dataset, including data from the WHOQOL-BREF and EPDS and specific subgroups, such as the BFP intervention group and the three control groups.

Linear regression models were employed to investigate these relationships further. These models assessed whether alterations in WHOQOL-BREF and EPDS scores exhibited significant associations with BFP participation. The regressions were controlled for variables identified in the multivariate analysis. Covariates with p-values ≤ 0.2 for both the outcome and the exposure were incorporated into the regression model. Through applying these models, a comparative evaluation of outcomes was conducted across the three comparison groups, allowing for robust inference of any potential impact. Multiple regression analyses were consequently employed to validate the findings. This statistical approach facilitated the control of potential confounding variables, including socioeconomic and demographic characteristics, depression at early stages, and both outcome measures. The initial covariate list considered involved maternal age, maternal education, the total number of residents in

the household, household income, per capita income, wealth index (IEN), wealth index (IEN) within strata, and depressive symptoms at early stages (1 year, 2 years, and 4 years postpartum). All statistical analyses were executed using STATA 18.

Sensitivity analysis

To determine whether the sample was sufficiently sensitive to detect differences in the primary and secondary outcomes, I conducted analyses using questions from the WHOQOL-BREF and the total EPDS score. Initially, I divided the overall sample into two groups: those who had received BFP benefits for at least one month between January 2004 and December 2007 and those who had not received BFP without controlling for income or other BFP-related criteria. This approach allowed me to assess the dataset's ability to capture variations in the primary and secondary outcomes, providing insights into the effectiveness of the study design.

During the analyses, I identified several covariates that exhibited statistically significant relationships with the total score from the WHOQOL-BREF. These covariates included maternal age and depressive symptoms at 4 and 6 years after childbirth. Similarly, for the EPDS score at 6 years, statistically significant covariates included maternal education and depressive symptoms at 1, 2, and 4 years postpartum. It is relevant to note that while the primary focus was not to establish causal relationships or associations between these variables and mothers' sense of control or maternal depression, this additional analysis was conducted to offer a comprehensive understanding of the results presented in the subsequent sections.

RESULTS

Sample differences – descriptive analysis

Data from 2,940 observations were available for analysis, which included the WHOQOL-BREF, measuring maternal control, and the EPDS, assessing depression symptoms. Consequently, the study evaluated 638 mothers in Comparison 1, 546 mothers in Comparison 2, and 498 mothers in Comparison 3 (further details were provided in Figure 1 – study flowchart). It is crucial to note that only mothers with available data for the WHOQOL at six years and all four

EPDS analysis time points were included in this study. Table 2 offers a comprehensive overview of sample characteristics, including means and standard deviations, for the entire sample, the BFP intervention group, and the three control groups.

Table 2: Sample description: sociodemographic characteristics and means of WHOQOL-BREF and EPDS, from Pelotas 2004 Birth Cohort and *Cadastro Único* datasets.

	Total sample		**BFP** - intervention group		**Control 1** - per capita income =<100 reais		**Control 2** - wealth index – IEN 1 (poorest households)		**Control 3** - receiving another social benefit	
	N=2940		**N=307**		**N=331**		**N=239**		**N=191**	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Maternal characteristics at perinatal										
Maternal schooling (years)	8.2	3.	6	2.6	6.5	2.6	6.3	2.4	5.5	2.6
Maternal age	20.4	6.8	20.8	6.1	18.4	6.9	16.8	61	17.1	7.4
Household income at perinatal										
Number of people living in the house	3.6	1.7	4.5	1.7	4.8	2	3.3	1.7	4.9	1.9
Monthly household income	818.2	1102.3	401.4	267	315.4	141.6	205.3	212.9	373.2	346.7
Monthly income in minimum wage	3.2	4.3	1.6	1	1.2	.5	1.2	.8	1.4	1.3
Monthly per capita income	282.4	436.5	97	67	68.6	25.7	110.7	88.3	90.2	103.3
National Wealth Index – IEN										
IEN score	432.2	198.1	303.3	114 .5	329.9	135.1	203.9	50	308.3	128.3
IEN quintile	3	1.4	2.1	1	2.2	1.2	1	0	2.1	1.1
Maternal Depressive Symptoms										
*EPDS – 1 year**	7	4.9	8.8	5.5	8	5.3	7.7	5.2	8.3	5.3
*EPDS – 2 years**	7.2	5.1	8.7	5.8	8	5.1	7.9	5	8.6	5.4
*EPDS – 4 years**	7.3	5.4	9	6.2	7.9	5.4	7.6	5.2	8.9	6
*EPDS – 6 years**	7	5.6	8.7	6.2	7.8	5.8	7	5.5	8.8	6.4
Mothers' sense of control										
WHOQOL-BREF – Score total	3.9	.6	3.7	.7	3.8	.6	3.8	.5	3.7	.6
Dimension 1- household resources										
Enough money	3	1	2.5	1.1	2.7	1.1	2.6	1.1	2.4	1.1
Satisfied with housing	3.8	.9	3.5	1	3.7	1	3.5	.9	3.5	1
Dimension 2 – movement/ mobility										
Satisfied with transport	3.6	.9	3.4	.8	3.5	.9	3.6	.8	3.4	.9
Dimension 4 – sexual and reproductive rights										
Satisfied with sex life	4	2.8	3.7	.8	4.1	.8	3.8	.8	3.7	.8
Dimension 7 – Employment										
Ability to work	4	1.7	3.8	.7	3.8	.8	3.9	.8	3.8	.8
Dimension 8 – health care										
Satisfied with health services	2.9	1.1	2.7	1.1	2.8	1.1	2.7	1.1	2.7	1.1

BFP – Bolsa Família Programme, N – number of observations, SD – standard deviation, IEN – Wealth Index questionnaire, WHOQOL-BREF – World Health Organization Quality of Life.
*Edinburgh Postnatal Depression Scale (EPDS): Higher scores indicate more severe depressive symptoms.

BFP and overall sample

Significant disparities emerged when comparing the overall sample to the intervention BFP group from 2004 to 2007. Notably, the overall sample exhibited higher maternal education levels on average, with a difference of two years compared to the BFP group. However, both groups had similar maternal ages. Regarding household characteristics, the overall sample had, on average, one fewer resident in the household than the BFP group. The most substantial contrast was income, where the overall sample had an average monthly income of 818 Brazilian reais, nearly double the 401 reais for the BFP group. This income gap was accompanied by a notably higher standard deviation (1102 reais for the overall sample compared to 267 reais for the BFP group). Similar income disparities were apparent when examining per capita income, with BFP recipients reporting incomes of approximately one-third of those in the overall sample. This trend was also reflected in the standard deviations (436 reais for the overall sample and 67 for the BFP group). Differences in the wealth index (IEN) between the groups were less pronounced but still noted, with the BFP group falling within IEN 2 on average. At the same time, the overall sample's mean was placed in IEN 3, indicating variations in wealth stratum, with the BFP group having less wealth.

Maternal depression scores also showed variations between the groups, with the BFP group averaging 1.5 points higher on the EPDS (higher scores suggest a greater risk of depression). However, it is critical to note that neither group exceeded, on average, the threshold of 10 points for major depression. The overall sample scored around 7, while the BFP group averaged 8.7 in all analysed years. The WHOQOL-BREF scores were nearly identical, with both groups scoring close to '4,' indicating 'satisfaction' with overall quality of life. Nevertheless, in dimension 1 – household resources, the "enough money" question displayed a 0.5-point difference, with the overall sample scoring slightly higher. The remaining questions relating to dimensions 2 (movement/mobility), 4 (sexual and reproductive rights), 7 (employment), and 8 (health care) had virtually identical scores, with a mean difference of 0.2 points higher for the overall sample compared to the BFP intervention group.

Comparison groups

Comparing the mean of the BFP intervention group to the mean of the three control groups reveals several key insights. Maternal education remained relatively consistent across all groups, with an average of approximately 6 years, except for Comparison 3, where the mean years of education were 5.5. Maternal age exhibited variations, with an average of around 20 years for the intervention group, 18 years for Control 1, and approximately 17 years for Control Groups 2 and 3. Household size remained relatively consistent between the BFP and Control Groups 1 and 3, with an average of about 4.5 residents per household. Control Group 2, however, deviated significantly, with an average of over one fewer person per household.

Monthly income displayed differences among the groups, with the intervention group reporting the highest income (401 reais), followed by Group 3 (373 reais) and Group 1 (315 reais). Control Group 2 displayed a substantial deviation, with an average household income of approximately half (205 reais) of the intervention group. However, this difference dissipates when considering income per capita, as the number of residents in Control Group 2 households is significantly lower. Consequently, Control Group 2 has the highest per capita income compared to the intervention and control groups.

Control Group 1 had the lowest per capita income at 68 reais, Control Group 3 at 90 reais, and the intervention BFP group at 97 reais per capita. These figures fell below the BFP eligibility threshold of 100 reais per capita. It is essential to note that individuals in the BFP intervention group often include the amount received from the BFP as part of their self-declared monthly income. The intervention group's average per capita BFP value was 17 reais monthly. Per capita income calculations for Control Groups 1 and 2 were not applicable since they did not receive the BFP during the assessed period. For Control Group 3, this calculation was omitted because it was anticipated that participants would continue receiving benefits in subsequent years. However, I lack these data, as the last available data for BFP receipt was in December 2007.

The wealth index (IEN) showed greater homogeneity between the BFP intervention group and Control Groups 1 and 3, both for the total IEN score (around 300 points) and the stratum division (IEN 2), except for Control Group 2. This result was expected, as Control Group 2 was intended to be IEN 1.

Regarding the depressive symptom score, the intervention group averaged approximately 8.8 points across all analysis time points; Control Group 1 averaged around 8 points, Control Group 2 ranged between 7 and 8 points, and Control Group 3 averaged around 8.5. Control Group 2 consistently scored 1 point lower across all analysis time points than the intervention group. It is essential to remember that a higher score on the EPDS indicates more depressive symptoms.

Concerning the overall WHOQOL-BREF score and the analysed questions, the mean values across the intervention and control groups appear almost identical, with differences not exceeding 0.2 points. The scores, balanced around 4 points for all groups in the WHOQOL-BREF score, indicate an average of 'satisfaction' with the quality of life. This score drops to an average of 2.5 for 'enough money' in all groups, falling between 'unsatisfied' and 'regular.' For 'satisfied with housing' and 'satisfied with transport,' the mean is 3.5 points for both, indicating a level between 'regular' and 'satisfied.' 'Satisfied with sex life' and 'ability to work' score slightly higher, at 3.8 each. Lastly, satisfaction with 'health services' averages 2.7, placing it between 'unsatisfied' and 'regular.'

Multivariate analysis for Outcome 1 – mothers' control and Outcome 2 – symptoms of depression

All variables from the covariate list were included in the multivariate analysis, but only variables with a p-value of <=0.2 were used in the adjusted linear regression model. Specifically, for Outcome 1, only maternal age, the total number of residents in the household, perinatal IEN divided into quintiles, depression symptoms at 4 years, and depression symptoms at 6 years were statistically associated with the total WHOQOL-BREF score at 6 years. Similarly, for Outcome 2, only maternal education, and depression at 1 year, 2 years, and 4 years appeared to explain variations in depression

at 6 years. Based on the separate multivariate regression results for WHOQOL-BREF at 6 years and maternal depression at 6 years, only the covariates above were included in the multilevel linear regression model.

BFP and mothers' control in their living environment (WHOQOL-BREF)

Linear regression was performed to assess the influence of consistent receipt of the BFP over four years on mothers' sense of control. A multiple regression analysis was conducted to account for the covariates identified in the multivariable analysis (Table 3).

Table 3: *Effect of BFP on mothers' sense of control, using WHOQOL-BREF, in a 6-year follow-up among 2004 Pelotas Birth Cohort participants.*

	Comparison 1 – *BFP vs. NoBFP and per capita income below 100 reais* N=**638**		**Comparison 2 –** *BFP vs. NoBFP and wealth index – IEN (poorest households)* N=**546**		**Comparison 3 –** *BFP vs. – NoBFP, but receiving another social benefit in early years* N=**498**	
Outcome 1	Coef. *CI*	R-adj	Coef. *CI*	R-adj	Coef. *CI*	R-adj
WHOQOL-BREF – Score total	-0.01 (-0.12/ 0.09)	.14	0.05 (-0.06/ -0.16)	.12	-0.01 (-0.11/ 0.13)	. .12
Dimension 1- household resources						
Enough money	-0.15 (-0.32/ 0.15)	.13	.09 (-0.10/ -0.28)	.14	0.02 (-0.16/ 0.22)	.16
Satisfied with housing	-0.13 (-0.28/ 0.02)	.08	-0.01 (-0.19/ 0.15)	.07	-0.01 (-0.20/ 0.16)	.06
Dimension 2 – movement/ mobility						
Satisfied with transport	-0.03 (-0.17/ 0.11)	.04	-0.13 (-0.29- 0.01)	.03	0.01 (-0.14/ 0.18)	.03
Dimension 4 – sexual and reproductive rights						
Satisfied with sex life	-0.01 (-0.14/ 0.10)	.15	0.06 (-0.08/ 0.20)	.14	-0.00 (-0.14/ 0.14)	.16
Dimension 7 – Employment						
Ability to work	0.07 (-0.04/ 0.20)	.07	-0.00 (-0.13/ 0.14)	.09	0.07 (-0.06/ 0.20)	.11
Dimension 8 – health care						
Satisfied with health services	-0.09 (-0.27/ 0.08)	.02	-0.00 (-0.20/ 0.20)	.01	-0.02 (-0.22/ 0.17.)	.02

BFP – Bolsa Família Programme, N- number of observations, IEN – Wealth Index questionnaire, CI – confidence interval
*Treatment effects estimator: linear regression controlled for maternal age, total of people living in the same house, and maternal depressive symptoms at 4 years and 6 years after childbirth

Table 3 presents the results of regression analyses investigating the association between BFP receipt for about 4 years and total scores on the WHOQOL-BREF for each of the three comparison groups and the questions related to the control dimensions. The findings reveal no statistically significant association between BFP receipt and WHOQOL-BREF total scores across all comparison groups. Similarly, no statistically significant associations were observed between BFP receipt and the analysed control dimensions, including dimension 1 – household resources with questions about 'enough money' and 'satisfied with housing,' dimension 2 – movement/mobility with the question 'satisfied with transport,' dimension 4 – sexual and reproductive rights with

the question 'satisfied with sex life,' dimension 7 – employment with the question 'ability to work,' and dimension 8 – health care with the question 'satisfied with health services.' All questions in all dimensions had a p-value >0.05, as observed in Table 3.

BFP and mothers' depressive symptoms (EPDS)

Linear regression was performed to assess the influence of consistent BFP receipt on maternal depressive symptoms at 1 year, 2 years, 4 years, and 6 years postpartum. A multiple regression analysis was conducted to account for the covariates identified in the multivariable analysis (Table 4).

Table 4: *Effect of BFP on mothers' depressive symptoms, using the EPDS in the 1-year, 2-year, 4-year, and 6-year follow-up among the 2004 Pelotas Birth Cohort participants*

	Comparison 1 – *BFP vs. NoBFP and per capita income below 100 reais* N=**638**		**Comparison 2 –** *BFP vs. NoBFP and wealth index – IEN 1 (poorest households)* N=**546**		**Comparison 3 –** *BFP vs. – NoBFP, but receiving another social benefit in early years* N=**498**	
Outcome 2	Coef. *CI*	R-adj	Coef. *CI*	R-adj	Coef. *CI*	R-adj
EPDS – 1 year	0.65 (-0.20/ 1,5)	.00	0.94 (0.02/1.85)*****	.0.2	0.59 (-0.39/ 1.58)	.01
EPDS – 2 years	0.20 (-0.50/ 0.91)	.32	0.13 (-0.63/ 0.90)	.33	-0.17 (-1.03/ 0.68)	.31
EPDS – 4 years	0.51 (-0.18/ 1.20)	.42	0.75 (-0.00/1.52)	.41	0.03 (-0.85/0.91)	.37
EPDS – 6 years	-0.06 (-0.68/ 0.81)	.38	0.67 (-0.11/ 1.45)	.41	-0.17 (-1.08/ 0.72)	.38

BFP – Bolsa Família Programme, N- number of observations, IEN – Wealth Index questionnaire, CI – confidence interval
Edinburgh Postnatal Depression Scale (EPDS): Higher scores indicate more severe depressive symptoms.
*Treatment effects estimator: regression controlled for maternal education and maternal depressive symptoms at 1 year, 2 years, and 4 years after childbirth (according to the time of depression symptoms analysed)

Table 4 displays the results of linear regression analyses investigating the relationship between BFP receipt during early years and total EPDS scores at each follow-up point (1 year, 2 years, 4 years, and 6 years after childbirth) for the three comparison groups. The results reveal no statistically significant association (p-value >=0.05) between BFP receipt and EPDS scores across all comparison groups and follow-up periods, except Comparison 2 at the 1-year follow-up (p-value: 0.043). The statistically significant finding suggests that mothers who received BFP had, on average, nine additional points

of depressive symptoms compared to mothers in the control group categorised under Wealth Index 1 (IEN1), denoting extreme poverty, but who did not receive BFP. However, despite its statistical significance (p-value: 0.043), this variation explains only 2% of the change (R2 Adj: 0.02) in EPDS scores at the 1-year time point.

Sensitivity analysis

BFP X No-BFP from the overall sample

For the stratified analysis, the overall sample was divided into two groups, BFP recipients and non-recipients, without applying income-related controls or specific BFP eligibility criteria. This division produced statistically significant negative results for the total WHOQOL-BREF score, as linear regression indicates (Coef. = -0.26, p-value = 0.000, R2 = 0.02). Similar results were observed for all questions in the analysed dimensions of mothers' sense of control. Specifically, in dimension 1 – household resources, the questions about 'enough money' (Coef. = -0.58, p-value = 0.000, R2 = 0.05) and 'satisfied with housing' (Coef. = -0.26, p-value = 0.000, R2 = 0.01), in dimension 2 – movement/mobility, with the question 'satisfied with transport' (Coef. = -0.27, p-value = 0.000, R2 = 0.01), in dimension 4 – sexual and reproductive rights, with the question 'satisfied with sex life' (Coef. = -0.15, p-value = 0.000, R2 = 0.00), in dimension 7 – employment, with the question 'ability to work' (Coef. = -0.18, p-value = 0.012, R2 = 0.000), and in dimension 8 – health care, with the question 'satisfied with health services' (Coef. = -0.32, p-value = 0.000, R2 = 0.01). In other words, mothers who received BFP for at least one month demonstrated a statistically lower sense of control than non-recipients of BFP within the overall sample that did not receive BFP. These regression analyses were conducted with a dataset comprising 2,937 observations. Although statistically significant, these variations explain very little of the outcome, with many explaining around 2% and most explaining less than 1% (R2 < 0.01).

For maternal depression, the results are similar. This division generated statistically significant results for the EPDS score at all follow-ups, as indicated by linear regression. In detail, for the 1-year EPDS (Coef.= 1.81, p-value = 0.000, R2 = 0.02), 2-year EPDS (Coef.= 1.71, p-value = 0.000, R2 = 0.02), 4-year EPDS (Coef.= 2.35, p-value = 0.000, R2 = 0.03), and 6-year EPDS (Coef.= 2.02, p-value = 0.000, R2 = 0.02). In other words,

mothers who received BFP demonstrated statistically higher depressive symptoms than mothers who did not participate in BFP. These regression analyses were conducted with a dataset comprising 2,937 observations. However, this statistically significant association accounts for merely 2% of the model. This low explanation of the phenomenon led to the search for the variables that generated significant changes in mothers' sense of control and maternal depressive symptoms.

Association between depression at 6 years and the sense of control (Outcome 1)

Concerning the sense of control in the environment, all associations with covariates identified in the multivariable analysis (number of people living in the house, EPDS at 4 years, and EPDS at 6 years) demonstrated substantial predictive power for both WHOQOL-BREF score total and all analysed questions in the control dimensions for the overall sample (R2 Adj.: 19 and all mentioned covariates with p-value=0.000). However, this result did not hold for the intervention BFP group, which was only significant for EPDS at the 6-year follow-up (R2 Adj.: 13 and p-value=0.000). The other covariates (number of people living in the house, EPDS at 4 years) had p-values >0.05.

Association between depression in previous years and depressive symptoms at the 6-year follow-up (Outcome 2)

Similarly, all associations with covariates identified in the multivariable analysis (maternal education, EPDS at 1 year, EPDS at 2 years, and EPDS at 4 years) had considerable predictive power for EPDS (depressive symptoms) at the 6-year follow-up for the total sample (R2: 40 and all mentioned covariates with p-value<0.001). However, this result was not supported for the intervention BFP group, which was only significant for EPDS at the 2-year and 4-year follow-ups (R2: 39 and p-value=0.000). The other covariates (maternal education and EPDS at 1 year) had p-values>0.05.

DISCUSSION

This study presents empirical findings that do not support the initial hypothesis concerning the impact of the BFP on mothers. The results indicate that the BFP does not influence mothers' sense of control in their living environment after six years of programme participation. Furthermore, there is no statistically significant reduction in

symptoms of maternal depression during the 1-year, 2-year, 4-year, or 6-year follow-up periods when compared to the three distinct control groups within the 2004 Pelotas Birth Cohort, except for a modest and negative impact on one comparison group at the 1-year follow-up.

On maternal depression and the CTPs literature

The study did not identify a relationship between BFP and changes in maternal depressive symptoms, except for Comparison Group 2 and the first year after giving birth. The statistically significant finding implies that mothers who received BFP had, on average, nine additional points of depressive symptoms compared to mothers who did not receive BFP in the control group categorised under Wealth Index 1 (IEN1 – the poorest householders). However, despite its statistical significance (p-value: 0.043), this variation explains only 2% of the result (R2 Adj: 0.02) in EPDS scores at the 1-year time point. Despite its low predictive power, this finding requires discussion. One notable aspect of this comparison group is that the control group at the perinatal time has one fewer person living in the same household and a slightly higher per capita income than the intervention BFP group (likely already including the BFP amount). It is not possible to conclude that this difference between the groups explains the result. However, it may provide clues regarding where to seek further information regarding in the underlying factors. Interestingly, this finding aligns with the most recent study on BFP and maternal depression (Santos et al., 2023), which found that depressive symptoms were highly prevalent during the first two years postpartum between mothers of BFP, using the same instrument (EPDS).

These null or, when present, negative results for the relationship between BFP and maternal depression contrast with international results for CTPs. For instance, the Indian programme indicated a 36% reduction in moderate depression among women who received payments compared to the control group. Another study indicates that a CTP contributed to a 1–3 percentage point reduction in postpartum depression measured using EPDS, the same scale (Okeke, 2021). The author explained the results through the increased utilisation of healthcare services. Remarkably, in the descriptive data, the access to healthcare dimension was the dimension of control with responses

below ‘regular’ satisfaction, with an average of 2.7, i.e., between ‘unsatisfied’ (2 points) and ‘regular’ (3 points). This low average is consistent across all groups in the overall sample and the three control groups, indicating general dissatisfaction with local healthcare services. Thus, it is feasible that a perceived deficient healthcare system limited the potential positive ‘spill over’ effect on women’s mental health.

Furthermore, maternal depression scores exhibited variations between the overall sample and the BFP intervention group in the descriptive analysis. The BFP group averaged 1.5 points higher on the EPDS employed in this study, with higher scores suggesting a greater risk of depression. While the overall sample had an average score of around 7, the BFP group averaged 8.7. This aligns with the existing literature linking low income to adverse mental health outcomes (Grote et al., 2007; Hjelm et al., 2017; Lupien et al., 2009; Magnuson et al., 2022; Wiltshire et al., 2021). However, none of the groups exceeded the threshold (10 points).

For the sensitivity analysis, the difference between the group that received BFP at least once during the four years analysed and the group that did not receive BFP was statistically significant. In summary, mothers who received any BFP demonstrated higher depressive symptoms than mothers who did not participate in BFP for all follow-ups; however, this association accounts for only 2% of the model. Once more, it is crucial to emphasise that these comparison groups (any BFP and non-BFP) were created solely to test the sensitivity of the proposed statistical model and should not be used as study outcomes, as there was no control for fundamental confounders affecting the analysed outcomes.

Persistent symptoms of depression

In the multivariable analysis, the symptoms of depression at the 6-year follow-up in the intervention BFP group were explained by EPDS scores at the 2-year and 4-year follow-ups (R2: 39 and p-value=0.000). This data reveals an intriguing aspect by indicating that depressive symptoms at the 2-year and 4-year follow-ups explain approximately 40% of the depression at the 6-year follow-up among BFP mothers. It appears that the BFP did not impact reducing depressive symptoms over time. In other words, the depressive symptoms present in mothers at the 2-year follow-up persisted at the 4-year and 6-year

follow-ups. These findings are consistent with recent research on depression in BFP mothers (Santo et al., 2023), which indicated that approximately half of the mothers exhibited persistent symptoms during the first 2 years after giving birth. The study also suggested that the BFP did not affect patterns of discontinuity of maternal depression symptoms.

An Interesting aspect of this (Santos et al., 2023)study is that depressive symptoms were inversely associated with the educational level of the mothers. A similar result was observed for the general sample in the present study, where the covariates (maternal education, EPDS at 1 year, EPDS at 2 years, and EPDS at 4 years) had substantial predictive power for EPDS (depressive symptoms) at the 6-year follow-up for the total sample (R2: 40 and all mentioned covariates with p-value<0.001). However, this result was not supported for the intervention BFP group, where maternal education and EPDS at 1 year had p-values >0.05. The maternal education level was two years lower (6 years in total) for the intervention BFP group than for the general sample (8.2 years), which indicates an area for improvement in the formulation and reach of the BFP.

On mothers' control and the relationship with BFP literature

The assumption that the lack of or limited control in the living environment can trigger numerous adverse physical and mental health outcomes for both mothers and their children (Whitehead et al., 2014) appears to be supported by the previous research on the BFP, which employs terms such as empowerment and autonomy. For example, a study indicates that women reported a heightened sense of agency to overcome everyday obstacles (Pires, 2013), and other literature reviews show positive effects on women's decision-making power regarding citizenship and sexual rights (Bartholo, 2016). Similarly, a comprehensive qualitative study (Sugiyama and Hunter, 2020) suggested that the BFP grants mothers increased control over household finances, integrating them as economic agents. In the present study, although there was no statistical difference between the comparison groups, the descriptive data revealed that the women in both groups (the intervention group and the control groups) reported scoring between 'average' (3 points) to 'satisfied' (4 points) concerning 'housing' (3.5), 'means of transportation' (average of 3.4), 'sexual life' (average of 3.7), and 'ability to work' (3.8 points). Therefore, the literature findings on the BFP on agency/

empowerment and the descriptive data for the BFP intervention group may indicate similarities in the average satisfaction levels on some control dimensions.

The ’ alignment between the descriptive findings in the present study and those reported in the BFP literature regarding mothers’ sense of control may be attributed to methodological variations. Most studies in the BFP literature focusing on agency and empowerment primarily employ qualitative methods (Pires, 2013; Sugiyama & Hunter, 2020), and the literature review itself is exclusively based on qualitative studies (Bartholo, 2016). Furthermore, none of these studies incorporated a comparison group. Therefore, if this study solely considered the descriptive data, the findings for mothers’ sense of control would appear to be in harmony with those in the literature. However, the statistical analysis of the comparison groups suggests a null impact on all studied dimensions of maternal control.

Additionally, the BFP literature primarily utilises subjective and qualitative assessments, which can capture a more nuanced and context-specific view of mothers’ control in their living environment. In contrast, this study utilised quantitative data with specific control groups, which may explain the divergent findings. The BFP literature (Sugiyama & Hunter, 2020; Pires, 2013; Bartholo, 2016) often underscores the programme’s role in empowering women, enhancing their decision-making, and improving their overall well-being. Nevertheless, it is crucial to recognise that quantitative assessments with control groups offer a more rigorous and standardised approach to evaluating programme impact, which may return different results.

Relationship between mothers’ sense of control and maternal depression

The theoretical understanding of the relationship between the sense of control and depression in mothers was rooted in the concept of mutual influence. It was posited that mothers who felt in control of their life circumstances would have a greater capacity to handle stress and challenges and make informed decisions for a better future (Orton et al., 2014; Pennington et al., 2013, 2018b; Popay et al., 2021; Whitehead et al., 2016). This theoretical framework could also shed light on findings suggesting that the expansion of BFP coverage was correlated with reduced suicide

rates (Alves et al., 2019) and that maternal depression played a role in the mental health of adolescent children (Ziebold et al., 2021).

However, in the population studied in this research, the BFP failed to trigger this mechanism outlined in previous literature—namely, the idea that greater control leads to reduced stress and lower depression levels. Instead, the results suggest an exclusive association between more depressive symptoms and lower control, with the reverse relationship not being confirmed. The findings indicated a close relationship between depression and the sense of control, mainly when depression at 6 years emerged as one of the primary explanatory variables for all dimensions of mothers' control. Statistically, depressive symptoms at the 6-year follow-up tended to account for 13% of the variations in responses across the dimensions of mothers' control analysed in this study. Interestingly, for the overall sample, variations in mothers' sense of control were explained by broader variables, such as the number of people in the household and depressive symptoms at the 4-year and 6-year follow-ups.

There is a financial sense of control, but the amount is still insufficient.

The international literature on women's utilisation of funds from CTPs consistently reveals that mothers often regard the received funds as 'their own money (Brauw et al., 2014; Handa et al., 2009; Rubalcava et al., 2009). Even an innovative study conducted in Macedonia (Almås et al., 2018) mainly highlighted that mothers prefer to continue receiving benefits, even if the monetary amounts are reduced, without delving into the adequacy of these reduced amounts for meaningful changes in their living circumstances. Utilising the funds does not necessarily translate into a heightened sense of control among these mothers. My study specifically inquired whether the beneficiaries felt they possessed 'enough money,' with the average response from the BFP beneficiaries indicating 'dissatisfaction'. This response gains further significance when considering the per capita value of the BFP received by the intervention group.

The average per capita value of BFP received by the intervention group amounted to 17 Brazilian reais per month (approximately 3 British pounds), representing approximately 6% of the minimum wage in Brazil in 2004. This amount appears insufficient for these

women to change their living environments substantially. These findings align with research on the Mexican CTP, which suggested that while such programmes may enhance women's ability to manage their funds, this empowerment might not necessarily extend to broader decision-making domains (Handa et al., 2009). Additionally, the descriptive data on per capita income indicated that the intervention BFP group continued to have a per capita income below 100 reais, which is still below the eligibility threshold for the BFP and below the cut-off amount of the poverty line in Brazil in 2004. In other words, even after receiving the BFP, mothers and their families remained in poverty.

Strengths and limitations

This study exhibits several strengths. It is a pioneering investigation that delves into the impact of the BFP on two critical outcomes: its influence on mothers' sense of control in their living environment, employing longitudinal data and examining this subjective variable quantitatively for the first time within the literature. Secondly, it explores the effect of the BFP on the symptoms of maternal depression with an extended follow-up spanning multiple years, administering the assessment instrument at four distinct time points (1 year, 2 years, 4 years, and 6 years). This prolonged observation period provides valuable insights into the enduring consequences of BFP participation. Furthermore, the study employs a cautious approach to create comparison groups, ensuring control for income and wealth index variables. Also, leveraging the credibility of the *Cadastro Único*, which serves as an accurate record of Brazilian families in vulnerable circumstances, the criteria for establishing control groups suggest that mothers in these groups share similar poverty levels and thus are comparable. Moreover, the study employs an explanatory model to gain deeper insights into the intricate relationships under examination.

While this study offers valuable insights, it faces limitations. First, the limitation pertains to the geographical focus on Pelotas, a city in southern Brazil. The diversity across Brazilian regions, including cultural and socioeconomic disparities, limits the generalisability of the findings to the entire country. Data availability poses a significant constraint, particularly the absence of data on BFP recipients beyond December 2007.

The use of the EDPS to measure depressive symptoms at 1 year, 2 years, 4 years, and 6 years after childbirth, although common in Brazilian studies, deviates from the scale's original purpose as a postpartum depression screening tool. Furthermore, the study solely assesses the "perceived" aspect of mothers' control in their living environment due to the available measurement instrument, the WHOQOL-BREF. Using the WHOQOL-BREF to measure dimensions of mothers' control while the selected questions align with these dimensions poses limitations. The instrument was initially designed to assess the quality of life, not the sense of control, potentially affecting the precision of the measurements. The creation of comparison groups based on BFP eligibility criteria and the reliance on *Cadastro Único* records, while methodologically sound, lacks statistical analyses to control for unobserved confounders.

Research agenda

To guide future research, a comprehensive investigation into the determinants of maternal depression and control in the living environment among BFP beneficiaries is essential. This entails examining factors such as race/ethnicity, the number and ages of children, and maternal employability. Furthermore, a gender-informed analysis would contribute to the current debate. Future inquiries could benefit from employing experimental or quasi-experimental research methods, allowing for rigorous control of confounding variables. Additionally, conducting trend analyses on maternal depression, given the availability of depressive symptom data at multiple time points (1, 2, 4, and 6 years post-childbirth), could provide insights into temporal patterns. Future research should consider complementing this study with qualitative designs. A mixed-methods approach can offer a more comprehensive understanding of participants' experiences.

CONCLUSION

This investigation introduces a novel perspective by examining mothers' sense of control in their living environment within a longitudinal study employing quantitative data. Additionally, it marks one of the initial inquiries into the relationship between BFP and maternal depression, representing the first exploration of symptoms of depression across a six-year timeframe. While these findings do not entirely align with previous

discussions on the Brazilian programme, they make a valuable contribution to the growing body of international literature examining the impacts of CTPs on mothers.

As highlighted in the literature, the BFP may give recipient mothers increased autonomy over household finances; however, the value remains insufficient to promote changes in the mothers' life conditions. A pressing question resolves around the transformative capacity (or incapacity) of the meagre monthly per capita BFP amount (17 reais, approximately 3 British pounds). It is evident from existing literature on CTPs that their primary objective is poverty alleviation through direct cash transfers. Nevertheless, in the case of the BFP, the per capita value is so small that mothers continue to live in poverty. This prompts reflection and raises the question of whether results would differ, possibly accommodating more favourable outcomes, if the mothers had the opportunity to transcend poverty rather than alleviate their impoverished conditions.

THESIS DISCUSSION

PhD Context

Encountering results that do not confirm the hypotheses of the proposed studies was the final challenge in the long journey of this PhD. The reaction was to revisit and carefully scrutinise the previous steps' methodological and theoretical aspects and seek expert guidance to comprehend the outcomes.

From a **methodological** standpoint:
To assess the sensitivity of my data, I conducted all analyses anew with different control groups and diverse outcomes. Thus, I returned to the databases and thoroughly restarted the data-cleaning process. I revisited the codebook for the over 800 variables created for this thesis (Appendices 4), generated additional variables, confirmed and/or excluded variables, rewrote STATA codes and commands, attempted variations of these commands/codes, and revisited fundamental statistical analysis textbooks.

From a **theoretical** perspective:
I returned to my origins – psychology and master's degree in clinical psychology – and delved into the determinants of child cognitive development. If the hypothesised theoretical model for this thesis was not confirmed, there were likely components from other models that could be more enlightening. I revisited the literature on childhood cognitive development and found specific studies on the determinants of cognitive development in childhood within my target population, the Pelotas 2004 Cohort. Several questions and self-criticisms arose for not having accessed this bibliographic material before creating the causal model developed for the thesis. However, this was not my research question when I began my doctoral journey in 2018.

At this point, there was an option of including variables related to the determinants of cognitive development that I had not used but had available and could incorporate into the analysis. I contemplated replacing 'paper 3', an analysis of mothers, with a paper delivering more elucidating results on the impact of BFP on the determinants of child cognitive development. However, this was one of the learnings of being a researcher/doctoral candidate: I had a research question, I answered it, and ethically, it needed to be reported.

Another theoretical evolution was a return to studies on multiple vulnerabilities in Brazil for children, prompting a series of questions about the geographical/cultural differences in recent causality studies on the impact of CTP on brain development. While initially understanding the methods and results of studies was sufficient information to validate their outcomes, I now also consider the context, such as the country of origin and the unique characteristics of the studied population groups. After all, the experience of poverty in the global south is not the same as in developed

countries in the north, nor is the understanding and experience of vulnerability for different marginalised groups.

From the BFP expert support:
I contacted public policy managers who worked with the BFP, academics from Brazil, and researchers from other countries in the global south to discuss my results. The feedback received was enlightening. I could discern the discomfort of these professionals and researchers with superficial and detached interpretations of the realities surrounding income transfer policies. Additionally, I received support for my interest in discussing explanatory variables in the outcomes of CTPs, their impact on cognitive development, and the role of mothers in poverty in Brazil and the global south. In the end, I continued with the new literature, critically considered the viewpoints of experts, and attempted to examine my data in the ensuing discussion ethically.

Moreover, an unexpected effect was how sceptical I became of widely used methods in public policy evaluation. Upon re-reading studies that were once my references in my research theme, I started questioning their methods and, consequently, their results. After all, if the employed methods do not consider inconsistencies in vital variables in this field of research, such as income, for example, or if the methods are not sensitive to other dimensions of vulnerability to which people in poverty are subjected and which directly influence their decisions and behaviours, there is a need to contest their results and even their conclusions.

CRITICAL DISCUSSION

Hypotheses and results

This PhD research aimed to investigate the influence of Cash Transfer Programmes (CTPs) on child cognitive development and the role of mothers. Initially, my goal was to assess a causal pathway portraying the impact of CTP on child cognitive development, mediated by mothers' control in their living environment and their symptoms of depression. To achieve this, I formulated three guiding questions. I planned to conduct a systematic review and two longitudinal studies using the *Bolsa Família* Programme (BFP), the Brazilian conditional CTP.

The first question aimed to determine whether CTPs affected mothers' control in their living environment and, if so, in which dimension of control. This question was addressed through a systematic review study (paper 1) examining the eight dimensions of mothers' control. The results revealed increased beneficiary mothers' control over financial resources, primarily directed towards food purchases. Additionally, innovative findings showed that CTPs positively impacted small animal husbandry, indicating a savings strategy in rural contexts. Regarding sexual and reproductive rights, the impacts of CTPs were complex and varied between urban and rural areas. While evidence suggested increased decision-making power in urban settings, this improvement was not uniform. No studies on the dimensions of 'movement/mobility,' 'legal & political resources,' 'education,' and 'health care' were found in the literature on CTPs.

The second question intended to investigate whether the BFP impacted a child's cognitive development. This question was addressed through a longitudinal study (paper 2), and the research findings contradicted the study's hypothesis. Specifically, the research indicated that the BFP had no impact on the cognitive development of 6-year-old children compared to control groups within the 2004 Pelotas Birth Cohort. Contrary to the hypothesised causal pathway based on the literature and developed for this thesis, this result prompted redesigning the third study.

Originally, a study was planned to investigate mothers' mediating role in children's cognitive development. However, given the lack of impact on children's cognitive

development, it was not feasible to hypothesise and investigate the mediation of a null outcome. Therefore, the third question explored whether the BFP impacted mothers' control in their living environment and mothers' symptoms of depression as outcomes (paper 3). Similar to the second study, this question was addressed through a longitudinal study, and the findings diverged from the initial hypothesis regarding the impact of the BFP on mothers. The research indicated that the BFP did not influence mothers' sense of control in their living environment after six years of programme participation. Additionally, there was no statistically significant reduction in symptoms of maternal depression during the 1-year, 2-year, 4-year, or 6-year follow-up periods when compared to the three distinct control groups within the 2004 Pelotas Birth Cohort, except for a modest and negative impact on one comparison group at the 1-year follow-up.

Understanding these results, which challenge the original hypotheses, required an expansion of the literature on determinants of cognitive development, a deepening of the literature on child vulnerabilities, and the need for a careful analysis of the scope of CTPs. Specifically, regarding the BFP, the findings have a high risk of being misinterpreted and used as grounds for disqualifying the Brazilian programme. Aware of these risks and contextualising the findings within the broader scientific literature, the results of the three studies in this thesis will be critically analysed in this discussion. Moreover, the first point is acknowledging that CTPs are not panaceas for all childhood-related outcomes.

CTPs are not panaceas for all childhood-related outcomes.

CTPs were initially developed and implemented to reduce infant mortality and improve health-related outcomes in children (Lagarde et al., 2009; Owusu-Addo et al., 2018; Owusu-Addo & Cross, 2014). The origins of the BFP are similar; the programme was launched focusing on poor and extremely poor families with young children and adolescents, and the results for the outcomes for which the programme was developed are impressive.

The BFP has demonstrated impacts on child mortality and various aspects of child health (Victora et al., 2011). A mixed ecological study found that the BFP and the Family

Health Programme—the National Primary Health Care Service—positively impacted child health inequalities (F. C. Barros et al., 2010) and reduced child mortality (Rasella et al., 2013). A study found that the programme, in coordination with the Family Health Program, played a crucial role in reducing child health inequalities and led to an increased use of health services (Shei et al., 2014). In addition to its impacts on child mortality and healthcare, the BFP has also been shown to positively affect children's nutrition. Evidence indicates that it improves the quality and quantity of food for low-income families (Martins & Monteiro, 2016; Monteiro et al., 2014). Due to the programme's success, other outcomes not initially targeted by the programme began to be investigated, including children's cognitive development.

Paper 2 of this thesis followed this direction and is the first study on the BFP and infant cognitive development. In the international literature, results for this outcome are mixed. A study of the medium-term impacts of a CTP in Nicaragua was positive (Macours et al., 2012), while another study in Malawi found no significant effect on cognitive development (Baird et al., 2011). There are also indications that CTPs positively impact this outcome but are mediated by other variables, such as the cognitive abilities of mothers (Paxson & Schady, 2007), where gains in cognitive development were observed mostly among children whose mothers had higher cognitive abilities. Paper 2 thus contributes to the international literature by inaugurating the theme with the Brazilian programme. However, it must be acknowledged that there are limitations to the programme's reach in an outcome as complex as intelligence, especially in children subjected to multiple vulnerabilities. Considering that approximately half of Brazilian children face multiple challenges in various areas, such as education, information access, housing, sanitation, water provision, and child labour (Paz & Arévalo, 2018), the null result for cognitive development seems coherent.

Also, the amounts provided in cash transfer programmes might impact their results on child cognitive development. For instance, findings from the Mexican conditional cash transfer program indicate that larger cumulative transfers to households, as part of the Oportunidades intervention, were associated with significantly better outcomes in various aspects of child physical, cognitive, and language development (Fernald et al.,

2008). Similarly, insights from the cash transfer program in Nicaragua reveal modest yet non-trivial effects, with the magnitude comparable to differences in outcomes observed between children of mothers with varying levels of schooling. Specifically, in the control group, each additional year of maternal schooling is associated with an average 0.05 standard deviation improvement in child development (Macours, Schady and Vakis, 2012). Furthermore, observations from the cash transfer program in Ecuador suggest that such investments could serve as both compensatory and complementary measures. For children with slower cognitive development, additional resources could have been allocated towards providing better food or extra parental attention. In contrast, brighter children could benefit from supplementary resources to support their intellectual growth (Paxson & Schady, 2007). These comparative analyses shed light on the potential limitations of the Bolsa Família programme's payment amounts and underscore the importance of considering the adequacy of financial support in achieving desired developmental outcomes. In the same vein, the results regarding the impact of CTPs on mothers are the same.

International literature indicates a potential "spill over" of benefits to mothers, but studies where maternal health or living conditions are the outcomes are relatively recent. Paper 1 demonstrated part of this history. For the systematic review, only eight studies were included from an initial screening of 3,071, and the first publication was in 2008, approximately 20 years after the origin of CTPs in Latin American countries. This delay is partly due to the recent recognition of the maternal figure as critical in implementing and maintaining the programme. Even more recent is the movement to analyse subjective dimensions, such as control in the environment, as proposed in papers 1 and 3 of this thesis.

Mothers' control IN or OVER their living environment?

Throughout the thesis, the term used was mothers' control in their living environment. This choice was initially based on the four systematic reviews that gave rise to the construct (Orton et al., 2014; Pennington et al., 2013, 2018; Whitehead et al., 2016). However, papers 1, the systematic review, and 3, the longitudinal study on the BFP and mothers, confirmed the use of IN. Both studies showed that mother deal with the money from CTP and the BFP as "their resource", but what to do with this resource

seemed limited, given its low value and the context of numerous vulnerabilities. Of the eight dimensions investigated, only some appear to have been influenced by CTP money and influenced by many restrictions.

The main finding is that mothers seemed to have more control over household resources (Handa et al., 2009) (dimension 1) and that they tended to invest in buying food (Brauw et al., 2014). Consequently, there was also an indication that CTPs could strengthen mothers' decision-making power in family nutrition (dimension 5) (Rubalcava et al., 2009). An innovative finding in paper 1 was the results that suggest that CTPs positively impact household savings, specifically about small animal husbandry and cash savings. However, this was observed only in the unconditional CTP study (Bonilla et al., 2017). From this principle of no constraints, unconditional CTPs are an interesting sample for studying maternal autonomy.

As for the dimension on sexuality (dimension 4), it stood out regarding the differences between rural and urban contexts. Mothers in the urban context demonstrated an increase in decision-making (Brauw et al., 2014; Feldman et al., 2009), while for mothers in some rural areas, there seems to have been a reduction in women's decision-making power. Remembering that the mothers in the Pelotas cohort only include women who gave birth in the city's urban hospitals, the satisfaction of these mothers in paper 3 reinforces the systematic review's findings. Although there was no statistical difference between the comparison groups, the descriptive data in paper 3 revealed that the mothers in both groups (the intervention group and the control groups) reported scoring between 'average' (3 points) to 'satisfied' (4 points) for their 'sexual life.

As for dimension 7, related to employment, it showed gender issues. In summary, when stratifying the results of the studies from the systematic review by gender, it became clear that the mothers were primarily engaged in informal, temporary, and self-employed jobs, while the same was not observed for husbands or partners (Bergolo & Galván, 2018; Scarlato et al., 2016). Study 3 adds information to this result by showing that mothers felt they had the 'ability to work.' However, there is no guarantee that there is a relationship between feeling capable of working and obtaining a job and

starting to work. This is one of the main differences between studies 1 and 3; study 1 assessed the impact on 'real' control, while study 3 focused on 'perceived' control. Thus, the data complement each other but are not identical.

In addition, the lack of studies on critical dimensions drew attention to both studies on mothers' control in their living environment. For the systematic review, no study was identified for dimensions 'movement/mobility,' 'legal & political resources,' 'education,' and 'health care.' As for the longitudinal study, the instrument used did not have questions that could be paired with dimensions 'legal & political resources' and' education.' However, paper 3 presented findings on mothers' satisfaction with means of transportation, showing overall satisfaction but dissatisfaction with 'health care.' The absence of data in any of these dimensions limits the understanding of the impact of CTPs in critical areas of maternal physical and mental health.

Maternal depression and its relationship with the sense of control

Following a chronological order, the perception of limited data from the systematic review (paper 1) and the null result on mothers' control of the longitudinal study (paper 3) seems to predict the likewise null result for maternal depressive symptoms for most of the analysed time points. Similarly, it does not appear to be a surprise that mothers who received BFP had, on average, nine additional points of depressive symptoms compared to mothers who did not receive BFP in the control group categorised under Wealth Index 1 (IEN1). It is worth noting that this group consists of women with a higher per capita income and fewer people living in the same household. The null result and the finding regarding the difference for a specific group align with the most recent study on the relationship between BFP and maternal depression (Santos et al., 2023) using the same instrument (EPDS). These similarities raise the discussion about the variables that could explain this prevalence but statistically negligible variability in depressive symptoms among the comparison groups.

Specifically for maternal depression, multivariable analysis indicated that depression in previous years (2 and 4 years after giving birth) seemed to explain depression at the longer analysed time, 6 years. However, the results suggest an exclusive association between more depressive symptoms and lower control, with the reverse relationship

not being definitive. The findings indicated a close relationship between depression and the sense of control, especially when depression at 6 years emerged as one of the primary explanatory variables for all dimensions of mothers' control. Statistically, depressive symptoms at the 6-year follow-up tended to account for 13% of the variations in responses across the dimensions of mothers' control analysed in this study. However, the explanatory variables for childhood cognitive development appear to be maternal education and per capita income.

Maternal education

Notably, all three studies present some results related to maternal education. Paper 1 did not find any studies on the relationship between CTP and the dimension 'access to education,' while paper 3 did not find any questions about satisfaction with education among the 26 questions of the WHOQOL-BREF on quality of life. The absence of data on the dimension of 'access to education' in papers 1 and 3 sheds light on how a crucial social determinant of health, as well as a potential mediator for social mobility for mothers and their families out of poverty, has not been studied in the CTPs research field. As for study 2, in its sensitivity analysis, it managed to identify the relevance of maternal education as a determinant of childhood cognitive development. Maternal education explained approximately 21% of the variance in WISC-III scores, a proportion closely aligned with the study using the same dataset investigating the determinants of cognitive development (Camargo-Figuera et al., 2014).

Per capita income

Another strong point in the longitudinal data was the relevance of per capita income. For paper 2, children from the intervention BFP group would have a 5.9-point increase in the intelligence test if the monthly per capita income increased by 100 reais (approximately 20 British pounds). This additional 6-point gain could significantly reduce cognitive disparities between BFP recipient children and the general population, given that the average difference between these groups was 7.5 points. However, the direct per capita income from the BFP was only 17 reais monthly (approximately 3 British pounds). Such findings align with the Mexican CTP study, which showed that larger transfers made by the *Progresa* programme were associated with higher levels of

cognitive development (Fernald et al., 2008). A unique aspect of study 2 was to show that per capita income is a direct determinant, even when controlling for other family variables that could be mediators; in other words, the conclusion is that money matters, as also observed in other systematic reviews on children in poverty situations (Cooper & Stewart, 2021). Furthermore, it seems that for children's development, an amount as low as 100 reais monthly per capita (about 20 British pounds) – which in 2004 represented less than 1/3 of the minimum wage – could decrease the inequality in cognitive development between children in poverty and children from the general population. Although the received amounts mitigate the effects of poverty, these children and mothers remain poor.

CTPs mitigate the impact of poverty, but mothers and children remain impoverished.

The descriptive data from papers 2 and 3 reveal that the total monthly per capita income of BFP beneficiaries is around 98 reais, below Brazil's poverty line threshold in 2004. More impressively, this amount already incorporates the money received from the BFP. This prompts consideration as to whether the financial support provided by the BFP is substantial enough to meaningfully influence the determinants of cognitive development, mothers' sense of control, and maternal depression.

The studies included in the systematic review, paper 1, corroborate these findings of the BFP in the international literature. Women's utilisation of funds from CTPs consistently reveals that mothers use the received funds for basic survival needs, like buying food (Brauw et al., 2014; Handa et al., 2009; Rubalcava et al., 2009). Moreover, data from paper 3 on the impact of the BFP on mothers indicate that the beneficiaries felt they did not possess 'enough money,' with the average response from BFP beneficiaries indicating dissatisfaction. While mothers use the money they receive as their own, the amount is still insufficient to bring about changes in their daily lives. In other words, even after receiving the BFP, mothers and their children remained in poverty.

Furthermore, it is essential to recognise the small per capita value of the BFP. The average per capita value of BFP received by the intervention group amounted to 17

Brazilian reais per month (approximately 3 British pounds), representing approximately 6% of the minimum wage in Brazil in 2004. This amount is insufficient for mothers and children to address the multiple vulnerabilities faced by Brazilian families living in poverty (Paz & Arévalo, 2018) and benefiting from the BFP. To address this, discussions should revolve around increasing the value of the BFP benefit while investing in public policies to reduce social inequalities.

BFP, multiple deprivations, and public policies

National and international literature indicates that CTP results are intricately tangled with the effectiveness of other public policies (Casanovas et al., 2013). An illustrative case is education, where CTPs, including the BFP, have been shown to positively influence school attendance. However, their impact on academic performance tends to be limited (Baird et al., 2014). This limitation can be attributed to the broader educational landscape, encompassing factors such as the quality of the educational system, family support, and community resources.

Similar patterns emerge in health-related outcomes. CTPs, like the BFP, tend to produce more significant benefits in countries with well-established healthcare systems (Gaarder et al., 2010). These outcomes are intricately connected to the effectiveness of the healthcare system, influencing not only child health but also maternal mortality and maternal health outcomes (Alves et al., 2019; Baranov et al., 2017; Fenn et al., 2017; Glassman et al., 2013; Grepin et al., 2019; Handa et al., 2016; Kusuma et al., 2016; Rasella et al., 2021).

In the area of maternal employability and the prevalence of informal, temporary, and low-wage employment, the challenges mothers face may be linked to the limited availability of extra-familial childcare and training opportunities for women (Bergolo & Galván, 2018). This issue becomes particularly pronounced when considering the context of vulnerabilities in low- and middle-income countries, which differs significantly from the vulnerabilities faced by children in developed countries.

The determinants of cognitive development may exhibit variations between low- and middle-income countries compared to high-income countries, restricting from different distributions of vulnerabilities, confounders, and unique associations between exposures and outcomes (Camargo-Figuera et al., 2014; Figuera, 2015). For example, a recent North American RCT study indicated impressive positive results in the brain development of children from beneficiary families of a local CTP (Gennetian et al., 2022). Similarly, a classic and robust review on the exclusive impact of income on child development exclusively employed data from ECDE and European Union countries (Cooper & Stewart, 2021). However, the replicability of the findings from these two examples (a CTP in the United States and a systematic review of studies from ECDE and the European Union countries) might be limited to different sets of vulnerabilities experienced by mothers and children in developing countries. Therefore, it is imperative to cautiously check the context of some studies (for example, from CTPs in the global north or standardised risk factors for cognitive development from high-income nations) before transporting it to countries in the global south without considering their population's unique experiences of deprivation.

Another critical aspect is the temporal dimension associated with vulnerabilities, particularly for the audience in the intervention group of papers 2 and 3. The BFP started in 2003, and the list of priority groups identified by the Ministry of Social Development (ethnic-racial groups, indigenous communities, recyclable material collectors, those with the lowest per capita income, and families with the most children and adolescents) comprises social groups facing extreme poverty and historical, social exclusion. The study utilised data from families enrolled in the programme in 2004, indicating a highly vulnerable group of families. This hypothesis is substantiated by studies on targeting the BFP in Pelotas between 2004 and 2010, revealing that the programme's focus was more precise in Pelotas in 2004 than in subsequent years (Schmidt et al., 2017). This presents an additional challenge for the constitution of comparison groups and a methodological concern for prior studies that did not account for the variable 'historical entry moment' into the programme. There is a risk that earlier studies may have reported results from incomparable groups regarding vulnerability by solely controlling for receiving or not receiving BFP.

Indeed, within a context of poverty and multiple vulnerabilities, such as that experienced by children and mothers benefiting from the BFP in Pelotas, the null results from longitudinal studies (papers 2 and 3) do not appear overly surprising. In other words, the amount received from the BFP is so modest that it has not been proven sufficient to induce changes in the cognitive development of children or in mothers' sense of control in their environment and their depressive symptoms. These outcomes are also contingent on broader structural, political, and social changes, which the CTP alone cannot fully address. CTP alone does not modify poverty's economic and political foundations, as these are predominantly structurally determined. Returning to the programme's origins, CTPs were designed to alleviate poverty; eradicating poverty represents a far more complex goal.

Strengths and limitations

This PhD research demonstrates notable strengths across various dimensions. The systematic review was conducted through an extensive search of diverse databases, encompassing economics, health, psychology, and sociology studies, ensuring a comprehensive and multidisciplinary approach. The richness of information within the included studies further enhances the robustness of the systematic review. The longitudinal studies were pioneers in their respective outcomes. Paper 2 was the first attempt to investigate the relationship between the BFP and the cognitive development of 6-year-old children. Meanwhile, paper 3 examined two critical outcomes, exploring the BFP's impact on mothers' sense of control —quantifying this subjective variable for the first time in the literature—and examining the influence on maternal depression symptoms over an extended follow-up period.

Methodological rigour underscores the research, as evidenced by the creation of four distinct comparison groups for paper 2, reduced to three comparison groups for paper 3, strategically designed to mitigate potential confounding variables. Additionally, leveraging the Pelotas cohort and integrating it into data from the *Cadastro Único* added strength to the research, providing a robust foundation built on reliable and comprehensive datasets. Psychometrically validated tools, including the WISC-III, the WHOQOL-BREF, and the EPDS, enhance the measurements' precision and reliability. Moreover, the research included an explanatory model, offering a nuanced

understanding of vulnerability dynamics and elucidating the intricate interplay between poverty and child cognitive development.

There are also limitations to ponder. For paper 1, the databases searched were conducted in May 2019, and it needs an update up to the beginning of the COVID-19 pandemic (March 2020) to include more recent studies. However, any update should not include studies after the pandemic, which would be a bias for this review. Additionally, the limited number of studies limited the robust conclusion of the findings by the dimensions of control. In addition, one of the main limitations of this review is the need for a quality appraisal analysis. The assessment must be done before the paper is submitted for publication. The generalisation of the results is limited for the longitudinal studies since they rely on data from the Pelotas cohort, which predominantly represents a specific geographic region within Brazil. Data availability poses a constraint with the absence of data on BFP recipients beyond December 2007. Additionally, methodological constraints are inherent in this research due to its dependence on a longitudinal design. While this design is valuable for examining associations, it cannot employ vital causal methodologies like randomised controlled trials (RCTs) or quasi-experimental approaches. Consequently, certain significant confounding variables may have yet to be fully addressed in this study, potentially impacting the findings.

Regarding the instruments, the results of the WISC-III were used to measure cognitive development; although the instrument assesses various dimensions of intelligence, cognition extends beyond aspects of intelligence. The use of the EDPS to measure depressive symptoms 6 years after childbirth, though common in Brazilian studies, deviates from the scale's original purpose as a postpartum depression screening tool. Furthermore, the WHOQOL-BREF was initially designed to assess the quality of life, not the sense of control, potentially affecting the precision of the measurements.

Research agenda

Future research in this field could significantly contribute to understanding the underlying mechanisms through which CTPs impact the cognitive development of children and mothers. A prospective field for investigation involves thoroughly exploring

the determinants influencing cognitive development among beneficiaries of these programmes. Specifically, considering crucial factors, such as race, ethnicity, gender, childcare practices, and stimulation provided to children, could provide relevant insights into the programmes' effectiveness. Methodologically, future inquiries could adopt experimental or quasi-experimental research designs to enhance the precision of causal inferences by rigorously controlling for confounding variables. Additionally, employing trend analyses on maternal depression and integrating qualitative methods like ethnographic studies, interviews, focus groups, and surveys may offer a more comprehensive understanding of the experiences and perspectives of mothers engaged in CTPs.

Furthermore, researchers may consider predictive studies or microsimulation analyses to estimate potential impacts on the analysed outcomes in the context of maternal education and per capita income variations. Recent changes to the BFP benefit during the pandemic and extended to the present (in 2004, the amount of the BFP represented approximately 25% of the minimum wage; today, it constitutes around 40%) present an opportune moment. Therefore, assessing the effects of this altered benefit value on the studied outcomes could provide valuable insights into the programme's evolving impact over time.

CONCLUSION

The outcomes of this PhD investigation revealed through a systematic review provided a more profound comprehension of CTP concerning dimensions of mothers' control in their living environment. Furthermore, it challenged the initial hypotheses and indicated no impact of the BFP on the cognitive development of 6-year-old children, mothers' sense of control, or symptoms of maternal depression, as observed in two longitudinal studies.

While these findings may raise concerns regarding the efficacy of the BFP, it is crucial to contextualise them within the broader scientific literature. The BFP has demonstrated substantial positive effects on critical outcomes, including reducing infant mortality and various positive indicators of child development and mothers' health. Therefore, the

results presented here should be critically analysed, recognising the inherent limitations of the BFP, as it is not a panacea for all maternal and childhood-related outcomes.

Moreover, it is essential to acknowledge the complexities of cognitive development, mothers' control, and maternal depression, along with the minimal per capita value of the BFP. This value needs to be revised to generate structural socioeconomic changes or significant improvements in addressing the numerous vulnerabilities faced by Brazilian families living in poverty and benefiting from the BFP. To address these challenges, discussions should focus on increasing the value of the BFP benefit to a level that can initiate changes. Simultaneously, investing in public policies to reduce social inequalities is paramount. Only through such measures the positive effects of the BFP might extend beyond family survival and contribute to meaningful improvements in the lives of children and their mothers.

REFERENCE

Albee, G. W. (1982). Preventing psychopathology and promoting human potential. *American Psychologist*, *37*(9), 1043–1050. http://psycnet.apa.org/buy/1983-13109-001

Allen, J., Balfour, R., Bell, R., & Marmot, M. (2014). Social determinants of mental health. *International Review of Psychiatry*, *26*(4), 392–407. https://doi.org/10.3109/09540261.2014.928270

Almås, I., Armand, A., Attanasio, O., & Carneiro, P. (2018). Measuring and Changing Control: Women's Empowerment and Targeted Transfers. *Economic Journal*, *128*(612), F609–F639. https://doi.org/10.1111/ecoj.12517

Alves, F. J. O., Machado, D. B., & Barreto, M. L. (2019). Effect of the Brazilian cash transfer programme on suicide rates: a longitudinal analysis of the Brazilian municipalities. *Social Psychiatry and Psychiatric Epidemiology*, *54*(5). https://doi.org/10.1007/s00127-018-1627-6

Ambler, K., & Brauw, A. De. (2017). The Impacts of Cash Transfers on Women's Empowerment. *Social Protection and Labor Discussion Papers*. https://doi.org/10.1596/26272

Anderson, L. M., Shinn, C., Fullilove, M. T., Scrimshaw, S. C., Fielding, J. E., Normand, J., & Carande-Kulis, V. G. (2003). The effectiveness of early childhood development programs: A systematic review. *American Journal of Preventive Medicine*, *24*(3), 32–46. https://doi.org/10.1016/S0749-3797(02)00655-4

Armand, A., Attanasio, O., Carneiro, P., & Lechene, V. (2020). The Effect of Gender-Targeted Conditional Cash Transfers on Household Expenditures: Evidence from a Randomized Experiment. *The Economic Journal Pages*, *130*(631), 1875–1897.

Asbury, K., Wachs, T. D., & Plomin, R. (2005). Environmental moderators of genetic influence on verbal and nonverbal abilities in early childhood. *Intelligence*, *33*(6), 643–661. https://doi.org/10.1016/J.INTELL.2005.03.008

Ashiabi, G. S., & O'Neal, K. K. (2007). Children's Health Status: Examining the Associations among Income Poverty, Material Hardship, and Parental Factors. *PLOS ONE*, *2*(9), e940. https://doi.org/10.1371/JOURNAL.PONE.0000940

Auld, M. C., & Sidhu, N. (2005). Schooling, cognitive ability and health. *Health Economics*, *14*(10), 1019–1034. https://doi.org/10.1002/HEC.1050

Baird, S., Ferreira, F. H. G., Özler, B., & Woolcock, M. (2014). Conditional, unconditional and everything in between: a systematic review of the effects of cash transfer programmes on schooling outcomes. *Journal of Development Effectiveness*, *6*(1), 1–43. https://doi.org/10.1080/19439342.2014.890362

Baird, S., McIntosh, C., & Özler, B. (2011). Cash or condition? Evidence from a cash transfer experiment. *Quarterly Journal of Economics*, *126*(4). https://doi.org/10.1093/qje/qjr032

Banerjee, A. V, Hanna, R., Kreindler, G. E., & Olken, B. A. (2017). Debunking the stereotype of the lazy Welfare recipient: Evidence from cash transfer programs. *World Bank Research Observer*. https://doi.org/10.1093/wbro/lkx002

Baranov, V., Bhalotra, S., Biroli, P., & Maselko, J. (2017). Maternal Depression,Women's Empowerment, and Parental Investment: Evidence from a Large Randomized Control Trial. In *IZA – Institute of Labor Economics*. www.iza.org

Barber, S. L., & Gertler, P. J. (2009). Empowering women to obtain high quality care: evidence from an evaluation of Mexico's conditional cash transfer programme. *Health Policy and Planning*, *24*(1), 18-25-25. https://www.cochranelibrary.com/central/doi/10.1002/central/CN-00747231/full

Barber, S. L., & Gertler, P. J. (2010). Empowering women: how Mexico's conditional cash transfer programme raised prenatal care quality and birth weight. *Journal of Development Effectiveness*, *2*(1), 51–73. https://doi.org/10.1080/19439341003592630

Barrientos, A., & Dejong, J. (2006). Reducing Child Poverty with Cash Transfers: A Sure Thing? In *Development Policy Review* (Vol. 24, Issue 5).

Barros, A. J. D., & Victora, C. G. (2005). Indicador econômico para o Brasil baseado no censo demográfico de 2000. *Revista de Saúde Pública*, *39*(4). https://doi.org/10.1590/s0034-89102005000400002

Barros, D. (2016). Social inequalities in health behaviors among Brazilian adults: National Health Survey, 2013. *Int J Equity Health*, *15*. https://doi.org/10.1186/s12939-016-0439-0

Barros, F. C., Matijasevich, A., Requejo, J. H., Giugliani, E., Maranhão, A. G., Monteiro, C. A., Barros, A. J. D., Bustreo, F., Merialdi, M., & Victora, C. G. (2010). Recent trends in maternal, newborn, and child health in Brazil: progress toward Millennium Development Goals 4 and 5. *American Journal of Public Health*, *100*(10), 1877–1889. https://doi.org/10.2105/AJPH.2010.196816

Bartholo, L. (2016). *Bolsa Família and women's autonomy: What do the qualitative studies tell us?* https://www.ipc-undp.org/pub/eng/PRB57_Bolsa_Familia_and_women_s_autonomy.pdf

Bastagli, F., Hagen-Zanker, J., Harman, L., Barca, V., Sturge, G., Schmidt, T., & Pellerano, L. (2016). *Cash transfers: what does the evidence say? A rigorous review of programme impact and of the role of design and implementation features*. www.odi.org/twitter

Bergolo, M., & Galván, E. (2018). Intra-household Behavioral Responses to Cash Transfer Programs. Evidence from a Regression Discontinuity Design. *World Development*, *103*, 100–118. https://doi.org/10.1016/j.worlddev.2017.10.030

Best, J. R., & Miller, P. H. (2010). A Developmental Perspective on Executive Function. *Child Development*, *81*(6), 1641. https://doi.org/10.1111/J.1467-8624.2010.01499.X

Bick, J., & Nelson, C. A. (2017). Early experience and brain development. *Wiley Interdisciplinary Reviews: Cognitive Science*, *8*(1–2), e1387. https://doi.org/10.1002/WCS.1387

Black, M. M., Walker, S. P., Fernald, L. C. H., Andersen, C. T., DiGirolamo, A. M., Lu, C., McCoy, D. C., Fink, G., Shawar, Y. R., Shiffman, J., Devercelli, A. E., Wodon, Q. T., Vargas-Barón, E., Grantham-McGregor, S., & Lancet Early Childhood Development Series Steering Committee. (2017). Early childhood development coming of age: science through the life course. *Lancet (London, England)*, *389*(10064), 77–90. https://doi.org/10.1016/S0140-6736(16)31389-7

Blair, C., & Cybele Raver, C. (2015). School readiness and self-regulation: a developmental psychobiological approach. *Annual Review of Psychology*, *66*, 711–731. https://doi.org/10.1146/ANNUREV-PSYCH-010814-015221

Blair, C., & Diamond, A. (2008). Biological processes in prevention and intervention: The promotion of self-regulation as a means of preventing school failure. *Development*

and Psychopathology, *20*(3), 899–911. https://doi.org/10.1017/S0954579408000436

Boake, C. (2002). From the Binet–Simon to the Wechsler–Bellevue: Tracing the History of Intelligence Testing. *Journal of Clinical and Experimental Neuropsychology*, *24*(3), 383–405. https://doi.org/10.1076/JCEN.24.3.383.981

Bonilla, J., Zarzur, R. C., Handa, S., Nowlin, C., Peterman, A., Ring, H., & Seidenfeld, D. (2017). Cash for Women's Empowerment? A Mixed-Methods Evaluation of the Government of Zambia's Child Grant Program. *World Development*, *95*, 55–72. https://doi.org/10.1016/J.WORLDDEV.2017.02.017

Bradshaw, S., & Víquez, A. Q. (2008). Women beneficiaries or women bearing the cost? A gendered analysis of the red de protección Social in Nicaragua. *Development and Change*, *39*(5). https://doi.org/10.1111/j.1467-7660.2008.00507.x

Brauw, A. De, Gilligan, D. O., Hoddinott, J., & Roy, S. (2014). The Impact of Bolsa Família on Women's Decision-Making Power. *World Development*, *59*, 487–504. https://doi.org/10.1016/j.worlddev.2013.02.003

Britto, P. R., Lye, S. J., Proulx, K., Yousafzai, A. K., Matthews, S. G., Vaivada, T., Perez-Escamilla, R., Rao, N., Ip, P., Fernald, L. C. H., MacMillan, H., Hanson, M., Wachs, T. D., Yao, H., Yoshikawa, H., Cerezo, A., Leckman, J. F., & Bhutta, Z. A. (2017). Nurturing care: promoting early childhood development. *The Lancet*, *389*(10064), 91–102. https://doi.org/10.1016/S0140-6736(16)31390-3

Brooks-Gunn, J., & Duncan, G. J. (1997). The Effects of Poverty on Children. *The Future of Children*, *7*(2), 55–71. https://doi.org/10.2307/1602387

Brownell, M., Nickel, N. C., Chartier, M., Enns, J. E., Chateau, D., Sarkar, J., Burland, E., Jutte, D. P., Taylor, C., & Katz, A. (2018). An unconditional prenatal income supplement reduces population inequities in birth outcomes. *Health Affairs*, *37*(3), 447–455. https://doi.org/10.1377/hlthaff.2017.1290

Camargo-Figuera, F. A., Barros, A. J. D., Santos, I. S., Matijasevich, A., & Barros, F. C. (2014). Early life determinants of low IQ at age 6 in children from the 2004 Pelotas Birth Cohort: A predictive approach. *BMC Pediatrics*, *14*(1), 308. https://doi.org/10.1186/s12887-014-0308-1

Cao, M., Huang, H., & He, Y. (2017). Developmental Connectomics from Infancy through Early Childhood. *Trends in Neurosciences*, *40*(8), 494–506. https://doi.org/10.1016/J.TINS.2017.06.003

Carroll, G., Vilar-Compte, M., Teruel, G., Moncada, M., Aban-Tamayo, D., Werneck, H., de Moraes, R. M., & Pérez-Escamilla, R. (2022). Estimating the costs for implementing a maternity leave cash transfer program for women employed in the informal sector in Brazil and Ghana. *International Journal for Equity in Health*, *21*(1). https://doi.org/10.1186/s12939-021-01606-z

Casanovas, M. D. C., Mangasaryan, N., Mwadime, R., Hajeebhoy, N., Aguilar, A. M., Kopp, C., Rico, L., Ibiett, G., Andia, D., & Onyango, A. W. (2013). Multi-sectoral interventions for healthy growth. *Maternal and Child Nutrition*, *9*(S2), 46–57. https://doi.org/10.1111/mcn.12082

Catalano, R. F., Fagan, A. A., Gavin, L. E., Greenberg, M. T., Irwin, C. E., Ross, D. A., & Shek, D. T. L. (2012). Worldwide application of prevention science in adolescent health. *The Lancet*, *379*(9826), 1653–1664. https://doi.org/10.1016/S0140-6736(12)60238-4

Cavenachi, S., & Alvez, J. E. D. (2018). *Mulheres chefes de família no Brasil: avanços e desafios*. www.ens.edu.br

Cecchini, S., & Madariaga, A. (2011). Conditional Cash Transfer Programmes: the recent experience in Latin American and the Caribbean. In *United Nation* (Vol. 95). Cuadernos de la CEPAL. https://doi.org/http://dx.doi.org/10.2139/ssrn.1962666

Cecchini, S., & Soares, F. V. (2015). Conditional cash transfers and health in Latin America. *The Lancet*, *385*(9975), e32–e34. https://doi.org/10.1016/S0140-6736(14)61279-4

Colom, R., Rebollo, I., Palacios, A., Juan-Espinosa, M., & Kyllonen, P. C. (2004). Working memory is (almost) perfectly predicted by g. *Intelligence*, *32*(3), 277–296. https://doi.org/10.1016/J.INTELL.2003.12.002

Cookson, T. P. (2016). Working for Inclusion? Conditional Cash Transfers, Rural Women, and the Reproduction of Inequality. *Antipode*, *48*(5), 1187–1205. https://doi.org/10.1111/anti.12256

Cookson, T. P. (2018). Unjust Conditions: Women's Work and the Hidden Cost of Cash Transfer Programs. In *Unjust Conditions: Women's Work and the Hidden Cost of Cash Transfer Programs*. Publisher: University of California Press. https://doi.org/https://doi.org/10.1525/luminos.49

Cookson, T. P., Sandoval, R., Staab, S., Tabbush, C., Bitterly, J., & Mathew, M. (2023). Do governments account for gender when designing their social protection systems? Findings from an analysis of national social protection strategies. *Social Policy & Administration*, 1–15. https://doi.org/10.1111/SPOL.12944

Cooper, K., & Stewart, K. (2021). Does Household Income Affect children's Outcomes? A Systematic Review of the Evidence. *Child Indicators Research*, *14*(3), 981–1005. https://doi.org/10.1007/S12187-020-09782-0/TABLES/9

Couperus, J. W., & Nelson, C. A. (2006). Early Brain Development and Plasticity. In K. McCartney & D. Phillips (Eds.), *Blackwell Handbook of Early Childhood Development* (pp. 85–105). Blackwell Publishing Ltd. https://doi.org/10.1002/9780470757703.CH5

Cox, J. L., Holden, J. M., & Sagovsky, R. (1987). Detection of postnatal depression. Development of the 10-item Edinburgh Postnatal Depression Scale. *The British Journal of Psychiatry : The Journal of Mental Science*, *150*(JUNE), 782–786. https://doi.org/10.1192/BJP.150.6.782

Crea, T. M., Reynolds, A. D., Sinha, A., Eaton, J. W., Robertson, L. A., Mushati, P., Dumba, L., Mavise, G., Makoni, J. C., Schumacher, C. M., & et al. (2015). Effects of cash transfers on children's health and social protection in Sub-Saharan Africa: differences in outcomes based on orphan status and household assets. *BMC Public Health*, *15*, 511. https://doi.org/10.1186/s12889-015-1857-4

Cruz, M. B. Z. (2005). WISC III: Escala de Inteligência Wechsler para crianças: Manual. *Avaliação Psicológica*, *4*(2), 199–201. http://pepsic.bvsalud.org/scielo.php?script=sci_arttext&pid=S1677-04712005000200011

Daelmans, B., Darmstadt, G. L., Lombardi, J., Black, M. M., Britto, P. R., Lye, S., Dua, T., Bhutta, Z. A., & Richter, L. M. (2017). Early childhood development: the foundation of sustainable development. *The Lancet*, *389*(10064), 9–11. https://doi.org/10.1016/S0140-6736(16)31659-2

Dahlgren, G., & Whitehead, M. (2021). The Dahlgren-Whitehead model of health determinants: 30 years on and still chasing rainbows. *Public Health*, *199*, 20–24. https://doi.org/10.1016/J.PUHE.2021.08.009

de Andrade, L. O. M., Filho, A. P., Solar, O., Rígoli, F., de Salazar, L. M., Serrate, P. C.-F., Ribeiro, K. G., Koller, T. S., Cruz, F. N. B., & Atun, R. (2015). Social determinants of

health, universal health coverage, and sustainable development: case studies from Latin American countries. *The Lancet*, *385*(9975), 1343–1351. https://doi.org/10.1016/S0140-6736(14)61494-X

Devereux, S., & Sabates-Wheeler, R. (2004). *Transformative social protection* (232). Institute of Development Studies. https://socialprotection.org/discover/publications/transformative-social-protection

Duncan, G. J., Morris, P. A., & Rodrigues, C. (2011). Does Money Really Matter? Estimating Impacts of Family Income on Young Children's Achievement With Data From Random-Assignment Experiments. *Developmental Psychology*, *47*(5). https://doi.org/10.1037/a0023875

Dygert, H. (2017). The Fight Against Poverty and the Gendered Remaking of Community in Mexico: New Patriarchal Collusions and Gender Solidarities. *Political and Legal Anthropology Review*, *40*(1), 171–187. https://doi.org/10.1111/plar.12206

Eckersley, R. (2015). Beyond inequality: Acknowledging the complexity of social determinants of health. *Social Science & Medicine*, *147*, 121–125. https://doi.org/10.1016/j.socscimed.2015.10.052

Engle, P. L., Fernald, L. C., Alderman, H., Behrman, J., O'Gara, C., Yousafzai, A., de Mello, M. C., Hidrobo, M., Ulkuer, N., Ertem, I., & Iltus, S. (2011). Strategies for reducing inequalities and improving developmental outcomes for young children in low-income and middle-income countries. *The Lancet*, *378*(9799), 1339–1353. https://doi.org/10.1016/S0140-6736(11)60889-1

Farah, M. J., Shera, D. M., Savage, J. H., Betancourt, L., Giannetta, J. M., Brodsky, N. L., Malmud, E. K., & Hurt, H. (2006). Childhood poverty: Specific associations with neurocognitive development. *Brain Research*, *1110*(1), 166–174. https://doi.org/10.1016/j.brainres.2006.06.072

Feinstein, L., & Bynner, J. (2004). The Importance of Cognitive Development in Middle Childhood for Adulthood Socioeconomic Status, Mental Health, and Problem Behavior. *Child Development*, *75*(5), 1329–1339. https://doi.org/10.1111/J.1467-8624.2004.00743.X

Feldman, B. S., Zaslavsky, A. M., Ezzati, M., Peterson, K. E., & Mitchell, Marc. (2009). Contraceptive use, birth spacing, and autonomy: an analysis of the Oportunidades program in rural Mexico. *Studies in Family Planning*, *40*(1), 51–62. https://doi.org/http://www.jstor.org/stable/25593935

Fenn, B., Colbourn, T., Dolan, C., Pietzsch, S., Sangrasi, M., & Shoham, J. (2017). Impact evaluation of different cash-based intervention modalities on child and maternal nutritional status in Sindh Province, Pakistan, at 6 mo and at 1 y: a cluster randomised controlled trial. *Plos Medicine*, *14*(5), e1002305. https://doi.org/https://doi.org/10.1371/journal.pmed.1002305

Fenn, B., Sangrasi, G. M., Puett, C., Trenouth, L., & Pietzsch, S. (2015). The REFANI Pakistan study–a cluster randomised controlled trial of the effectiveness and cost-effectiveness of cash-based transfer programmes on child nutrition status: study protocol. *BMC Public Health*, *15*, 1044. https://doi.org/10.1186/s12889-015-2380-3

Fernald, L. C., Gertler, P. J., & Neufeld, L. M. (2008). Role of cash in conditional cash transfer programmes for child health, growth, and development: an analysis of Mexico's Oportunidades. *Lancet*, *371*(9615), 828–837. https://doi.org/10.1016/S0140-6736(08)60382-7

Fernald, L. C., Gertler, P. J., & Neufeld, L. M. (2009). 10-year effect of Oportunidades, Mexico's conditional cash transfer programme, on child growth, cognition, language, and behaviour: a longitudinal follow-up study. *The Lancet*, *374*(9706), 1997–2005. https://doi.org/10.1016/S0140-6736(09)61676-7

Fernald, L. C., & Hidrobo, M. (2011). Effect of Ecuador's cash transfer program (Bono de Desarrollo Humano) on child development in infants and toddlers: a randomized effectiveness trial. *Social Science & Medicine (1982)*, *72*(9), 1437-1446. https://doi.org/10.1016/j.socscimed.2011.03.005

Figueira, P., Corrêa, H., Malloy-Diniz, L., & Romano-Silva, M. A. (2009). Escala de Depressão Pós-natal de Edimburgo para triagem no sistema público de saúde. *Revista de Saúde Pública*, *43*(SUPPL. 1), 79–84. https://doi.org/10.1590/S0034-89102009000800012

Figuera, F. A. C. (2015). *Determinantes precoces da capacidade cognitiva nas crianças aos 6 anos: Coorte de Nascimentos de Pelotas de 2004* [Thesis, Universidade Federal de Pelotas]. https://doi.org/10.1186/2046-1682-4-13

Filmer, D., & Schady, N. (2011). Does more cash in conditional cash transfer programs always lead to larger impacts on school attendance? *Journal of Development Economics*, *96*(1), 150–157. https://doi.org/10.1016/J.JDEVECO.2010.05.006

Fiszbein, A., Schady, N. R., Ferreira, F. H. G., Grosh, M., Keleher, N., Olinto, P., & Skoufias, E. (2009). *Conditional Cash Transfers: Reducing Present and Future Poverty - Ariel Fiszbein, Norbert R. Schady - Google Livros*.

Frediani, A. A. (2010). Sen's Capability Approach as a framework to the practice of development. *Development in Practice*, *20*(2), 173–187. https://doi.org/10.1080/09614520903564181

Gaarder, M. M., Glassman, A., & Todd, J. E. (2010). Conditional cash transfers and health: unpacking the causal chain. *Journal of Development Effectiveness*, *2*(1), 6–50. https://doi.org/10.1080/19439341003646188

Galiani, S., & McEwan, P. J. (2013). The heterogeneous impact of conditional cash transfers. *Journal of Public Economics*, *103*, 85–96. https://doi.org/10.1016/J.JPUBECO.2013.04.004

García, J. L., Heckman, J. J., Leaf, D. E., & Prados, M. J. (2016). *The Life-cycle Benefits of an Influential Early Childhood Program* (10456). www.hceconomics.org

García, S., & Saavedra, J. E. (2017). Educational Impacts and Cost-Effectiveness of Conditional Cash Transfer Programs in Developing Countries: A Meta-Analysis. *Review of Educational Research*, *87*(5), 921–965. https://doi.org/10.3102/0034654317723008

Gennetian, L. A., Halpern-Meekin, S., Meyer, L., Fox, N., Magnuson, K., Noble, K., & Yoshikawa, H. (2022). Implementing Cash Transfers to U.S. Families: Insights from the Baby's First Years Study. In *Using Cash Transfers to Build an Inclusive Society: A Behaviorally Informed Approach*. Elsevier BV. https://doi.org/10.2139/SSRN.4286345

Gertler, P. (2004). Do Conditional Cash Transfers Improve Child Health? Evidence from PROGRESA's Control Randomized Experiment. *The American Economic Review*, *94*(2), 336–341.

Gil-García, Ó. F. (2015). Gender equality, community divisions, and autonomy: The Prospera conditional cash transfer program in Chiapas, Mexico. *Http://Dx.Doi.Org/10.1177/0011392115593785*, *64*(3), 447–469. https://doi.org/10.1177/0011392115593785

Glassman, A., Duran, D., Fleisher, L., Singer, D., Sturke, R., Angeles, G., Charles, J., Emrey, B., Gleason, J., Mwebsa, W., Saldana, K., Yarrow, K., & Koblinsky, M. (2013). Impact of conditional cash transfers on maternal and newborn health. *Journal of Health, Population, and Nutrition*, *31*(4 Suppl 2), 48–66. http://www.ncbi.nlm.nih.gov/pubmed/24992803

Grepin, K. A., Habyarimana, J., & Jack, W. (2019). Cash on delivery: results of a randomized experiment to promote maternal health care in Kenya. *Journal of Health Economics*, *65*, 15-30. https://doi.org/10.1016/j.jhealeco.2018.12.001

Grote, N. K., Bledsoe, S. E., Larkin, J., Lemay, E. P., & Brown, C. (2007). Stress Exposure and Depression in Disadvantaged Women: The Protective Effects of Optimism and Perceived Control. *Social Work Research*, *31*(1), 19–33. https://doi.org/10.1093/swr/31.1.19

Gugushvili, A., McKee, M., Murphy, M., Azarova, A., Irdam, D., Doniec, K., & King, L. (2018). Intergenerational Mobility in Relative Educational Attainment and Health-Related Behaviours. *Social Indicators Research*, *141*(1), 1–29. https://doi.org/10.1007/s11205-017-1834-7

Hair, N. L., Hanson, J. L., Wolfe, B. L., & Pollak, S. D. (2015). Association of child poverty, brain development, and academic achievement. *JAMA Pediatrics*, *169*(9), 822–829. https://doi.org/10.1001/JAMAPEDIATRICS.2015.1475

Hamadani, J. D., Tofail, F., Huda, S. N., Alam, D. S., Ridout, D. A., Attanasio, O., & Grantham-McGregor, S. M. (2014). Cognitive deficit and poverty in the first 5 years of childhood in Bangladesh. *Pediatrics*, *134*(4). https://doi.org/10.1542/peds.2014-0694

Handa, S., Peterman, A., Davis, B., & Stampini, M. (2009). Opening Up Pandora's Box: The Effect of Gender Targeting and Conditionality on Household Spending Behavior in Mexico's Progresa Program. *World Development*, *37*(6), 1129–1142. https://doi.org/10.1016/J.WORLDDEV.2008.10.005

Handa, S., Peterman, A., Seidenfeld, D., & Tembo, G. (2016). Income Transfers and Maternal Health: evidence from a National Randomized Social Cash Transfer Program in Zambia. *Health Economics*, *25*(2), 225-236. https://doi.org/10.1002/hec.3136

Hanscombe, K. B., Trzaskowski, M., Haworth, C. M. A., Davis, O. S. P., Dale, P. S., & Plomin, R. (2012). Socioeconomic Status (SES) and Children's Intelligence (IQ): In a UK-Representative Sample SES Moderates the Environmental, Not Genetic, Effect on IQ. *PLOS ONE*, *7*(2), e30320. https://doi.org/10.1371/JOURNAL.PONE.0030320

Harris-Fry, H. A., Paudel, P., Harrisson, T., Shrestha, N., Jha, S., Beard, B. J., Copas, A., Shrestha, B. P., Manandhar, D. S., Costello, A. L. M. De, & et al. (2018). Participatory women's groups with cash transfers can increase dietary diversity and micronutrient adequacy during pregnancy, whereas women's groups with food transfers can increase equity in intrahousehold energy allocation. *Journal of Nutrition*, *148*(9), 1472–1483. https://doi.org/10.1093/jn/nxy109

Heckman, J. J. (2008). Schools, skills, and synapses. *Economic Inquiry*, *46*(3), 289–324. https://doi.org/10.1111/J.1465-7295.2008.00163.X

Heckman, J. J., Mosso, S., Becker, G., Bisin, A., Cosconati, M., Cunha, F., Durlauf, S., Flinn, C., Lochner, L., Mogstad, M., Neal, D., Seshadri, A., & Pollak, R. (2014). The Economics of Human Development and Social Mobility. *Annual Review of Economics*, *6*, 689–733. https://doi.org/https://doi.org/10.1146/annurev-economics-080213-040753

Herd, P. (2010). Education and Health in Late-life among High School Graduates. *Journal of Health and Social Behavior*, *51*(4), 478–496. https://doi.org/10.1177/0022146510386796

Hjelm, L., Handa, S., de Hoop, J., & Palermo, T. (2017). Poverty and perceived stress: Evidence from two unconditional cash transfer programs in Zambia. *Social Science & Medicine*, *177*, 110–117. https://doi.org/10.1016/J.SOCSCIMED.2017.01.023

Holz, N. E., Boecker, R., Hohm, E., Zohsel, K., Buchmann, A. F., Blomeyer, D., Jennen-Steinmetz, C., Baumeister, S., Hohmann, S., Wolf, I., Plichta, M. M., Esser, G., Schmidt, M., Meyer-Lindenberg, A., Banaschewski, T., Brandeis, D., & Laucht, M. (2015). The long-term impact of early life poverty on orbitofrontal cortex volume in adulthood: Results from a prospective study over 25 years. *Neuropsychopharmacology*, *40*(4), 996–1004. https://doi.org/10.1038/NPP.2014.277

Hunter, W., Patel, L., & Sugiyama, N. B. (2020). How family and child cash transfers can empower women: Comparative lessons from Brazil and South Africa: *Https://Doi.Org/10.1177/1468018120981421*, *21*(2), 258–277. https://doi.org/10.1177/1468018120981421

Jiang, W., Zhou, Z., Li, G., Yin, W., Wu, Z., Wang, L., Ghanbari, M., Li, G., Yap, P. T., Howell, B. R., Styner, M. A., Yacoub, E., Hazlett, H., Gilmore, J. H., Keith Smith, J., Ugurbil, K., Elison, J. T., Zhang, H., Shen, D., & Lin, W. (2023). Mapping the evolution of regional brain network efficiency and its association with cognitive abilities during the first twenty-eight months of life. *Developmental Cognitive Neuroscience*, *63*, 101284. https://doi.org/10.1016/J.DCN.2023.101284

Jones, H. (2016). More Education, Better Jobs? A Critical Review of CCTs and Brazil's Bolsa Família Programme for Long-Term Poverty Reduction. *Social Policy and Society*, *15*(03), 465–478. https://doi.org/10.1017/S1474746416000087

Jones, H. (2017). *Breaking the Intergenerational Cycle of Poverty? Young People's Long-Term Trajectories in Brazil's Bolsa Família Programme*. University of Oxford.

Kabeer, N., & Waddington, H. (2015). Economic impacts of conditional cash transfer programmes: a systematic review and meta-analysis. *Journal of Development Effectiveness*, *7*(3), 290–303. https://doi.org/10.1080/19439342.2015.1068833

Kafle, K., Michelson, H., & Winter-Nelson, A. (2019). His, Hers, or Ours: Impacts of a Training and Asset Transfer Programme on Intra-Household Decision-Making in Zambia. *The Journal of Development Studies*, *55*(9), 2046–2064. https://doi.org/10.1080/00220388.2018.1516868

Kaiser, T., Li, J., Pollmann-Schult, M., & Song, A. Y. (2017). Poverty and Child Behavioral Problems: The Mediating Role of Parenting and Parental Well-Being. *International Journal of Environmental Research and Public Health*, *14*(9), 981. https://doi.org/10.3390/ijerph14090981

Kaufman, A. S., Kaufman, J. C., Balgopal, R., & McLean, J. E. (1996). Comparison of three WISC-III short forms: Weighing psychometric, clinical, and practical factors. *Journal of Clinical Child Psychology*, *25*(1), 97–105. https://doi.org/10.1207/s15374424jccp2501_11

Kim, D. J., Davis, E. P., Sandman, C. A., Glynn, L., Sporns, O., O'Donnell, B. F., & Hetrick, W. P. (2019). Childhood poverty and the organization of structural brain connectome. *NeuroImage*, *184*, 409–416. https://doi.org/10.1016/J.NEUROIMAGE.2018.09.041

Kim, P., Capistrano, C. G., Erhart, A., Gray-Schiff, R., & Xu, N. (2017). Socioeconomic disadvantage, neural responses to infant emotions, and emotional availability

among first-time new mothers. *Behavioural Brain Research*, *325*, 188–196. https://doi.org/10.1016/j.bbr.2017.02.001

Kirkwood, E. K., DIbley, M. J., Hoddinott, J. F., Huda, T., Laba, T. L., Tahsina, T., Hasan, M. M., Iqbal, A., Khan, J., Ali, N. B., Ullah, S., Goodwin, N., Muthayya, S., Islam, M. M., Ara, G., Agho, K. E., Arifeen, S. E., & Alam, A. (2021). Assessing the impact of a combined nutrition counselling and cash transfer intervention on women's empowerment in rural Bangladesh: A randomised control trial protocol. *BMJ Open*, *11*(6), e044263. https://doi.org/10.1136/bmjopen-2020-044263

Kullik, A., & Petermann, F. (2013). Attachment to parents and peers as a risk factor for adolescent depressive disorders: the mediating role of emotion regulation. *Child Psychiatry & Human Development*, *44*(4), 537–548. https://doi.org/10.1007/s10578-012-0347-5

Kusuma, D., Cohen, J., McConnell, M., & Berman, P. (2016). Can cash transfers improve determinants of maternal mortality? Evidence from the household and community programs in Indonesia. *Social Science & Medicine*, *163*, 10-20. https://doi.org/10.1016/j.socscimed.2016.06.020

Labrecque, J. (2017). *Conditional cash transfers and child health*. [Thesis, McGill University]

Lagarde, M., Haines, A., & Palmer, N. (2009). The impact of conditional cash transfers on health outcomes and use of health services in low and middle income countries. *Cochrane Database of Systematic Reviews*, *4*, CD008137. https://doi.org/10.1002/14651858.CD008137

Laverack, G. (2006). Using a 'domains' approach to build community empowerment. *Community Development Journal*, *41*(1), 4–12. https://doi.org/10.1093/CDJ/BSI038

Lawlor, D. A., Batty, G. D., Morton, S. M. B., Deary, I. J., Macintyre, S., Ronalds, G., & Leon, D. A. (2005). Early life predictors of childhood intelligence: evidence from the Aberdeen children of the 1950s study. *Journal of Epidemiology & Community Health*, *59*(8), 656–663. https://doi.org/10.1136/JECH.2004.030205

Layte, R., & Whelan, C. T. (2014). Who Feels Inferior? A Test of the Status Anxiety Hypothesis of Social Inequalities in Health. *European Sociological Review*, *30*(4), 525–535. https://doi.org/10.1093/esr/jcu057

Lund, C., Breen, A., Flisher, A. J., Kakuma, R., Corrigall, J., Joska, J. A., Swartz, L., & Patel, V. (2010). Poverty and common mental disorders in low and middle income countries: A systematic review. *Social Science & Medicine*, *71*(3), 517–528. https://doi.org/10.1016/J.SOCSCIMED.2010.04.027

Lupien, S. J., McEwen, B. S., Gunnar, M. R., & Heim, C. (2009). Effects of stress throughout the lifespan on the brain, behaviour and cognition. *Nature Reviews Neuroscience 2009 10:6*, *10*(6), 434–445. https://doi.org/10.1038/nrn2639

Macours, K., Schady, N., & Vakis, R. (2012). Cash Transfers, Behavioral Changes, and Cognitive Development in Early Childhood: Evidence from a Randomized Experiment. *American Economic Journal: Applied Economics*, *4*(2), 247–273. https://doi.org/10.1257/APP.4.2.247

Magnuson, K., Yoo, P., Duncan, G., Yoshikawa, H., Trang, K., Gennetian, L. A., Halpern-Meekin, S., Fox, N., & Noble, K. (2022). Can a Poverty Reduction Intervention Reduce Family Stress Among Families with Infants? An Experimental Analysis. *SSRN Electronic Journal*. https://doi.org/10.2139/SSRN.4188131

Manacorda, M., Miguel, E., & Vigorito, A. (2011). Government Transfers and Political Support. *American Economic Journal: Applied Economics*, *3*(3), 1–28. https://doi.org/10.1257/app.3.3.1

Marmot, M. (2004). Status syndrome. *Significance*, *1*(4), 150–154. https://doi.org/10.1111/j.1740-9713.2004.00058.x

Marmot, M., & Allen, J. J. (2014). Social determinants of health equity. *American Journal of Public Health*, *104 Suppl 4*(S4), S517-9. https://doi.org/10.2105/AJPH.2014.302200

Marmot, M., & Bell, R. (2012). Fair society, healthy lives. *Public Health*. https://doi.org/10.1016/j.puhe.2012.05.014

Martins, A. P. B., & Monteiro, C. A. (2016a). Impact of the Bolsa Família program on food availability of low-income Brazilian families: A quasi experimental study. *BMC Public Health*, *16*(1), 1–11. https://doi.org/10.1186/S12889-016-3486-Y/TABLES/4

Matijasevich, A., Munhoz, T. N., Tavares, B. F., Barbosa, A. P. P. N., da Silva, D. M., Abitante, M. S., Dall'Agnol, T. A., & Santos, I. S. (2014). Validation of the Edinburgh postnatal depression scale (EPDS) for screening of major depressive episode among adults from the general population. *BMC Psychiatry*, *14*(1). https://doi.org/10.1186/s12888-014-0284-x

McKee, L. G., Parent, J., Zachary, C. R., & Forehand, R. (2018). Mindful Parenting and Emotion Socialization Practices: Concurrent and Longitudinal Associations. *Family Process*, *57*(3), 752–766. https://doi.org/10.1111/famp.12329

Merz, E. C., Desai, P. M., Maskus, E. A., Melvin, S. A., Rehman, R., Torres, S. D., Meyer, J., He, X., & Noble, K. G. (2019). Socioeconomic Disparities in Chronic Physiologic Stress Are Associated With Brain Structure in Children. *Biological Psychiatry*, *86*(12), 921–929. https://doi.org/10.1016/j.biopsych.2019.05.024

Merz, E. C., Wiltshire, C. A., & Noble, K. G. (2019). Socioeconomic Inequality and the Developing Brain: Spotlight on Language and Executive Function. *Child Development Perspectives*, *13*(1), 15–20. https://doi.org/10.1111/CDEP.12305

Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., Altman, D., Antes, G., Atkins, D., Barbour, V., Barrowman, N., Berlin, J. A., Clark, J., Clarke, M., Cook, D., D'Amico, R., Deeks, J. J., Devereaux, P. J., Dickersin, K., Egger, M., Ernst, E., … Tugwell, P. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *PLoS Medicine*, *6*(7). https://doi.org/10.1371/journal.pmed.1000097

Molyneux, M., Jones, W. N., & Samuels, F. (2016). Can Cash Transfer Programmes Have 'Transformative' Effects? *The Journal of Development Studies*, *52*(8), 1087–1098. https://doi.org/10.1080/00220388.2015.1134781

Molyneux, M., & Thomson, M. (2011). Cash transfers, gender equity and women's empowerment in Peru, Ecuador and Bolivia. *Gender & Development*, *19*(2), 195–212. https://doi.org/10.1080/13552074.2011.592631

Monteiro, F., Schmidt, S. T., da Costa, I. B., Almeida, C. C. B., & da Silva Matuda, N. (2014). Bolsa Família: food and nutrition insecurity of children under five years of age. *Ciencia & Saude Coletiva*, *19*(5), 1347–1357. http://www.ncbi.nlm.nih.gov/pubmed/24897200

Nagels, N. (2021). Gender, the World Bank, and conditional cash transfers in Latin America. *International Feminist Journal of Politics*, *23*(5), 676–697. https://doi.org/10.1080/14616742.2021.1895862

Najman, J. M., Hayatbakhsh, M. R., Heron, M. A., Bor, W., O'Callaghan, M. J., & Williams, G. M. (2009). The Impact of Episodic and Chronic Poverty on Child Cognitive Development. *Journal of Pediatrics*, *154*(2). https://doi.org/10.1016/j.jpeds.2008.08.052

Nelson, C. A. (2000). Neural plasticity and human development: The role of early experience in sculpting memory systems. *Developmental Science*, *3*(2), 115–136. https://doi.org/10.1111/1467-7687.00104

Nkomoki, W., Bavorová, M., & Banout, J. (2019). Factors Associated with Household Food Security in Zambia. *Sustainability*, *11*(9), 2715. https://doi.org/10.3390/SU11092715

Noble, K. G., Engelhardt, L. E., Brito, N. H., Mack, L. J., Nail, E. J., Angal, J., Barr, R., Fifer, W. P., & Elliott, A. J. (2015). Socioeconomic disparities in neurocognitive development in the first two years of life. *Developmental Psychobiology*, *57*(5), 535–551. https://doi.org/10.1002/DEV.21303

Noble, K. G., & Giebler, M. A. (2020). The neuroscience of socioeconomic inequality. *Current Opinion in Behavioral Sciences*, *36*, 23–28. https://doi.org/10.1016/J.COBEHA.2020.05.007

Noble, K. G., Houston, S. M., Brito, N. H., Bartsch, H., Kan, E., Kuperman, J. M., Akshoomoff, N., Amaral, D. G., Bloss, C. S., Libiger, O., Schork, N. J., Murray, S. S., Casey, B. J., Chang, L., Ernst, T. M., Frazier, J. A., Gruen, J. R., Kennedy, D. N., Van Zijl, P., … Sowell, E. R. (2015). Family income, parental education and brain structure in children and adolescents. *Nature Neuroscience*, *18*(5), 773–778. https://doi.org/10.1038/NN.3983

Noble, K. G., McCandliss, B. D., & Farah, M. J. (2007). Socioeconomic gradients predict individual differences in neurocognitive abilities. *Developmental Science*, *10*(4), 464–480. https://doi.org/10.1111/j.1467-7687.2007.00600.x

Okado, Y., Bierman, K. L., & Welsh, J. A. (2014). Promoting School Readiness in the Context of Socio-Economic Adversity: Associations with Parental Demoralization and Support for Learning. *Child & Youth Care Forum*, *43*(3), 353–371. https://doi.org/10.1007/s10566-013-9242-x

Okeke, E. N. (2021). Money and my mind: Maternal cash transfers and mental health. *Health Economics*, *30*(11), 2879–2904. https://doi.org/10.1002/hec.4398

Orton, L., Orton, L., Pennington, A., Nayak, S., Whitehead, M., Petticrew, M., White, M., & Sowden, A. (2014). The health inequalities impact of low control in the living environment: a theory-led systematic review of observational studies: Lois Orton. *European Journal of Public Health*, *24*(2), cku162-069. https://doi.org/10.1093/EURPUB/CKU162.069

Otero, G. A., Pliego-Rivero, F. B., Fernández, T., & Ricardo, J. (2003). EEG development in children with sociocultural disadvantages: A follow-up study. *Clinical Neurophysiology*, *114*(10). https://doi.org/10.1016/S1388-2457(03)00173-1

Owusu-Addo, E., & Cross, R. (2014). The impact of conditional cash transfers on child health in low-and middle-income countries: a systematic review. *International Journal of Public Health*, *59*(4), 609–618. https://doi.org/10.1007/s00038-014-0570-x

Owusu-Addo, E., Renzaho, A. M. N., & Smith, B. J. (2018). The impact of cash transfers on social determinants of health and health inequalities in sub-Saharan Africa: a systematic review. *Health Policy and Planning*, *33*(5), 675–696. https://doi.org/10.1093/HEAPOL/CZY020

Paes-Sousa, R., Santos, L. M. P., & Miazaki, É. S. (2011). Effects of a conditional cash transfer programme on child nutrition in Brazil. *Bulletin of the World Health Organization*, *89*(7), 496–503. https://doi.org/10.2471/BLT.10.084202

Passos, L., & Waltenberg, F. (2016). Bolsa Família e assimetrias de gênero: reforço ou mitigação? *. *Revista Brasileira de Estudos de População*, *33*(3), 517–539. https://doi.org/10.20947/S0102-30982016c0004

Paxson, C., & Schady, N. (2007). Cognitive development among young children in Ecuador: The roles of wealth, health, and parenting. *Journal of Human Resources*, *42*(1), 49–84. https://doi.org/10.3368/jhr.xlii.1.49

Paz, J., & Arévalo, C. (2018). *Bem-estar e privações múltiplas na infância e na adolescência no Brasil*. UNICEF. www.twitter.com/unicefbrasil

Pennington, A., Orton, L., Nayak, S., Ring, A., Petticrew, M., Sowden, A., White, M., & Whitehead, M. (2018). The health impacts of women's low control in their living environment: A theory-based systematic review of observational studies in societies with profound gender discrimination. *Health & Place*, *51*, 1–10. https://doi.org/10.1016/J.HEALTHPLACE.2018.02.001

Pennington, A., Orton, L., Whitehead, M., Ring, A., Fox, D., Petticrew, M., White, M., & Sowden, A. (2013). Missing women? The health inequalities impact of low control and gender discrimination: a theory-led systematic review of observational studies. *European Journal of Public Health*, *23*(suppl_1). https://doi.org/10.1093/eurpub/ckt126.216

Pick, S., & Sirkin, J. (2010). *Breaking the Poverty Cycle: The Human Basis for Sustainable Development*. Oxford University Press. https://doi.org/10.1093/acprof:oso/9780195383164.001.0001

Pires, A. (2013). Afinal, para que servem as condicionalidades em educação do Programa Bolsa Família? *Ensaio: Avaliação e Políticas Públicas Em Educação*, *21*(80), 513–532. http://www.scielo.br/pdf/ensaio/v21n80/a07v21n80

Plomin, R., & Spinath, F. M. (2002). Genetics and general cognitive ability (g). *Trends in Cognitive Sciences*, *6*(4), 169–176. https://doi.org/10.1016/S1364-6613(00)01853-2

Plomin, R., & Spinath, F. M. (2004). Intelligence: Genetics, Genes, and Genomics. *Journal of Personality and Social Psychology*, *86*(1), 112–129. https://doi.org/10.1037/0022-3514.86.1.112

Ponce, J., & Bedi, A. S. (2010). The impact of a cash transfer program on cognitive achievement: The Bono de Desarrollo Humano of Ecuador. *Economics of Education Review*, *29*(1), 116–125. https://doi.org/10.1016/J.ECONEDUREV.2009.07.005

Popay, J., Whitehead, M., Ponsford, R., Egan, M., & Mead, R. (2021). Power, control, communities and health inequalities I: Theories, concepts and analytical frameworks. *Health Promotion International*, *36*(5), 1253–1263. https://doi.org/10.1093/heapro/daaa133

Psychogiou, L., & Parry, E. (2014). Why do depressed individuals have difficulties in their parenting role? *Psychological Medicine*, *44*(7), 1345–1347. https://doi.org/10.1017/S0033291713001931

Rakesh, D., & Whittle, S. (2021). Socioeconomic status and the developing brain – A systematic review of neuroimaging findings in youth. *Neuroscience and Biobehavioral Reviews*, *130*, 379–407. https://doi.org/10.1016/j.neubiorev.2021.08.027

Ramírez-Silva, I., Rivera, J. A., Leroy, J. L., & Neufeld, L. M. (2013). The Oportunidades program's fortified food supplement, but not improvements in the home diet, increased the intake of key micronutrients in rural Mexican children aged 12-59 months. *Journal of Nutrition*, *143*(5), 656-663. https://doi.org/10.3945/jn.112.162792

Rasella, D., Alves, F. J. O., Rebouças, P., de Jesus, G. S., Barreto, M. L., Campello, T., & Paixao, E. S. (2021). Long-term impact of a conditional cash transfer programme on maternal mortality: a nationwide analysis of Brazilian longitudinal data. *BMC Medicine*, *19*(1). https://doi.org/10.1186/s12916-021-01994-7

Rasella, D., Aquino, R., & Barreto, M. L. (2010). Reducing childhood mortality from diarrhea and lower respiratory tract infections in Brazil. *Pediatrics*, *126*(3), e534-40. https://doi.org/10.1542/peds.2009-3197

Rasella, D., Aquino, R., Santos, C. A. T., Paes-Sousa, R., & Barreto, M. L. (2013). Effect of a conditional cash transfer programme on childhood mortality: a nationwide analysis of Brazilian municipalities. *The Lancet*, *382*, 57–64. https://doi.org/10.1016/S0140-6736(13)60715-1

Rasella, D., Basu, S., Hone, T., Paes-Sousa, R., Ocké-Reis, C. O., & Millett, C. (2018). Child morbidity and mortality associated with alternative policy responses to the economic crisis in Brazil: A nationwide microsimulation study. *PLoS Medicine*, *15*(5). https://doi.org/10.1371/journal.pmed.1002570

Rubalcava, L., Teruel, G., & Thomas, D. (2009). Investments, time preferences, and public transfers paid to women. *Economic Development and Cultural Change*, *57*(3), 507–538. https://doi.org/10.1086/596617

Rubio-Codina, M., Attanasio, O., Meghir, C., Varela, N., & Grantham-Mcgregor, S. (2013). *The Socio-Economic Gradient of Child Development Cross-Sectional Evidence from Children 6-42 Months in Bogota*.

Ryzin, M. J. Van, Fishbein, D., & Biglan, A. (2018). The promise of prevention science for addressing intergenerational poverty. *Psychology, Public Policy, and Law*, *24*(1), 128–143. https://doi.org/10.1037/law0000138

Saavedra, J., & Garcia, S. (2012). *Impacts of Conditional Cash Transfer Programs on Educational Outcomes in Developing Countries* (921; 1). RAND Corporation.

Saklofske, D. H., Austin, E., Matthews, G., Zeidner, M., Schwean, Vicki. L., & Groth-Marnat, G. (2003). *Intelligence and Personality* (pp. 123–156). The Guildford Press. https://www.research.ed.ac.uk/en/publications/intelligence-and-personality

Santos, I. S., Barros, A. J., Matijasevich, A., Zanini, R., Cesar, M. A. C., Camargo-Figuera, F. A., Oliveira, I. O., Barros, F. C., & Victora, C. G. (2014). Cohort Profile Update: 2004 Pelotas (Brazil) Birth Cohort Study. Body composition, mental health and genetic assessment at the 6 years follow-up. *International Journal of Epidemiology*, *43*(5), 1437. https://doi.org/10.1093/ije/dyu144

Santos, I. S., Blumenberg, C., Munhoz, T. N., Matijasevich, A., Júnior, H. G. S., dos Santos, L. M., Correia, L. L., de Souza, M. R., Lira, P. I. C., Bortolotto, C. C., Barcelos, R., Altafim, E., Chicaro, M. F., Macana, E. C., da Silva, R. S., & Victora, C. G. (2023). Course of depression during the first 2 years postpartum among Brazilian women enrolled in a conditional cash transfer program. *The International Journal of Social Psychiatry*, *69*(5), 1193–1201. https://doi.org/10.1177/00207640231154376

Santos, I. S., Munhoz, T. N., Blumenberg, C., Barcelos, R., Bortolotto, C. C., Matijasevich, A., Júnior, H. G. S., dos Santos, L. M., Correia, L. L., de Souza, M. R., Lira, P. I. C., Altafim, E., Marino, E., Macana, E. C., da Silva, R. S., Ohana, E. F., Fontes, M. T. A., & Victora, C. G. (2021). Post-partum depression: a cross-sectional study of women enrolled in a conditional cash transfer program in 30 Brazilian cities. *Journal of Affective Disorders*, *281*, 510–516. https://doi.org/10.1016/J.JAD.2020.12.042

Santos, M. C. S., Delatorre, L. R., das Graças Braga Ceccato, M., & de Fátima Bonolo, P. (2019). Programa Bolsa Família e indicadores educacionais em crianças,

adolescentes e escolas no Brasil: revisão sistemática. *Ciência & Saúde Coletiva*, *24*(6). https://doi.org/10.1590/1413-81232018246.19582017

Scarlato, M., d'Agostino, G., & Capparucci, F. (2016). Evaluating CCTs from a Gender Perspective: The Impact of Chile Solidario on Women's Employment Prospect. *Journal of International Development*, *28*(2), 177–197. https://doi.org/10.1002/JID.3124

Schady, N., Behrman, J., Araujo, M. C., Azuero, R., Bernal, R., Bravo, D., Lopez-Boo, F., Macours, K., Marshall, D., Paxson, C., & Vakis, R. (2015). Wealth Gradients in Early Childhood Cognitive Development in Five Latin American Countries. *Journal of Human Resources*, *50*(2), 446–463. https://doi.org/10.3368/jhr.50.2.446

Schilbach, F., Schofield, H., & Mullainathan, S. (2016). The Psychological Lives of the Poor. *American Economic Review: Papers & Proceedings*, *106*(5), 435–440. https://doi.org/10.1257/aer.p20161101

Schmidt, K. H., Labrecque, J., Santos, I. S., Matijasevich, A., Barros, F. C., & Barros, A. J. D. (2017). Focus And Coverage Of Bolsa Família Program In The Pelotas 2004 Birth Cohort. *Revista de Saude Publica*, *51*. https://doi.org/10.1590/S1518-8787.2017051006792

Schoon, I., Jones, E., Cheng, H., & Maughan, B. (2012). Family hardship, family instability, and cognitive development. *Journal of Epidemiology and Community Health*, *66*(8), 716–722. https://doi.org/10.1136/jech.2010.121228

Scott, J., Marquer, C., Berthe, F., Ategbo, E. A., Grais, R. F., & Langendorf, C. (2017). The gender, social and cultural influences on the management and use of unconditional cash transfers in Niger: A qualitative study. *Public Health Nutrition*, *20*(9), 1657–1665. https://doi.org/10.1017/S1368980017000337

Sen, A. (1999). *Development as Freedom* (1st ed., Vol. 1). Oxford University Press. https://www.uio.no/studier/emner/matnat/ifi/INF9200/v10/readings/papers/Sen.pdf

Shei, A., Costa, F., Reis, M. G., & Ko, A. I. (2014). The impact of Brazil's Bolsa Família conditional cash transfer program on children's health care utilization and health outcomes. *BMC International Health and Human Rights*, *14*(1), 10. https://doi.org/10.1186/1472-698X-14-10

Sheridan, M. A., McLaughlin, K. A., Winter, W., Fox, N., Zeanah, C., & Nelson, C. A. (2018). Early deprivation disruption of associative learning is a developmental pathway to depression and social problems. *Nature Communications*, *9*(1). https://doi.org/10.1038/S41467-018-04381-8

Sheridan, M. A., Mukerji, C. E., Wade, M., Humphreys, K. L., Garrisi, K., Goel, S., Patel, K., Fox, N. A., Zeanah, C. H., Nelson, C. A., & McLaughlin, K. A. (2022). Early deprivation alters structural brain development from middle childhood to adolescence. *Science Advances*, *8*(40), eabn4316. https://doi.org/10.1126/SCIADV.ABN4316/SUPPL_FILE/SCIADV.ABN4316_SM.PDF

Sternberg, R. J., & Grigorenko, E. L. (2006). Cultural Intelligence and Successful Intelligence. *Group & Organization Management*, *31*(1), 27–39. https://doi.org/10.1177/1059601105275255

Sugiyama, N. B., & Hunter, W. (2020). Do Conditional Cash Transfers Empower Women? Insights from Brazil's Bolsa Família. *Latin American Politics and Society*, *62*(2), 53–74. https://doi.org/10.1017/lap.2019.60

Syme, S. L. (2004). Social determinants of health: the community as an empowered partner. *Preventing Chronic Disease*, *1*(1), A02. http://www.ncbi.nlm.nih.gov/pubmed/15634364

Tan, C. C., & Holub, S. C. (2015). Emotion Regulation Feeding Practices Link Parents' Emotional Eating to Children's Emotional Eating: A Moderated Mediation Study. *Journal of Pediatric Psychology*, *40*(7), 657–663. https://doi.org/10.1093/jpepsy/jsv015

Tierney, A. L., & Nelson, C. A. (2009). Brain development and the role of experience in the early years. *Zero to Three*, *30*(2), 9. /pmc/articles/PMC3722610/

Tomalski, P., Moore, D. G., Ribeiro, H., Axelsson, E. L., Murphy, E., Karmiloff-Smith, A., Johnson, M. H., & Kushnerenko, E. (2013). Socioeconomic status and functional brain development - associations in early infancy. *Developmental Science*, *16*(5), 676–687. https://doi.org/10.1111/desc.12079

Tommasi, D. (2019). Control of resources, bargaining power and the demand of food: Evidence from PROGRESA. *Journal of Economic Behavior and Organization*, *161*, 265–286. https://doi.org/10.1016/j.jebo.2019.04.008

Troller-Renfree, S. V., Brito, N. H., Desai, P. M., Leon-Santos, A. G., Wiltshire, C. A., Motton, S. N., Meyer, J. S., Isler, J., Fifer, W. P., & Noble, K. G. (2020). Infants of mothers with higher physiological stress show alterations in brain function. *Developmental Science*, *23*(6), e12976. https://doi.org/10.1111/DESC.12976

Troller-Renfree, S. V., Costanzo, M. A., Duncan, G. J., Magnuson, K., Gennetian, L. A., Yoshikawa, H., Halpern-Meekin, S., Fox, N. A., & Noble, K. G. (2022). The impact of a poverty reduction intervention on infant brain activity. *Proceedings of the National Academy of Sciences of the United States of America*, *119*(5), e2115649119. https://doi.org/10.1073/PNAS.2115649119/SUPPL_FILE/PNAS.2115649119.SAPP.PDF

Troller-Renfree, S. V., Sperber, J. F., Hart, E. R., Costanzo, M. A., Gennetian, L. A., Meyer, J. S., Fox, N. A., & Noble, K. G. (2023). Associations between maternal stress and infant resting brain activity among families residing in poverty in the U.S. *Biological Psychology*, *184*, 108683. https://doi.org/10.1016/J.BIOPSYCHO.2023.108683

Urbina, D. R. (2020). In the Hands of Women: Conditional Cash Transfers and Household Dynamics. *Journal of Marriage and Family*, *82*(5), 1571–1586. https://doi.org/10.1111/JOMF.12684

Ursache, A., & Noble, K. G. (2016). Socioeconomic status, white matter, and executive function in children. *Brain and Behavior*, *6*(10), e00531. https://doi.org/10.1002/BRB3.531

Victora, C. G., Aquino, E. M. L., do Carmo Leal, M., Monteiro, C. A., Barros, F. C., & Szwarcwald, C. L. (2011). Maternal and child health in Brazil: progress and challenges. *The Lancet*, *377*(9780), 1863–1876. https://doi.org/10.1016/S0140-6736(11)60138-4

Walker, S. P., Wachs, T. D., Gardner, J. M., Lozoff, B., Wasserman, G. A., Pollitt, E., & Carter, J. A. (2007). Child development: risk factors for adverse outcomes in developing countries. *The Lancet*, *369*(9556), 145–157. https://doi.org/10.1016/S0140-6736(07)60076-2

Whitehead, M., Orton, L., Pennington, A., Nayak, S., Ring, A., Petticrew, ; Mark, Sowden, ; Amanda, & White, M. (2014). *Is control in the living environment important for health and wellbeing, and what are the implications for public health interventions? Final Report*. www.phrc.lshtm.ac.uk.

Whitehead, M., Pennington, A., Orton, L., Nayak, S., Petticrew, M., Sowden, A., & White, M. (2016). How could differences in 'control over destiny' lead to socio-economic inequalities in health? A synthesis of theories and pathways in the living

environment. *Health & Place*, *39*, 51–61. https://doi.org/10.1016/J.HEALTHPLACE.2016.02.002

Wiltshire, C. A., Troller-Renfree, S. V., Giebler, M. A., & Noble, K. G. (2021). Associations among average parental educational attainment, maternal stress, and infant screen exposure at 6 months of age. *Infant Behavior and Development*, *65*, 101644. https://doi.org/10.1016/J.INFBEH.2021.101644

Wolf, S., Aber, J. L., & Morris, P. A. (2013). Drawing on psychological theory to understand and improve antipoverty policies: The case of conditional cash transfers. *Psychology, Public Policy, and Law*, *19*(1), 3–14. https://doi.org/10.1037/a0029498

Zelazo, P. D., Qu, L., & Kesek, A. C. (2010). Hot executive function: Emotion and the development of cognitive control. In S. D. B. M. A. Calkins (Ed.), *Child development at the intersection of emotion and cognition.* (pp. 97–111). American Psychological Association. https://doi.org/10.1037/12059-006

Zembe-Mkabile, W., Doherty, T., Sanders, D., & Jackson, D. (2014). Child Support Grant access and receipt among 12-week-old infants in an urban township setting in South Africa. *Global Health Action*, *7*, 25310. https://doi.org/10.3402/gha.v7.25310

Zembe-Mkabile, W., Surender, R., Sanders, D., Swart, R., Ramokolo, V., Wright, G., & Doherty, T. (2018). 'To be a woman is to make a plan': a qualitative study exploring mothers' experiences of the Child Support Grant in supporting children's diets and nutrition in South Africa. *BMJ Open*, *8*(4), e019376. https://doi.org/10.1136/BMJOPEN-2017-019376

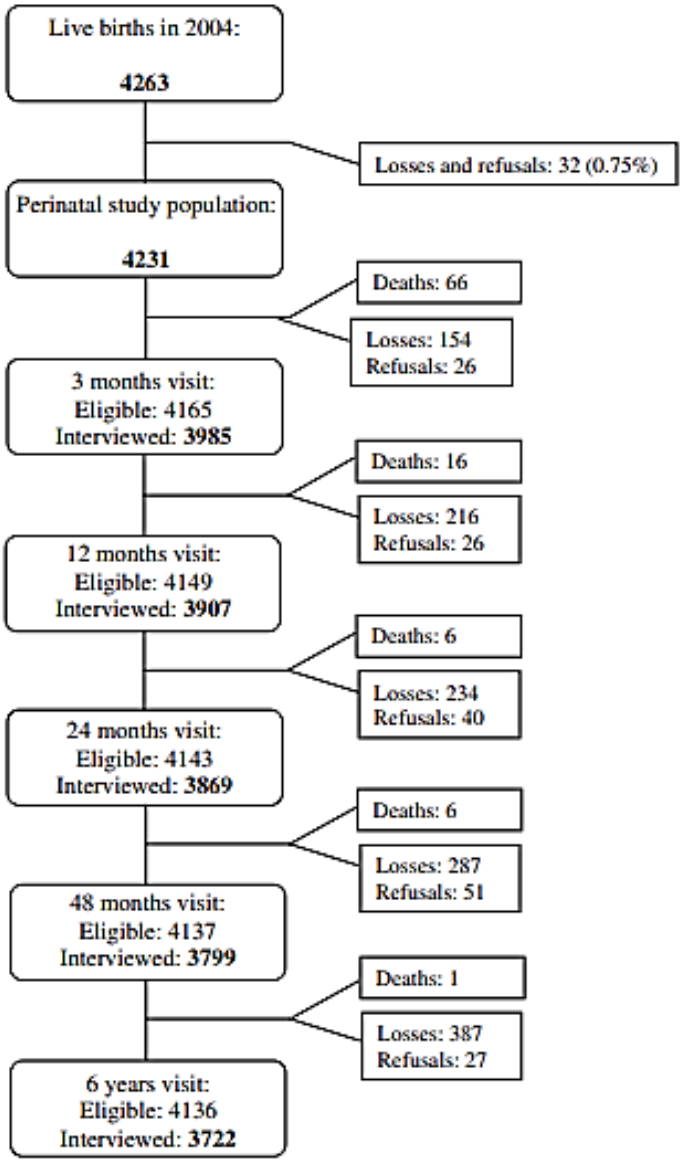
Ziebold, C., Paula, C. S., Santos, I. S., Barros, F. C., Munhoz, T. N., Lund, C., McDaid, D., Araya, R., Bauer, A., Garman, E., Park, A. La, Zimmerman, A., Hessel, P., Avendaño, M., Evans-Lacko, S., & Matijasevich, A. (2021). Conditional cash transfers and adolescent mental health in Brazil: Evidence from the 2004 Pelotas Birth Cohort. *Journal of Global Health*, *11*, 1–12. https://doi.org/10.7189/JOGH.11.04066

APPENDICES

Appendices 1: A map of Brazil highlighting the city of Pelotas

Retried from: http://www.fraternidade.org.br/institucional/mapa_Pelotas4.php

Appendices 2: Flow chart of the Pelotas Cohort (Santos et al, 2014)



Appendices 3: Examples of measure from the Pelotas Birth Cohort questionnaires OR Standardized Tools

1. *Mother's mental health (level of depression)*

Variable	Definition	Study	Examples of measure from the questionnaires OR Standardized Tools					
			Perinatal	3 months	1 year	2 years	4 years	7 years
			Years					
			2004	2004	2005	2006	2008	2011
Depression	-Symptoms of depression according to the DSM-IV -Score for depression in validate scales -Score for mental health (sub)scales	DSM-IV	76. Have you had depression or anxiety issues? 77. If yes, did you have it before pregnancy? 89. In the last 3 months of pregnancy, have you felt sad or depressed ... *Edinburgh Postnatal Depression Scale	* SRQ 20	209. Which of these faces best shows how you felt most of the time until the child was 6 months old? (face scale) 210. Which of these faces best shows how you felt most of the time since the child was 6 months? 211. In the last two weeks, on most days, have you had trouble sleeping? 212. What kind of difficulty?	209. Which of these faces best illustrates how you felt most of the time since the child was 1 year old? (face scale)	311. Which of these faces best illustrates how you felt most of the time since the child turned 2 years old? (face scale) 327. After the child was born has a doctor said that you were depressed? 328. At what age was the child when the doctor said that you had depression? 330. How long have you taken medicine for depression? 331. Did you have therapy?	*WHOQOL-BRF (select question about mental health?) *Edinburgh Postnatal Depression Scale

2. Mother and child relationship

Variables	Definition	Study	Examples of measure from the questionnaires OR Standardized Tools					
			Perinatal	3 months	1 year	2 years	4 years	7 years
			Years					
			2004	2004	2005	2006	2008	2011
Mother and child relationship	-The quality of the relationship between Mother and child. -Mother-child attachment	Black et al, 2017 Bowlby, 1959 cited by Papalia and Olds, 2000	-	-	55. Does the child play with anyone? 56. With whom? 57. Do you or the other person talk to the child? 58. Who?	12. In the last week, did anyone read or tell stories to children? 13. In that last week, has the child ever been in the square or in the park? 14. In that last week, did the child go to other people's homes? 15. Does the child have any books or a book at home? 16. Does the child watch television? 17. How much time does the child watch television in the morning? 18. How much time does the child watch television in the afternoon? 19. How much time does the child watch television in the evening? 20. Are there any pets at home? 21. Which ones? Observation 1. The mother praised the child during the interview Observation 2. The mother threatened or criticised the child during the interview Observation 3. The mother beat the child during the interview Observation 4. The mother became indifferent. Observation 13. Is it possible to understand what the child is talking about?	12. In the last week, did anyone read or tell stories to children? 13. In that last week, has the child ever been in the square or in the park? 14. In that last week, did the child go to other people's homes? 15. Does the child have any books or a book at home? 16. Does the child watch television? 17. How much time does the child watch television in the morning? 18. How much time does the child watch television in the afternoon? 19. How much time does the child watch television in the evening? 25. On average, how many hours a day does the child spend playing video games or using a computer? 26. Are there any pets at home? 27. Which one? Observation 1. The mother praised the child during the interview Observation 2. The mother threatened or criticised the child during the interview Observation 3. The mother beat the child during the interview Observation 4. The mother became indifferent.	13. In the last week, did anyone read or tell stories to children? 14. 15. 16. 17. 18. *CTSPS - Parent- Child Conflict Tactics Scale, 22 questions (4 questions about severe violence were excluded for ethical reasons)

3. Dimensions of mother's control in their living environment

Control over:	Definition[3]	Study & setting[4]	Examples of measure from the questionnaires OR Standardized Tools					
			Perinatal	3 months	1 year	2 years	4 years	7 years
			Years					
			2004	2004	2005	2006	2008	2011
(1) household resources	- Household decisions on place of residence and routine of the household - Autonomy in the household decisions over other member of the family, visitor and family time for recreation and travel planning	Fantahun et al (2007) Ethiopia Hossain et al (2007) Bangladesh	200. Who does the housework in your family? 215. Last month, what was the total household income? 216 218. 219. *Social class instrument - Bronfman *ANEP / IEN - validated questionnaire	-	173. Last month, what was the total household income? 174. Does the family have another source of income? 176. What is the highest level of education the head of the family has achieved 177 *ANEP / IEN - validated questionnaire	186. Who is the person with the highest income in the family? 187. Last month, what was the total household income? 188. Does the family have another source of income? 190. Is the person with the highest income also the head of the family? 191, 192. 193, 194. *ANEP / IEN - validated questionnaire	253. Who is the person with the highest income in the family? 254. Last month, what was the total household income? 255. Does the family have another source of income? 257. Is the person with the highest income also the head of the family? 258. 259. *ANEP / IEN - validated questionnaire	151. Who is the person with the highest income in the family? 152. Last month, what was the total household income? 153. Have you received *Bolsa Familia*? 154. Does the family have another source of income? *ANEP / IEN - validated questionnaire
(2) movement/ mobility	- Freedom to travel outside of the neighbourhood and	Hossain et al (2007) Bangladesh Mogford (2011) India	-	-	-	-	-	-

	unaccompanied by other - Freedom to visit friends and family and go shopping							
(3) legal & political resources	- Percentage of seats held by women in the local parliament or community representative organization - Right to participate in the local community decisions	Swiss et al (2012) USA Gleason (2001) India	-	-	-	-	-	-
(4) fertility and reproductive rights	- Self-efficacy in sexual negotiation - Decision making on contraceptive methods	Pearson (2006) USA Lau (2006) China	46. Did you plan to have this child or become pregnant without wanting to? (?) 116. how many times did you get pregnant, including this pregnancy? 117. 118. 119.	184. Are you pregnant at the moment? 185. Do you want to get pregnant again? Are you doing something not to get pregnant again? 187. Why? Do not want, do not know how, do not need, breastfeeding protects, has no money to buy, unavailable from primary care, other 188. Did you try to obtain contraception from primary care? 189. What are you doing to avoid getting pregnant?	219. Did you get pregnant after the child was born? 220, 221, 222, 223, 224, 225, 226, 227. 228. Was the birth of a child a normal birth or a caesarean birth? 229. Thinking about what happened at the time of childbirth, are you glad you had a normal birth? 230, 231, 232, 233.	252. How many times have you become pregnant? 253 254 255. 256. Are all the children from the same father? 257. 258. 259. Did you want to get pregnant? 260, 283, 284, 285, 286, 287, 288, 289, 290.	315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326.	200, 201, 204, 205, 206, 207, * Extra question in case have become pregnant after 2004: become pregnant wanting to

				190. When you became pregnant, were you using any contraception or other methods in order not to become pregnant? 191. What did you do? 192. At that moment, did you think about having an abortion? 193. 194.195.				
(5) access to food & nutrition	- Decision on what food to buy and cook	Khandoker (2006) Bangladesh Fantahun et al (2007) Ethiopia	-	???? 20-42. List of aliments consumed – child 20-42	????11-16.List of aliments consumed - child	31. List of aliments consumed - child	40. List of aliments consumed - child	63 questions (still waiting for the questionnaire)
(6) access to education	- Women's education level - Women's access to education resources	Riyami (2011) 109 Oman Shannon (2012) Botswana and Swaziland	161. What is the highest level of education you have achieved 162. Did you complete a college degree?	-	-	183. What is the highest level of education you have achieved? 184. Did you complete a college degree?	250. What is the highest level of education you have achieved? 251. Did you complete a college degree?	137. What is the highest level of education you have achieved? 138. Did you complete a college degree?
(7) access to employment	- Economic autonomy: * Participation in income-generating activity * Control of resultant income	Krishnan (2005) India Chen et al (2005) US	217. Who is the head of the family? 220. Who is the person with the highest income in the family? 189. Did you work during pregnancy? 190. 191 193. 194 195. 196. 199	171. Did you start or return to work after the child was born? 172. How old was the child when you started work? 173. How many days a week do you work outside your home?	157. Did you start or return to work after the child was born? 158. How old was the child when you started work? 159. How many days per week?	175. Have you worked outside or out since the child turned 1? How many days a week? 177. How many hours a day? 178 179.	242. Have you worked outside or out since the child turned 2? 243. How many days a week? 244. How many hours a day? 245. 246.	131. Do you work? 132. 133. 134. 135.136. 155. Who is the head of the family?

	* Perception of household economic responsibility			174. How many hours a day do you stay away from home?	160 161. 175. Who is the head of the family?	189. Who is the head of the family?	256. Who is the head of the family? 257. Is the person with the highest income also the head of the family?	
(8) access to health care	- Authority to see a doctor when she needs - Authority to spend money on medicine when she or her child need	Hossain et al (2007) Bangladesh Story (2012) Bangladesh	47. Did you have any pre-natal consultations? 48 49. Were you attended by the same doctor or nurse during pre-natal consultations or, were they different professionals at each visit? 50. 51. 52. 53. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 211. Are you hospitalized as SUS (NHS), individual (Private - Paid) or covenant (Private via Health Insurance)? 212. 213. 214.	156. Since the baby was born, how much did you spend on medicine? 157. 158. 159. 160. 161. 162.163.	Have you ever tried to take the child to a consultant, hospital or for vaccination and not succeeded? 127. 128. 129. 204. How much did you spend on medicine in the last 30 days? 205. 206. 207	109. Where was the child vaccinated (public health service or private sector)? 112. 113. 114. 115. 116. 117. 118. 119. 120 205. How much did you spend on medicine in the last 30 days? 206. 207. 208	155. Have you ever tried to take the child to a consultant, hospital or for vaccination and not succeeded? 156. 157. 158. 178. In the last two weeks, did not the child take a prescribed medicine because you were not able to buy it? 179. 270. 271. 272. 273.	151. In the last two weeks, did not the child take a prescribed medicine because you were not able to buy it?

4. Child Health

Variable	Definition	Study	Examples of measure from the questionnaires OR Standardized Tools					
			Perinatal	3 months	1 year	2 years	4 years	7 years
			Years					
			2004	2004	2005	2006	2008	2011
Mental Health	-Symptoms of psychiatric disorders -Score for psychiatric disorders in validate scales	DSM-IV	-	-	-	-	-	*DAWBA (Development and Well-Being Assessment for Children and Adolescents)
Mother Perception of child health			-	-	59. In general, how would you describe the health of the child: excellent, very good, good, fair, poor	68. In general, you consider the health of the child: excellent, very good, good, fair, poor	75. In general, you consider the health of the child: excellent, very good, good, fair, poor 163. Has the child consulted with a psychologist? 169. Does the child have any chronic illness, physical problems, or retardation that you (or your family) are aware of?	71. In general, you consider the health of the child: excellent, very good, good, fair, poor

5. Child Socioemotional Development

Variable	Definition	Study	Examples of measure from the questionnaires OR Standardized Tools					
			Perinatal	3 months	1 year	2 years	4 years	7 years
			Years					
			2004	2004	2005	2006	2008	2011
Socioemotional development	-Relation with other children -Characteristics of his-her favourite activities	Yoshikawa, Aber and Beardslee, 2012	-	-	-	65. Which of these faces best shows how you think the child feels? 67. Compared to other children of the same age and gender, would you say that the child is: less active, active, more active	21. Scale of child behaviour * 22. Usually when playing outside, does the child play alone or in a group? Do not play in the street, play alone, play in groups 23. How many children, more or less, are you playing with? 24. Do you play more with boys, with girls, or play with everyone? 73. Which of these faces best shows how you think the child feels? 74. Compared to other children of the same age and gender, would you say that the child is: less active, active, more active	20. Does the child prefer to plat alone or with other kids? 21. Always or often? 22. Prefers running, climbing on things, fighting, jumping, and jumping rope? 23 24. Likes to play sports, like playing basketball and riding a bicycle? 25. 26. He is very introverted, quiet and likes to stay at home? 27. 28. Likes to draw, paint or see magazines? 29. 30.Prefers to play on the street, on the patio? 31. 32. Is less physically active compared to children his or her age? 33. What does the child do in his free time? 34. Listen to music 35. Read books or magazine 36. Play videogame 37. Go to the cinema 38. Use computer 39. Outdoor school activities 40. Watch DVD's 41. Visit relatives 42. Play on the street

*Scale of child behaviour

	Ever	Often	Whatever	Often	Ever	
Prefers to play alone	1	2	3	4	5	Prefers to play with other children
Prefers running, climbing on things, fighting, jumping, and jumping rope	1	2	3	4	5	He prefers peaceful games such as jigsaw, cards, clay, and wooden blocks
Likes to play sports, like playing basketball and riding a bicycle	1	2	3	4	5	Does not like to play sports
He is very introverted, quiet and likes to stay at home.	1	2	3	4	5	He is very extroverted, likes to go out
Likes to draw, paint, or see magazines	1	2	3	4	5	Not interested in drawing, painting, or seeing magazines
Prefers to play on the street, on the patio	1	2	3	4	5	Prefers to play indoors or at school
Is less physically active compared to children his or her age	1	2	3	4	5	He is very physically active compared to children his age

6. Child Cognitive Development

Variable	Definition	Study	Examples of measure from the questionnaires OR Standardized Tools					
			Perinatal	3 months	1 year	2 years	4 years	7 years
			Years					
			2004	2004	2005	2006	2008	2011
Intelligence (?)	-4 subscales used: complete figure, similarities, arithmetic, and cubes.	-						*WISC-III (Wechsler Intelligence Scale for Children)
Attention	-3 skills assessed: speed, impulsivity, and flexibility	-						*CPT II (Conner's Continuous Performance Test II) (not available)
School performance	Readiness and performance at school	Anderson et al., 2003 Okado, Bierman and Welsh, 2014						51. Is the child performance well at school? 52. Is he/she reading few words? 53. Has anybody told you the child has learning disabilities? 54. Who?

Other variables

1. Father and child relations

1 year	2 years	4 years
163. Last week, did the child's father play with the child? 164. Did you give food? 165. Did you sleep? Did you change the diaper? 167. Bathing? 168. Did you take care of yourself? 169. Did you go for a walk with the child	228. Does the child's father live in the house? 234. Contact of the child with the father (social): daily, weekly, monthly, never, NSA 236. Contact of the child with the father (biological): daily, weekly, monthly, never, NSA What care did the (social) father provide to the child last week: 238: Played 239. Fed 240. Put them to bed 241. Watched 242. He took care of 243. Walked along 244. Corrected, educated 245. Other:	299. Parent (social) contact in the last 6 months: daily, weekly, monthly, never, NSA 301.Contact of child with parent (biological) in last 6 months: daily, weekly, monthly, never, NSA What care did the (social) father provide to the child last week: 303: Played 304. Fed 305. Put them to bed 306. Watched 307. He cared for 308. He walked along 309. Corrected, educated 310. Other:

2. Third party childcare

3 months	1 year	2 years	4 years
10. Has child ever been to day care? 11. 12. 13. 14. 16. 17 15. How many hours a day does the child stay in day care?	6. How many children besides yours participate in the group in which the child is cared for? 7. For what duration is the child cared for outside the home? Hours / days - days / week	23. How many children besides you participate in the group in which the child is cared for? 24. For what duration is the child cared for outside the home? Hours / days - days / week	30. How many children besides you participate in the group in which the child is cared for? 31. For what duration is the child cared for outside the home? Hours / days - days / week

3. Religious and community child support

3 months	1 year	2 years	4 years
96. Have you heard of 'Pastoral da Criança' (Catholic Church Department for Childhood)? 97, 98, 99, 100, 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115.	-	132. Have you heard of the Pra-Nene programme? Is the child part of the programme? 134. Do you think being part of the Pra-Nene programme made your access to healthcare better than other people? 241. Have you ever heard of Pastoral da Criança? 242. 243. 244. 245. 246. 247. 248. 249. 258. 259. 260. 261. 262.	-

4. Support of the Father

perinatal	3 months	1 year	2 years	4 years
203. What was the reaction of the baby's father when he learned about the pregnancy? 204. How did you feel about the support you received from the baby's father during pregnancy?	-	170. Does the father help with money? 171. Do you take the child to the doctor or go along? 172. Do you buy for the child?	-	-

5. Crowdedness in house and family constitution

3 months	1 year	2 years	4 years
81. Does the child sleep in the bedroom alone?	28. Does the child sleep in the bedroom alone?	38. Does the child sleep in the bedroom alone?	46. Does the child sleep in the bedroom alone?

82. How many adults sleep in the bedroom with the child? 83. How many children sleep in the bedroom with the child? 84. Does the child sleep in bed with another person? 85, 86, 87, 88, 89, 90.	29. 30. 31. 32. 33. 34. 35. 36.	39. 40. 41. 42. 43. 44. 45. 46. 230. Siblings? Younger than the child, 3-9 years old, 10 years or older 231. Other children under the age of 10? How many? 232. Other people? How many? 233. (Observation) Type of family: nuclear, extensive	47. 48. 49.50. 51, 52, 53, 54. 294. Does the child's mother live in this house? 295. Siblings? Younger than the child, 3-9 years old, 10 years or older 297. Other people? How many? 298. (Observation) Type of family: nuclear, extensive

Appendices 4: Codebook created for the Pelotas Birth Cohort Dataset

	Items' label in STATA	Description	Label of unit of measurement	Value Frequency	Min	Max	Number of Observations	Number of missing (<NA>)
1	ae01'	'mother's age',	continuous variable	22 - 238; 23 - 236; 21 - 234; 20 - 233; 25 -	13	46	4227	4
2	ae02'	'mother lives with husband or partner'	0 - não, 1 - sim	1 - 3536; 0 - 693;	0	1	4229	2
3	ae03'	'mother lives with children? how many',	continuous variable (display into quintiles)	0 - 1975; 1 - 1214; 2 - 576; 3 - 254; 4 - 115;	0	10	4229	2
4	ae04'	'mother lives with other relatives? how	quintiles	0 - 2895; 1 - 392; 2 - 345; 3 - 260; 4 - 159;	0	13	4229	2
5	ae05'	'mother lives with other people (not	percentiles	0 - 4122; 1 - 63; 2 - 17; 3 - 10; 4 - 7; 5 - 3;	0	28	4229	2
6	af15'	support that mother received from the	'1 muito apoio, 2 mais ou menos, 3 pouco	1 - 3468; 2 - 399; 4 - 231; 3 - 74;	1	4	4172	59
7	aescmae'	'mother's education (complete years)',	0 0 anos, 1 1-4 anos, 2 5-8 anos, 3 9+ anos	11 - 926; 8 - 595; 5 - 467; 6 - 352; 7 - 317;	0	18	4186	45
8	aescmae4cat'	'Maternal education categorical (4	'0 0 anos, 1 1-4 anos, 2 5-8 anos, 3 9+ anos'	3 - 1801; 2 - 1731; 1 - 611; 0 - 43;	0	3	4186	45
9	fage'	'age',	5, 6 e 7 (without label)	6 - 3237; 7 - 342; 5 - 5;	5	7	3584	647
10	fgender'	'gender',	'1 male, 2 female'	1 - 1839; 2 - 1745;	1	2	3584	647
11	fp1type'	'informant (parent1)',	'1 parent, 2 mother, 3 father, 4 both parents,	2 - 3192; 9 - 164; 3 - 114; 10 - 50; 1 - 37; 7	1	10	3584	647
12	aien_peri'	'IEN perinatal quintiles',	percentiles	10% 199, 25% 283, 50% 388, 75% 543, 90%	20	1086	3265	966
13	aien_peri5q'	'IEN perinatal quintiles'	quintiles	1 - 707; 5 - 653; 4 - 650; 3 - 635; 2 - 620;	1	5	3265	966
14	anep'	'Pontos Anep',	percentiles	10% 5, 25% 8, 50% 11, 75% 15, 90% 19	0	31	3265	966
15	anep5cl'	'Classif economica ANEP',	quintiles	2 - 1230; 3 - 1128; 4 - 515; 1 - 327; 5 - - 65;	1	5	3265	966
16	arendtot'	'Total family income',	percentiles	10% 30, 25% 280, 50% 500, 75% 910, 90%	0	22000	4229	2
17	arendtq'	'Total income quintiles',	continuous variable (display into quintiles)	1 - 871; 4 - 858; 2 - 854; 5 - 830; 3 - 816;	1	5	4229	2
18	arendsm'	'household income in SM',	continuous variable (display into percentiles)	10% 0.119204, 25% 1.11257, 50% 1.98673,	0	87	4229	2
19	arendsm5g'	'family income SM in 5 groups (82)',	0 0-, 1 1.001-, 2 3.001-, 3 6.001-, 4 10.001-	1 - 1938; 2 - 945; 0 - 896; 3 - 243; 4 - 207;	0	4	4229	2
20	eb17'	last 6 months, prefers to play outside or	'1 sempre, 2 quase sempre, 3 tanto faz, 4	1 - 1701, 2 - 723, 3 - 807, 4 - 345, 5 - 218	1	9	4231	432
21	eb18'	'last 6 months, you are less or more	'1 sempre, 2 quase sempre, 3 tanto faz, 4	1- 97, 2 - 163, 3 - 1122, 4 - 591, 5 - 1823	1	8	4231	432
22	eb19'	'when he plays outside, he plays alone or in	0 - não brinca na rua, 1 - brinca sozinho, 2 - ?,	0 - 62, 1 - 917, 3 2819, 9 - 1	0	9	4231	432
23	eb20'	'how many children do you usually play	continuous variable		0	99	4231	432
24	bb21'	'plays more with boys, girls or with	0 meninos, 1 meninas, 3 todos, 8 NSA, 1IGN	0 - 426, 1 - 522, 3 - 1981, NSA - 979, 9 - 1	0	9	4231	432
25	cc29'	'plays with someone',	0 - não, 1 - sim	1 - 3723; 0 - 183; 9 - 1;	0	9	3907	324
26	cc30'	'with whom he plays',	4 parente/amigo = 15 anos, 5	5 - 2356; 1 - 508; 8 - 338; 88 - 184; 4 - 145; 3	1	88	3907	324
27	cc31'	'mother or person in the house is used to	0 - não, 1 - sim	1 - 3906; 9 - 1;	1	9	3907	324
28	cc32'	'who you talk to',	percentiles	1 - 1923; 8 - 730; 3 - 384; 2 - 235; 5 - 224; 10	1	88	3907	324
29	eb12'	'last 6 months, prefers to play alone or with	'1 sempre, 2 quase sempre, 3 tanto faz, 4	5 - 1596; 4 - 971; 3 - 592; 2 - 430; 1 - 207; 8 -	1	8	3799	432
30	eb13'	'last 6 months, prefers calm or agitated	'1 sempre, 2 quase sempre, 3 tanto faz, 4	1 - 1598; 2 - 762; 3 - 654; 4 - 471; 5 - 310; 8 -	1	8	3799	432
31	eb14'	'last 6 months, likes to play sports or doesn't	'1 sempre, 2 quase sempre, 3 tanto faz, 4	1 - 2154; 2 - 1246; 4 - 184; 5 - 105; 3 - 103; 8	1	8	3799	432
32	eb15'	'last 6 months, he is more introverted or	'1 sempre, 2 quase sempre, 3 tanto faz, 4	5 - 2075; 4 - 784; 2 - 393; 3 - 327; 1 - 217; 8 -	1	8	3799	432
33	eb16'	'last 6 months, he likes to draw, paint and	'1 sempre, 2 quase sempre, 3 tanto faz, 4	1 - 2146; 2 - 1170; 4 - 215; 5 - 160; 3 - 102; 8	1	9	3799	432
34	acomp6a'	'1ndicates if the participant was	0 - não, 1 - sim	1 - 3669; 0 - 562;	0	1	4231	0
35	fb98'	'plays with other children',	'1 sozinho, 2 com outras criancas, 3 tanto	2 - 2890; 1 - 404; 3 - 370;	1	3	3664	567
36	fb99'	'frequency 1',	1 sempre, 2 quase sempre	1 - 1840; 2 - 1453;	1	2	3293	938
37	aordnasc'	'Birth order at birth',	1 - first, 1 - second	1 - 4187; 2 - 42;	1	2	4229	2
38	fb100'	'prefers to play',	'1 brincadeiras calmas, 2 brincadeiras	2 - 2177; 1 - 878; 3 - 610;	1	3	3665	566
39	**fb101'**	'frequency 2',	1 sempre, 2 quase sempre	1 - 1583; 2 - 1471;	1	2	4231	1177
40	fb102'	'likes to play sports',	'1 gosta de esportes, 2 n□o gosta de	1 - 3372; 2 - 240; 3 - 48;	1	3	3660	571
41	fb103'	'frequency 3',	1 sempre, 2 quase sempre	1 - 2135; 2 - 1475; 3 - 2;	1	3	3612	619
42	fb104'	'introvert or extrovert',	'1 introvertido, 2 extrovertido, 3 tanto faz, 4	2 - 2573; 1 - 745; 3 - 344;	1	3	3662	569
43	fb105'	'frequency 4',	1 sempre, 2 quase sempre	1 - 1835; 2 - 1480; 3 - 2;	1	3	3317	914
44	fb106'	'likes to draw, paint, look at magazines	'1 gosta, 2 n□o se interessa, 3 tanto faz, 9	1 - 3366; 2 - 234; 3 - 63;	1	3	3663	568
45	fb107'	'frequency 5',	1 sempre, 2 quase sempre	1 - 2214; 2 - 1382;	1	2	3596	635
46	fb108'	'prefers street yard home school',	'1 na rua ou patio, 2 dentro de casa ou	1 - 2451; 2 - 610; 3 - 603;	1	3	3664	567
47	fb109'	'frequency 6',	1 sempre, 2 quase sempre	1 - 1567; 2 - 1491;	1	2	3058	1173
48	fb110'	'less active	'1 menos ativo, 2 mais ativo, 3 tanto faz, 9	3 - 1776; 2 - 1494; 1 - 390;	1	3	3660	571
49	fb111'	'frequency 7',	1 sempre, 2 quase sempre	1 - 1013; 2 - 871;	1	2	1884	2347
50	fb112'	'listens to music	1 todos os dias, 2 ao menos 1x por semana,	1 - 1702; 2 - 1687; 5 - 137; 3 - 134; 4 - 7;	1	5	3667	564
51	fb113'	'reads books or magazines	1 todos os dias, 2 ao menos 1x por semana,	2 - 1877; 1 - 1112; 5 - 523; 3 - 146; 4 - 10; 77	1	77	3669	562
52	fb114'	'plays videogames',	1 todos os dias, 2 ao menos 1x por semana,	5 - 1612; 2 - 1026; 1 - 764; 3 - 240; 4 - 26; 9 -	1	9	3669	562
53	fb115'	'goes to the movies	1 todos os dias, 2 ao menos 1x por semana,	5 - 2545; 4 - 711; 3 - 383; 2 - 29; 1 - 1;	1	5	3669	562
54	fb116'	'uses the computer',	1 todos os dias, 2 ao menos 1x por semana,	5 - 1346; 2 - 1232; 1 - 839; 3 - 238; 4 - 13; 9 -	1	9	3669	562
55	fb117'	'takes school trips',	1 todos os dias, 2 ao menos 1x por semana,	4 - 1489; 5 - 1234; 3 - 819; 2 - 119; 1 - 3; 9 -	1	88	3667	564
56	fb118'	'watches DVDs',	1 todos os dias, 2 ao menos 1x por semana,	2 - 2171; 1 - 1010; 3 - 302; 5 - 165; 4 - 21;	1	5	3669	562
57	fb119'	'visits relatives', 'fb119'	1 todos os dias, 2 ao menos 1x por semana,	2 - 2214; 1 - 649; 3 - 611; 5 - 106; 4 - 89;	1	5	3669	562
58	fb120'	'plays in the street',	1 todos os dias, 2 ao menos 1x por semana,	1 - 2469; 2 - 949; 5 - 190; 3 - 55; 4 - 6;	1	5	3669	562
59	acomp24m'	'1ndicates if the participant was	0 - não, 1 - sim	1 - 3869; 0 - 362;	0	1	4231	0
60	dc28'	'which of these faces shows how you think	1, 2, 3, 4, 5, 6, 7	1 - 2873; 2 - 749; 3 - 197; 4 - 29; 5 - 15; 6 - 5;	1	7	3869	362
61	dc30'	'compared to other children, how do you	'1 menos ativo, 2 igual, 3 mais ativo, 8 nsa, 9	3 - 2561; 2 - 1123; 1 - 169; 9 - 16;	1	9	3869	362
62	acomp48m'	'1ndicates if the participant was	0 - não, 1 - sim	1 - 3799; 0 - 432;	0	1	4231	0
63	withdraw'	'raw CBCL withdrawal', CBCL bruto	continuous variable (display into percentiles)	1 - 866; 2 - 865; 3 - 600; 0 - 574; 4 - 399; 5 -	0	15	3750	481
64	somatic'	'somatic complaints raw CBCL	continuous variable	0 - 2105; 1 - 861; 2 - 447; 3 - 186; 4 - 75; 5 -	0	12	3750	481
65	anxious'	'anxiety CBCL raw	continuous variable	2 - 663; 1 - 605; 3 - 597; 0 - 513; 4 - 460; 5 -	0	24	3750	481
66	thought'	'thought CBCL raw	continuous variable	0 - 2682; 1 - 615; 2 - 259; 3 - 98; 4 - 48; 5 -	0	10	3750	481
67	attention'	'attention CBCL raw',	continuous variable	1 - 752; 0 - 706; 2 - 668; 3 - 504; 4 - 415; 5 -	0	16	3749	482
68	delinquent'	'delinquent CBCL raw	continuous variable	2 - 807; 1 - 751; 3 - 628; 0 - 566; 4 - 428; 5 -	0	18	3750	481
69	aggressive'	'aggressive raw CBCL',	continuous variable	10 - 274; 11 - 268; 9 - 258; 13 - 254; 14 -	0	38	3750	481
70	otherprob'	'other problems CBCL raw',	continuous variable	7 - 358; 9 - 348; 6 - 344; 5 - 344; 8 - 340; 4 -	0	31	3750	481
71	internalizing'	'raw CBCL internalizing score',	continuous variable	4 - 417; 3 - 397; 5 - 371; 6 - 358; 2 - 346; 7 -	0	43	3750	481
72	externalizing'	'raw CBCL externalizing score',	continuous variable	14 - 250; 12 - 238; 10 - 212; 11 - 212; 13 -	1	52	3750	481
73	cbcltotal'	'raw CBCL score',	continuous variable	33 - 119; 31 - 110; 25 - 108; 21 - 107; 32 -	1	135	3750	481
74	social'	'CBCL raw social contact',	continuous variable	0 - 984; 1 - 883; 2 - 841; 3 - 497; 4 - 293; 5 -	0	11	3750	481
75	tsintern'	'internalizing T score',	continuous variable	46 - 397; 51 - 371; 43 - 346; 55 - 285; 57 -	33	86	3750	481
76	tsexter'	'externalizing T-score',	continuous variable	54 - 235; 59 - 234; 56 - 232; 58 - 210; 60 -	35	87	3750	481
77	escoret'	'cbcl t-score',	continuous variable	56 - 256; 55 - 216; 58 - 210; 51 - 208; 54 -	26	87	3750	481
78	tswithdraw'	't withdrawal score	continuous variable	50 - 1440; 54 - 469; 61 - 399; 53 - 396; 58 -	50	92	3750	481
79	tssomatic'	'tssomatic complaints score	continuous variable	50 - 2105; 56 - 445; 54 - 416; 58 - 227; 61 -	50	85	3750	481
80	tssocial'	't social contact score	continuous variable	50 - 1867; 52 - 841; 56 - 259; 57 - 238; 60 -	50	85	3750	481
81	tsanxious'	't anxiety-depression score	continuous variable	50 - 1781; 52 - 597; 55 - 241; 54 - 219; 61 -	50	92	3750	481
82	tsattention'	'tattention score	continuous variable	50 - 1805; 51 - 572; 54 - 491; 58 - 177; 57 -	50	86	3749	482
83	tsaggressive'	't aggressive comp score	continuous variable	50 - 559; 57 - 264; 58 - 256; 53 - 252; 55 -	50	97	3750	481
84	tsdelinquent'	'tscore t comp delinquent',	continuous variable	50 - 927; 54 - 433; 51 - 390; 57 - 374; 67 -	50	88	3750	481
85	tsthought'	'tsthought prob score',	continuous variable	50 - 2682; 57 - 329; 58 - 286; 64 - 146; 65 -	50	88	3750	481
86	fp1n1a'	'+ve generous (parent1)',	'0 no, 1 a little, 2 a lot'	2 - 2550; 1 - 972; 0 - 57;	0	2	3579	652
87	fp1n1b'	'+ve lively (parent1)',	'0 no, 1 a little, 2 a lot'	2 - 3060; 1 - 499; 0 - 20;	0	2	3579	652
88	fp1n1c'	'+ve keen to learn (parent1)',	'0 no, 1 a little, 2 a lot'	2 - 3077; 1 - 446; 0 - 56;	0	2	3579	652
89	fp1n1d'	'+ve affectionate (parent1)',	'0 no, 1 a little, 2 a lot'	2 - 3194; 1 - 359; 0 - 26;	0	2	3579	652
90	fp1n1e'	'+ve reliable and responsible (parent1)',	'0 no, 1 a little, 2 a lot'	2 - 2514; 1 - 960; 0 - 105;	0	2	3579	652
91	fp1n1f'	'+ve easygoing (parent1)',	'0 no, 1 a little, 2 a lot'	2 - 2398; 1 - 967; 0 - 214;	0	2	3579	652
92	fp1n1g'	'+ve good fun, good sense of humour	'0 no, 1 a little, 2 a lot'	2 - 2996; 1 - 539; 0 - 44;	0	2	3579	652
93	fp1n1h'	'+ve interested in many things (parent1)',	'0 no, 1 a little, 2 a lot'	2 - 3053; 1 - 463; 0 - 63;	0	2	3579	652
94	fp1n1i'	'+ve caring, kind-hearted (parent1)',	'0 no, 1 a little, 2 a lot'	2 - 3353; 1 - 212; 0 - 14;	0	2	3579	652
95	fp1n1j'	'+ve bounces back quickly after setbacks	'0 no, 1 a little, 2 a lot'	2 - 2043; 1 - 1233; 0 - 303;	0	2	3579	652
96	fp1n1k'	'+ve grateful, appreciative (parent1)',	'0 no, 1 a little, 2 a lot'	2 - 2807; 1 - 663; 0 - 109;	0	2	3579	652
97	fp1n1l'	'+ve independent (parent1)',	'0 no, 1 a little, 2 a lot'	2 - 2214; 1 - 1012; 0 - 353;	0	2	3579	652
98	fp1n2a'	'+ve helps around the home (parent1)',	'0 no, 1 a little, 2 a lot'	2 - 1827; 1 - 1314; 0 - 438;	0	2	3579	652
99	fp1n2b'	'+ve gets on well with the rest of the family	'0 no, 1 a little, 2 a lot'	2 - 3288; 1 - 265; 0 - 26;	0	2	3579	652
100	fp1n2c'	'+ve does homework without reminding	'0 no, 1 a little, 2 a lot'	2 - 1557; 0 - 1246; 1 - 776;	0	2	3579	652

101	fp1n2d'	'+ve creative activities (parent1)',	'0 no, 1 a little, 2 a lot'	2 - 2630; 1 - 618; 0 - 331;	0	2	3579	652
102	fp1n2e'	'+ve likes to be involved in family activities	'0 no, 1 a little, 2 a lot'	2 - 3135; 1 - 372; 0 - 72;	0	2	3579	652
103	fp1n2f'	'+ve takes care of appearance (parent1)',	'0 no, 1 a little, 2 a lot'	2 - 2831; 1 - 580; 0 - 168;	0	2	3579	652
104	fp1n2g'	'+ve good at school work (parent1)',	'0 no, 1 a little, 2 a lot'	2 - 2717; 1 - 590; 0 - 272;	0	2	3579	652
105	fp1n2h'	'+ve polite (parent1)',	'0 no, 1 a little, 2 a lot'	2 - 2894; 1 - 635; 0 - 50;	0	2	3579	652
106	fp1n2i'	'+ve good at sport (parent1)',	'0 no, 1 a little, 2 a lot'	2 - 2025; 1 - 1125; 0 - 429;	0	2	3579	652
107	fp1n2j'	'+ve keeps bedroom tidy (parent1)',	'0 no, 1 a little, 2 a lot'	1 - 1243; 0 - 1195; 2 - 1141;	0	2	3579	652
108	fp1n2k'	'+ve good with friends (parent1)',	'0 no, 1 a little, 2 a lot'	2 - 3135; 1 - 402; 0 - 42;	0	2	3579	652
109	fp1n2l'	'+ve well behaved (parent1)',	'0 no, 1 a little, 2 a lot'	2 - 2436; 1 - 1015; 0 - 128;	0	2	3579	652
110	fp1consid'	'sdq: considerate (parent1)',	'0 not true, 1 partly true, 2 certainly true'	2 - 3315; 1 - 228; 0 - 41;	0	2	3584	647
111	fp1restles'	'sdq: restless (parent1)',	'0 not true, 1 partly true, 2 certainly true'	0 - 1882; 1 - 864; 2 - 838;	0	2	3584	647
112	fp1somatic'	'sdq: headache, stomach-ache (parent1)',	'0 not true, 1 partly true, 2 certainly true'	0 - 2563; 1 - 609; 2 - 412;	0	2	3584	647
113	fp1shares'	'sdq: shares (parent1)',	'0 not true, 1 partly true, 2 certainly true'	2 - 2877; 1 - 480; 0 - 227;	0	2	3584	647
114	fp1tantrum'	'sdq: irritable (parent1)',	'0 not true, 1 partly true, 2 certainly true'	0 - 2310; 1 - 666; 2 - 608;	0	2	3584	647
115	fp1loner'	'sdq: solitary (parent1)',	'0 not true, 1 partly true, 2 certainly true'	0 - 2998; 2 - 366; 1 - 220;	0	2	3584	647
116	fp1obeys'	'sdq: obedient (parent1)',	'0 not true, 1 partly true, 2 certainly true'	2 - 2245; 1 - 971; 0 - 368;	0	2	3584	647
117	fp1worries'	'sdq: worries (parent1)',	'0 not true, 1 partly true, 2 certainly true'	0 - 2769; 1 - 433; 2 - 382;	0	2	3584	647
118	fp1caring'	'sdq: helpful (parent1)',	'0 not true, 1 partly true, 2 certainly true'	2 - 3191; 1 - 245; 0 - 145;	0	2	3581	650
119	fp1fidgety'	'sdq: fidgety (parent1)',	'0 not true, 1 partly true, 2 certainly true'	0 - 1994; 2 - 964; 1 - 623;	0	2	3581	650
120	fp1friend'	'sdq: has good friend (parent1)',	'0 not true, 1 partly true, 2 certainly true'	2 - 3388; 0 - 132; 1 - 61;	0	2	3581	650
121	fp1fights'	'sdq: fights, bullies (parent1)',	'0 not true, 1 partly true, 2 certainly true'	0 - 2964; 1 - 342; 2 - 275;	0	2	3581	650
122	fp1unhappy'	'sdq: unhappy (parent1)',	'0 not true, 1 partly true, 2 certainly true'	0 - 3121; 1 - 295; 2 - 165;	0	2	3581	650
123	fp1popular'	'sdq: popular (parent1)',	'0 not true, 1 partly true, 2 certainly true'	2 - 3395; 1 - 123; 0 - 63;	0	2	3581	650
124	fp1distrac'	'sdq: poor concentration (parent1)',	'0 not true, 1 partly true, 2 certainly true'	0 - 1946; 2 - 897; 1 - 738;	0	2	3581	650
125	fp1clingy'	'sdq: anxious in new situations (parent1)',	'0 not true, 1 partly true, 2 certainly true'	0 - 1712; 2 - 1025; 1 - 844;	0	2	3581	650
126	fp1kind'	'sdq: kind to younger children (parent1)',	'0 not true, 1 partly true, 2 certainly true'	2 - 3362; 1 - 150; 0 - 68;	0	2	3580	651
127	fp1lies'	'sdq: lies, cheats (parent1)',	'0 not true, 1 partly true, 2 certainly true'	0 - 2889; 1 - 462; 2 - 229;	0	2	3580	651
128	fp1argues'	'sdq: argumentative with adults (parent1)',	'0 not true, 1 partly true, 2 certainly true'	Series([],	<NA>	<NA>	0	4231
129	fp1bullied'	'sdq: victimised (parent1)',	'0 not true, 1 partly true, 2 certainly true'	0 - 2511; 2 - 542; 1 - 527;	0	2	3580	651
130	fp1helpout'	'sdq: volunteers to help (parent1)',	'0 not true, 1 partly true, 2 certainly true'	2 - 3085; 1 - 299; 0 - 196;	0	2	3580	651
131	fp1reflect'	'sdq: reflective (parent1)',	'0 not true, 1 partly true, 2 certainly true'	2 - 1814; 1 - 1103; 0 - 663;	0	2	3580	651
132	fp1steals'	'sdq: steals (parent1)',	'0 not true, 1 partly true, 2 certainly true'	0 - 3511; 1 - 39; 2 - 30;	0	2	3580	651
133	fp1spite'	'sdq: spiteful (parent1)',	'0 not true, 1 partly true, 2 certainly true'	Series([],	<NA>	<NA>	0	4231
134	fp1oldbest'	'sdq: relates better to adults than peers	'0 not true, 1 partly true, 2 certainly true'	0 - 2406; 2 - 739; 1 - 435;	0	2	3580	651
135	fp1afraid'	'sdq: fears (parent1)',	'0 not true, 1 partly true, 2 certainly true'	0 - 2424; 2 - 589; 1 - 567;	0	2	3580	651
136	fp1attends'	'sdq: good attention (parent1)',	'0 not true, 1 partly true, 2 certainly true'	2 - 2342; 1 - 860; 0 - 378;	0	2	3580	651
137	fp1ebddiff'	'sdq: is there a problem? (parent1)',	'0 no, 1 yes - minor difficulties, 2 yes -	0 - 2433; 1 - 867; 2 - 215; 3 - 65;	0	3	3580	651
138	fp1chronic'	'sdq: duration (months) (parent1)',	'0 less than 1 month, 1 1-5 months, 2 6-12	3 - 761; 2 - 240; 1 - 117; 0 - 39;	0	3	1157	3074
139	fp1distres'	'sdq: distress (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	1 - 581; 0 - 381; 2 - 155; 3 - 40;	0	3	1157	3074
140	fp1imphome'	'sdq: impact on family life (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 558; 1 - 469; 2 - 107; 3 - 23;	0	3	1157	3074
141	fp1impfrie'	'sdq: impact on friendships (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 664; 1 - 389; 2 - 84; 3 - 20;	0	3	1157	3074
142	fp1impclas'	'sdq: impact on learning (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 543; 1 - 411; 2 - 170; 3 - 33;	0	3	1157	3074
143	fp1impleis'	'sdq: impact on leisure (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 831; 1 - 245; 2 - 65; 3 - 16;	0	3	1157	3074
144	fp1burden'	'sdq: burden (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 726; 1 - 313; 2 - 90; 3 - 28;	0	3	1157	3074
145	fp1ebdtot'	'sdq: total difficulties score (parent1)',	continuous variable	4 - 297; 5 - 279; 6 - 264; 2 - 261; 3 - 255; 7 -	0	38	3580	651
146	fp1emotion'	'sdq: emotional symptoms score (parent1)',	continuous variable	0 - 880; 2 - 877; 1 - 613; 3 - 378; 4 - 349; 5 -	0	10	3580	651
147	fp1conduct'	'sdq: conduct problems score (parent1)',	continuous variable	0 - 1431; 1 - 716; 2 - 624; 3 - 281; 4 - 257; 6 -	0	10	3580	651
148	fp1hyper'	'sdq: hyperactivity score (parent1)',	continuous variable	0 - 664; 2 - 591; 1 - 434; 4 - 429; 3 - 407; 5 -	0	10	3580	651
149	fp1peer'	'sdq: peer problems score (parent1)',	continuous variable	0 - 1611; 2 - 711; 1 - 544; 4 - 283; 3 - 210; 6 -	0	10	3580	651
150	fp1prosoc'	'sdq: prosocial score (parent1)',	continuous variable	10 - 2222; 9 - 585; 8 - 452; 7 - 158; 6 - 94; 5 -	0	10	3580	651
151	fp1impact'	'sdq: impact score (parent1)',	continuous variable	0 - 3202; 1 - 171; 2 - 100; 4 - 37; 3 - 36; 5 -	0	10	3580	651
152	fp1sepabandd'	'computer prediction: separation anxiety	'0 <0.1%, 1 ~0.5%, 2 ~3%, 3 ~15%, 4 ~50%, 5	1 - 3043; 2 - 422; 3 - 85; 5 - 33;	1	5	3583	648
153	fp1sepabandi'	'computer prediction: separation anxiety	'0 <0.1%, 1 ~0.5%, 2 ~3%, 3 ~15%, 4 ~50%, 5	0 - 3372; 2 - 186; 4 - 25;	0	4	3583	648
154	fp1b1a'	'specific fear of: animals (parent1)',	'0 no, 1 a little, 2 a lot'	0 - 2164; 1 - 1126; 2 - 292;	0	2	3582	649
155	fp1b1b'	'specific fear of: storms, thunder, heights	'0 no, 1 a little, 2 a lot'	0 - 1897; 1 - 1400; 2 - 285;	0	2	3582	649
156	fp1b1c'	'specific fear of: dark (parent1)',	'0 no, 1 a little, 2 a lot'	0 - 1656; 1 - 1436; 2 - 490;	0	2	3582	649
157	fp1b1d'	'specific fear of: loud noises (parent1)',	'0 no, 1 a little, 2 a lot'	0 - 2962; 1 - 497; 2 - 123;	0	2	3582	649
158	fp1b1e'	'specific fear of: blood, infection, injury	'0 no, 1 a little, 2 a lot'	0 - 1756; 1 - 1338; 2 - 488;	0	2	3582	649
159	fp1b1f'	'specific fear of: dentists, doctors (parent1)',	'0 no, 1 a little, 2 a lot'	0 - 2760; 1 - 649; 2 - 173;	0	2	3582	649
160	fp1b1g'	'specific fear of: vomiting, choking, diseases	'0 no, 1 a little, 2 a lot'	0 - 2958; 1 - 486; 2 - 138;	0	2	3582	649
161	fp1b1h'	'specific fear of: types of transport	'0 no, 1 a little, 2 a lot'	0 - 3495; 1 - 73; 2 - 14;	0	2	3582	649
162	fp1b1i'	'specific fear of: enclosed spaces (parent1)',	'0 no, 1 a little, 2 a lot'	0 - 3350; 1 - 190; 2 - 42;	0	2	3582	649
163	fp1b1j'	'specific fear of: toilets (parent1)',	'0 no, 1 a little, 2 a lot'	0 - 3350; 1 - 202; 2 - 30;	0	2	3582	649
164	fp1b1k'	'specific fear of: people who look unusual	'0 no, 1 a little, 2 a lot'	0 - 3180; 1 - 318; 2 - 84;	0	2	3582	649
165	fp1b1l'	'specific fear of: monsters etc (parent1)',	'0 no, 1 a little, 2 a lot'	0 - 2617; 1 - 797; 2 - 168;	0	2	3582	649
166	fp1b1m'	'specific fear of: other things (parent1)',	'0 no, 1 a little, 2 a lot'	0 - 3492; 1 - 57; 2 - 33;	0	2	3582	649
167	fp1b2'	'spph: fear is a nuisance (parent1)',	'0 no, 1 perhaps, 2 definitely'	0 - 604; 2 - 361; 1 - 205;	0	2	1170	3061
168	fp1b3'	'spph: duration in months (parent1)',	'0 less than 1 month, 1 1-5 months, 2 6	2 - 563; 1 - 55; 0 - 16;	0	2	634	3597
169	fp1b4'	'spph: very upset when fear is triggered	'0 no, 1 a little, 2 a lot'	2 - 327; 1 - 259; 0 - 47;	0	2	633	3598
170	fp1b5'	'spph: upset every time (parent1)',	'0 no, 1 yes'	1 - 311; 0 - 17;	0	1	328	3903
171	fp1b6'	'spph: how often is fear triggered?	'0 every now and then, 1 most weeks, 2	0 - 256; 2 - 34; 1 - 31; 3 - 7;	0	3	328	3903
172	fp1b7'	'spph: avoids the phobic stimulus	'0 no, 1 a little, 2 a lot'	1 - 242; 2 - 215; 0 - 176;	0	2	633	3598
173	fp1b8'	'spph: avoidance interferes with daily life	'0 no, 1 a little, 2 a lot'	0 - 136; 1 - 49; 2 - 32;	0	2	217	4014
174	fp1b9'	'spph: others thinks fear is excessive	'0 no, 1 perhaps, 2 definitely'	0 - 317; 2 - 182; 1 - 134;	0	2	633	3598
175	fp1b10'	'spph: child thinks fear is excessive	'0 no, 1 perhaps, 2 definitely'	0 - 421; 2 - 106; 1 - 105;	0	2	632	3599
176	fp1b11'	'spph: burden (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 453; 1 - 133; 2 - 40; 3 - 7;	0	3	633	3598
177	fp1spphband'	'computer prediction: specific phobia	'0 <0.1%, 1 ~0.5%, 2 ~3%, 3 ~15%, 4 ~50%, 5	0 - 2420; 1 - 1018; 3 - 97; 4 - 47;	0	4	3582	649
178	fp1c1'	'soph: any concerns? (parent1)',	'0 no, 1 yes'	0 - 3360; 1 - 224;	0	1	3584	647
179	fp1c2a'	'anxious about: meeting new people	'0 no, or doesnt apply, 1 a little, 2 a lot'	0 - 833; 1 - 83; 2 - 14;	0	2	930	3301
180	fp1c2b'	'anxious about: meeting a lot of people	'0 no, or doesnt apply, 1 a little, 2 a lot'	0 - 822; 1 - 86; 2 - 22;	0	2	930	3301
181	fp1c2c'	'anxious about: eating in front of others	'0 no, or doesnt apply, 1 a little, 2 a lot'	0 - 867; 1 - 58; 2 - 5;	0	2	930	3301
182	fp1c2d'	'anxious about: speaking in class (parent1)',	'0 no, or doesnt apply, 1 a little, 2 a lot'	0 - 829; 1 - 91; 2 - 10;	0	2	930	3301
183	fp1c2e'	'anxious about: reading aloud in front of	'0 no, or doesnt apply, 1 a little, 2 a lot'	0 - 840; 1 - 76; 2 - 14;	0	2	930	3301
184	fp1c2f'	'anxious about: writing in front of others	'0 no, or doesnt apply, 1 a little, 2 a lot'	0 - 895; 1 - 29; 2 - 6;	0	2	930	3301
185	fp1c3'	'soph: separation or social anxiety?	'0 mostly fine in social situations as long as	0 - 28; 1 - 19;	0	1	47	4184
186	fp1c4'	'soph: frightened with adults/kids	'0 just with adults, 1 just with children, 2 with	2 - 33; 0 - 12; 1 - 2;	0	2	47	4184
187	fp1c5'	'soph: can socialise with familiar people	'0 no, 1 yes'	1 - 43; 0 - 4;	0	1	47	4184
188	fp1c6'	'soph: due to fear of embarrassment	'0 no, 1 perhaps, 2 definitely'	0 - 23; 2 - 16; 1 - 8;	0	2	47	4184
189	fp1c7'	'soph: due to delay in speech, writing,	'0 no, 1 perhaps, 2 definitely'	0 - 11; 2 - 7; 1 - 3;	0	2	21	4210
190	fp1c8'	'soph: duration in months (parent1)',	'0 less than 1 month, 1 1-5 months, 2 6	2 - 37; 1 - 6; 0 - 4;	0	2	47	4184
191	fp1c9'	'soph: age of onset (parent1)',	'-1 ?'	6 - 14; 3 - 7; 4 - 7; 2 - 6; 5 - 5; 0 - 3; 1 - 2; 7 -	0	7	46	4185
192	fp1c10'	'soph: upset when social fear is triggered	'0 no, 1 a little, 2 a lot'	1 - 26; 2 - 17; 0 - 4;	0	2	47	4184
193	fp1c11'	'soph: how often social fear is triggered	'0 every now and then, 1 most weeks, 2	0 - 11; 1 - 3; 3 - 3;	0	3	17	4214
194	fp1c12'	'soph: avoids relevant social situations	'0 no, 1 a little, 2 a lot'	1 - 24; 0 - 13; 2 - 10;	0	2	47	4184
195	fp1c13'	'soph: avoidance interferes with daily life	'0 no, 1 a little, 2 a lot'	2 - 7; 0 - 2; 1 - 1;	0	2	10	4221
196	fp1c14'	'soph: child thinks fear is excessive	'0 no, 1 perhaps, 2 definitely'	0 - 21; 2 - 16; 1 - 10;	0	2	47	4184
197	fp1c15'	'soph: child upset to have social fears	'0 no, 1 perhaps, 2 definitely'	0 - 18; 2 - 17; 1 - 12;	0	2	47	4184
198	fp1c16'	'soph: burden (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 20; 1 - 18; 2 - 7; 3 - 2;	0	3	47	4184
199	fp1sophband'	'computer prediction: social phobia	'0 <0.1%, 1 ~0.5%, 2 ~3%, 3 ~15%, 4 ~50%, 5	1 - 2851; 0 - 699; 2 - 27; 3 - 5; 4 - 2;	0	4	3584	647
200	fp1d1'	'panic attacks in last 4 weeks (parent1)',:	'0 no, 1 yes'	0 - 3449; 1 - 135;	0	1	3584	647

201	fp1d2a'	'fear or avoidance of: crowds (parent1)',	'0 no, or doesnt apply, 1 yes'	0 - 3531; 1 - 50;	0	1	3581	650
202	fp1d2b'	'fear or avoidance of: public places	'0 no, or doesnt apply, 1 yes'	0 - 3545; 1 - 36;	0	1	3581	650
203	fp1d2c'	'fear or avoidance of: travelling alone	'0 no, or doesnt apply, 1 yes'	0 - 3571; 1 - 10;	0	1	3581	650
204	fp1d2d'	'fear or avoidance of: being far from home	'0 no, or doesnt apply, 1 yes'	0 - 3478; 1 - 103;	0	1	3581	650
205	fp1d3'	'fear or avoidance is due to panic attacks	'0 no, 1 yes'	1 - 68; 0 - 62;	0	1	130	4101
206	fp1panband'	'computer prediction: panic disorder	'0 <0.1%, 1 ~0.5%, 2 ~3%, 3 ~15%, 4 ~50%, 5	0 - 3447; 2 - 126; 3 - 8;	0	3	3581	650
207	fp1agoband'	'computer prediction: agoraphobia	'0 <0.1%, 1 ~0.5%, 2 ~3%, 3 ~15%, 4 ~50%, 5	0 - 3537; 2 - 29; 3 - 15;	0	3	3581	650
208	fp1e1'	'ptsd: exceptionally stressful event	'0 no, 1 yes'	0 - 3137; 1 - 447;	0	1	3584	647
209	fp1e2a'	'ptsd: serious accident (parent1)',	'0 no, 1 yes'	0 - 344; 1 - 106;	0	1	450	3781
210	fp1e2b'	'ptsd: fire (parent1)',	'0 no, 1 yes'	0 - 410; 1 - 40;	0	1	450	3781
211	fp1e2c'	'ptsd: other disasters (parent1)',	'0 no, 1 yes'	0 - 431; 1 - 19;	0	1	450	3781
212	fp1e2d'	'ptsd: attack or threat (parent1)',	'0 no, 1 yes'	0 - 399; 1 - 51;	0	1	450	3781
213	fp1e2e'	'ptsd: physical abuse (parent1)',	'0 no, 1 yes'	0 - 406; 1 - 44;	0	1	450	3781
214	fp1e2f'	'ptsd: sexual abuse (parent1)',	'0 no, 1 yes'	0 - 430; 1 - 20;	0	1	450	3781
215	fp1e2g'	'ptsd: rape (parent1)',	'0 no, 1 yes'	0 - 446; 1 - 4;	0	1	450	3781
216	fp1e2h'	'ptsd: witnessed domestic violence	'0 no, 1 yes'	0 - 367; 1 - 83;	0	1	450	3781
217	fp1e2i'	'ptsd: witnessed attack (parent1)',	'0 no, 1 yes'	0 - 431; 1 - 19;	0	1	450	3781
218	fp1e2j'	'ptsd: witnessed accident, sudden death	'0 no, 1 yes'	0 - 424; 1 - 26;	0	1	450	3781
219	fp1e2k'	'ptsd: other severe trauma (parent1)',	'0 no, 1 yes'	0 - 318; 1 - 132;	0	1	450	3781
220	fp1e3'	'ptsd: distress/behaviour change at time	'0 no, 1 yes'	1 - 258; 0 - 185;	0	1	443	3788
221	fp1e3a'	'ptsd: present impact (parent1)',	'0 no, 1 yes'	0 - 310; 1 - 133;	0	1	443	3788
222	fp1e4a'	'ptsd: flashbacks (parent1)',	'0 no, 1 a little, 2 a lot'	0 - 81; 1 - 41; 2 - 11;	0	2	133	4098
223	fp1e4b'	'ptsd: nightmares (parent1)',	'0 no, 1 a little, 2 a lot'	0 - 104; 1 - 20; 2 - 9;	0	2	133	4098
224	fp1e4c'	'ptsd: distress if reminded (parent1)',	'0 no, 1 a little, 2 a lot'	0 - 61; 1 - 45; 2 - 27;	0	2	133	4098
225	fp1e4d'	'ptsd: avoids thinking or talking about	'0 no, 1 a little, 2 a lot'	0 - 77; 1 - 30; 2 - 26;	0	2	133	4098
226	fp1e4e'	'ptsd: avoids associated activities, places or	'0 no, 1 a little, 2 a lot'	0 - 97; 1 - 21; 2 - 15;	0	2	133	4098
227	fp1e4f'	'ptsd: blocked out memories (parent1)',	'0 no, 1 a little, 2 a lot'	0 - 102; 1 - 22; 2 - 9;	0	2	133	4098
228	fp1e4g'	'ptsd: lost interest in activities (parent1)',	'0 no, 1 a little, 2 a lot'	0 - 109; 1 - 17; 2 - 7;	0	2	133	4098
229	fp1e4h'	'ptsd: feels cut off from others (parent1)',	'0 no, 1 a little, 2 a lot'	0 - 112; 1 - 14; 2 - 7;	0	2	133	4098
230	fp1e4i'	'ptsd: reduced affective range (parent1)',	'0 no, 1 a little, 2 a lot'	0 - 108; 1 - 15; 2 - 10;	0	2	133	4098
231	fp1e4j'	'ptsd: loss of confidence in future (parent1)',	'0 no, 1 a little, 2 a lot'	0 - 102; 1 - 23; 2 - 8;	0	2	133	4098
232	fp1e4k'	'ptsd: insomnia (parent1)',	'0 no, 1 a little, 2 a lot'	0 - 98; 1 - 25; 2 - 10;	0	2	133	4098
233	fp1e4l'	'ptsd: irritable/angry (parent1)',	'0 no, 1 a little, 2 a lot'	0 - 73; 1 - 31; 2 - 29;	0	2	133	4098
234	fp1e4m'	'ptsd: poor concentration (parent1)',	'0 no, 1 a little, 2 a lot'	0 - 86; 1 - 35; 2 - 12;	0	2	133	4098
235	fp1e4n'	'ptsd: alert to danger (parent1)',	'0 no, 1 a little, 2 a lot'	0 - 76; 1 - 38; 2 - 19;	0	2	133	4098
236	fp1e4o'	'ptsd: easily startled (parent1)',	'0 no, 1 a little, 2 a lot'	0 - 83; 1 - 34; 2 - 16;	0	2	133	4098
237	fp1e5'	'ptsd: symptoms began (months after	'0 within 6 months, 1 more than 6 months	0 - 51; 1 - 16;	0	1	67	4164
238	fp1e6'	'ptsd: duration of symptoms (months)	'0 less than 1 month, 1 1 or 2 months, 2 3	2 - 54; 1 - 9; 0 - 4;	0	2	67	4164
239	fp1e7'	'ptsd: distress (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	1 - 33; 2 - 20; 0 - 11; 3 - 3;	0	3	67	4164
240	fp1e8a'	'ptsd: impact on family life (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	1 - 29; 0 - 29; 2 - 6; 3 - 3;	0	3	67	4164
241	fp1e8b'	'ptsd: impact on friendships (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 47; 1 - 13; 2 - 6; 3 - 1;	0	3	67	4164
242	fp1e8c'	'ptsd: impact on learning (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 52; 1 - 7; 2 - 5; 3 - 3;	0	3	67	4164
243	fp1e8d'	'ptsd: impact on leisure (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 50; 1 - 12; 2 - 3; 3 - 2;	0	3	67	4164
244	fp1e9'	'ptsd: burden (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 35; 1 - 14; 2 - 13; 3 - 5;	0	3	67	4164
245	fp1ptsdband'	'computer prediction: ptsd (parent1, dsm-iv	'0 <0.1%, 1 ~0.5%, 2 ~3%, 3 ~15%, 4 ~50%, 5	0 - 3245; 1 - 304; 2 - 21; 3 - 11; 4 - 3;	0	4	3584	647
246	fp1j1'	'adhd: any concerns? (parent1)',	'0 no, 1 yes'	0 - 2993; 1 - 588;	0	1	3581	650
247	fp1j2a'	'adhd: fidgets (parent1)',	'0 no more than others, 1 a little more than	0 - 438; 1 - 384; 2 - 144;	0	2	966	3265
248	fp1j2b'	'adhd: cant remain seated (parent1)',	'0 no more than others, 1 a little more than	1 - 400; 0 - 381; 2 - 185;	0	2	966	3265
249	fp1j2c'	'adhd: runs or climbs when shouldnt	'0 no more than others, 1 a little more than	0 - 516; 1 - 323; 2 - 127;	0	2	966	3265
250	fp1j2d'	'adhd: cant play quietly (parent1)',	'0 no more than others, 1 a little more than	0 - 556; 1 - 279; 2 - 131;	0	2	966	3265
251	fp1j2e'	'adhd: cant calm down (parent1)',	'0 no more than others, 1 a little more than	0 - 584; 1 - 264; 2 - 118;	0	2	966	3265
252	fp1j3a'	'adhd: blurts out answers (parent1)',	'0 no more than others, 1 a little more than	0 - 570; 1 - 302; 2 - 94;	0	2	966	3265
253	fp1j3b'	'adhd: cant wait for a turn (parent1)',	'0 no more than others, 1 a little more than	0 - 627; 1 - 243; 2 - 96;	0	2	966	3265
254	fp1j3c'	'adhd: butts into conversations or games	'0 no more than others, 1 a little more than	0 - 555; 1 - 290; 2 - 121;	0	2	966	3265
255	fp1j3d'	'adhd: unstoppable talk (parent1)',	'0 no more than others, 1 a little more than	0 - 527; 1 - 312; 2 - 127;	0	2	966	3265
256	fp1j4a'	'adhd: careless mistakes/inattentive	'0 no more than others, 1 a little more than	0 - 594; 1 - 294; 2 - 78;	0	2	966	3265
257	fp1j4b'	'adhd: loses interest (parent1)',	'0 no more than others, 1 a little more than	0 - 631; 1 - 264; 2 - 71;	0	2	966	3265
258	fp1j4c'	'adhd: doesnt listen (parent1)',	'0 no more than others, 1 a little more than	0 - 586; 1 - 290; 2 - 90;	0	2	966	3265
259	fp1j4d'	'adhd: doesnt finish task (parent1)',	'0 no more than others, 1 a little more than	0 - 510; 1 - 356; 2 - 100;	0	2	966	3265
260	fp1j4e'	'adhd: poor self organisation (parent1)',	'0 no more than others, 1 a little more than	0 - 533; 1 - 323; 2 - 110;	0	2	966	3265
261	fp1j4f'	'adhd: avoids tasks needing thought	'0 no more than others, 1 a little more than	0 - 581; 1 - 294; 2 - 91;	0	2	966	3265
262	fp1j4g'	'adhd: loses things (parent1)',	'0 no more than others, 1 a little more than	0 - 616; 1 - 238; 2 - 112;	0	2	966	3265
263	fp1j4h'	'adhd: distractible (parent1)',	'0 no more than others, 1 a little more than	0 - 423; 1 - 382; 2 - 161;	0	2	966	3265
264	fp1j4i'	'adhd: forgetful (parent1)',	'0 no more than others, 1 a little more than	0 - 622; 1 - 247; 2 - 97;	0	2	966	3265
265	fp1j5a'	'adhd: teacher complains of overactivity	'0 no, or doesnt apply, 1 a little, 2 a lot'	0 - 579; 1 - 251; 2 - 136;	0	2	966	3265
266	fp1j5b'	'adhd: teacher complains of poor attention	'0 no, or doesnt apply, 1 a little, 2 a lot'	0 - 485; 1 - 318; 2 - 163;	0	2	966	3265
267	fp1j5c'	'adhd: teacher complains of impulsivity	'0 no, or doesnt apply, 1 a little, 2 a lot'	0 - 719; 1 - 167; 2 - 80;	0	2	966	3265
268	fp1j6'	'adhd: present for at least 6 months	'0 no, 1 yes'	1 - 234; 0 - 52;	0	1	286	3945
269	fp1j7'	'adhd: age of onset (parent1)',	'-1 ?'	4 - 60; 6 - 57; 5 - 55; 3 - 37; 2 - 29; 0 - 25; 1 -	0	8	285	3946
270	fp1j8'	'adhd: distress (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 149; 1 - 97; 2 - 27; 3 - 13;	0	3	286	3945
271	fp1j9a'	'adhd: impact on family life (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 113; 1 - 107; 2 - 49; 3 - 17;	0	3	286	3945
272	fp1j9b'	'adhd: impact on friendships (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 142; 1 - 93; 2 - 43; 3 - 8;	0	3	286	3945
273	fp1j9c'	'adhd: impact on learning (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 114; 1 - 87; 2 - 59; 3 - 26;	0	3	286	3945
274	fp1j9d'	'adhd: impact on leisure (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 155; 1 - 79; 2 - 46; 3 - 6;	0	3	286	3945
275	fp1j10'	'adhd: burden (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 151; 1 - 78; 2 - 43; 3 - 14;	0	3	286	3945
276	fp1adhdbandd'	'computer prediction: adhd (parent1, dsm-	'0 <0.1%, 1 ~0.5%, 2 ~3%, 3 ~15%, 4 ~50%, 5	Series([],	<NA>	<NA>	0	4231
277	fp1adhdbandi'	'computer prediction: hyperkinesis	'0 <0.1%, 1 ~0.5%, 2 ~3%, 3 ~15%, 4 ~50%, 5	Series([],	<NA>	<NA>	0	4231
278	fp1k1'	'odd: as awkward as other kids? (parent1)',	'0 less awkward or troublesome than	1 - 2712; 0 - 631; 2 - 238;	0	2	3581	650
279	fp1k2a'	'odd: temper outbursts (parent1)',	'0 no more than others, 1 a little more than	0 - 600; 1 - 213; 2 - 61;	0	2	874	3357
280	fp1k2b'	'odd: argues with adults (parent1)',	'0 no more than others, 1 a little more than	0 - 591; 1 - 221; 2 - 62;	0	2	874	3357
281	fp1k2c'	'odd: ignores rules/disobedient (parent1)',	'0 no more than others, 1 a little more than	0 - 513; 1 - 293; 2 - 68;	0	2	874	3357
282	fp1k2d'	'odd: deliberately annoys others (parent1)',	'0 no more than others, 1 a little more than	0 - 588; 1 - 223; 2 - 63;	0	2	874	3357
283	fp1k2e'	'odd: blames others for own acts (parent1)',	'0 no more than others, 1 a little more than	0 - 658; 1 - 173; 2 - 43;	0	2	874	3357
284	fp1k2f'	'odd: easily annoyed (parent1)',	'0 no more than others, 1 a little more than	0 - 582; 1 - 228; 2 - 64;	0	2	874	3357
285	fp1k2g'	'odd: angry and resentful (parent1)',	'0 no more than others, 1 a little more than	0 - 585; 1 - 218; 2 - 71;	0	2	874	3357
286	fp1k2h'	'odd: spiteful (parent1)',	'0 no more than others, 1 a little more than	0 - 722; 1 - 120; 2 - 32;	0	2	874	3357
287	fp1k2i'	'odd: vindictive (parent1)',	'0 no more than others, 1 a little more than	0 - 777; 1 - 72; 2 - 25;	0	2	874	3357
288	fp1k3'	'odd: teacher has similar complaints	'0 no, or doesnt apply, 1 a little, 2 a lot'	0 - 81; 2 - 35; 1 - 25;	0	2	141	4090
289	fp1k4'	'odd: present at least 6 months (parent1)',	'0 no, 1 yes'	1 - 107; 0 - 34;	0	1	141	4090
290	fp1k5'	'odd: age of onset (parent1)',	'-1 ?'	6 - 40; 4 - 36; 5 - 32; 3 - 14; 2 - 11; 0 - 6; 7 -	0	7	141	4090
291	fp1k6a'	'odd: impact on family life (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	1 - 63; 2 - 38; 3 - 22; 0 - 18;	0	3	141	4090
292	fp1k6b'	'odd: impact on friendships (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	1 - 48; 0 - 43; 2 - 38; 3 - 12;	0	3	141	4090
293	fp1k6c'	'odd: impact on learning (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 67; 2 - 30; 1 - 27; 3 - 17;	0	3	141	4090
294	fp1k6d'	'odd: impact on leisure (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 55; 1 - 41; 2 - 38; 3 - 7;	0	3	141	4090
295	fp1k7'	'odd: burden (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	1 - 50; 0 - 48; 2 - 33; 3 - 10;	0	3	141	4090
296	fp1oddband'	'computer prediction: oppositional defiant	'0 <0.1%, 1 ~0.5%, 2 ~3%, 3 ~15%, 4 ~50%, 5	1 - 2698; 2 - 597; 3 - 223; 4 - 37; 5 - 26;	1	5	3581	650
297	fp1k8a'	'cd: lies (parent1)',	'0 no, 1 perhaps, 2 true of the last 6 months,	0 - 617; 1 - 136; 2 - 105; 3 - 15;	0	3	873	3358
298	fp1k8b'	'cd: fights (parent1)',	'0 no, 1 perhaps, 2 true of the last 6 months,	0 - 696; 2 - 115; 1 - 61; 3 - 1;	0	3	873	3358
299	fp1k8c'	'cd: bullies (parent1)',	'0 no, 1 perhaps, 2 true of the last 6 months,	0 - 814; 2 - 41; 1 - 17; 3 - 1;	0	3	873	3358
300	fp1k8d'	'cd: stays out (parent1)',	'0 no, 1 perhaps, 2 true of the last 6 months,	0 - 838; 2 - 20; 1 - 15;	0	2	873	3358

301	fp1k8e'	'cd: steals (parent1)',	'0 no, 1 perhaps, 2 true of the last 6 months,	0 - 856; 2 - 11; 3 - 4; 1 - 2;	0	3	873	3358
302	fp1k8f'	'cd: runs away (parent1)',	'0 no, 1 perhaps, 2 true of the last 6 months,	0 - 860; 2 - 9; 3 - 4;	0	3	873	3358
303	fp1k8g'	'cd: truants (parent1)',	'0 no, 1 perhaps, 2 true of the last 6 months,	0 - 867; 2 - 4; 1 - 2;	0	2	873	3358
304	fp1k9'	'cd: truanted<13 (parent1)',	'0 no, 1 yes'	Series([],	<NA>	<NA>	0	4231
305	fp1k10a'	'cd: uses weapons (parent1)',	'0 no, 1 true of the last 6 months, 2 was true	0 - 244; 1 - 9; 2 - 1;	0	2	254	3977
306	fp1k10b'	'cd: cruel to people (parent1)',	'0 no, 1 true of the last 6 months, 2 was true	0 - 238; 1 - 14; 2 - 2;	0	2	254	3977
307	fp1k10c'	'cd: cruel to animals (parent1)',	'0 no, 1 true of the last 6 months, 2 was true	0 - 232; 1 - 17; 2 - 5;	0	2	254	3977
308	fp1k10d'	'cd: fire setting (parent1)',	'0 no, 1 true of the last 6 months, 2 was true	0 - 239; 1 - 12; 2 - 3;	0	2	254	3977
309	fp1k10e'	'cd: destructive (parent1)',	'0 no, 1 true of the last 6 months, 2 was true	0 - 213; 1 - 36; 2 - 5;	0	2	254	3977
310	fp1k10f'	'cd: mugging (parent1)',	'0 no, 1 true of the last 6 months, 2 was true	0 - 253; 1 - 1;	0	1	254	3977
311	fp1k10g'	'cd: forced sex (parent1)',	'0 no, 1 true of the last 6 months, 2 was true	0 - 253; 2 - 1;	0	2	254	3977
312	fp1k10h'	'cd: breaks in (parent1)',	'0 no, 1 true of the last 6 months, 2 was true	0 - 253; 1 - 1;	0	1	254	3977
313	fp1k11aa'	'cd: present>6 months (parent1)',	'0 no, 1 yes'	1 - 110; 0 - 108;	0	1	218	4013
314	fp1k11'	'cd: teacher complained (parent1)',	'0 no, or doesnt apply, 1 yes'	0 - 201; 1 - 52;	0	1	253	3978
315	fp1k11a'	'cd: police contact (parent1)',	'0 no, 1 yes'	0 - 253;	0	0	253	3978
316	fp1k12a'	'cd: impact on family life (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	1 - 99; 0 - 71; 2 - 32; 3 - 9;	0	3	211	4020
317	fp1k12b'	'cd: impact on friendships (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 101; 1 - 72; 2 - 32; 3 - 6;	0	3	211	4020
318	fp1k12c'	'cd: impact on learning (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 130; 1 - 43; 2 - 29; 3 - 9;	0	3	211	4020
319	fp1k12d'	'cd: impact on leisure (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 121; 1 - 60; 2 - 25; 3 - 5;	0	3	211	4020
320	fp1k13'	'cd: burden (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 114; 1 - 63; 2 - 29; 3 - 5;	0	3	211	4020
321	fp1cdband'	'computer prediction: conduct disorder	'0 <0.1%, 1 ~0.5%, 2 ~3%, 3 ~15%, 4 ~50%, 5	1 - 3225; 2 - 267; 3 - 48; 4 - 23; 5 - 18;	1	5	3581	650
322	fp1p1a'	'eat: feels fat when isnt (parent1)',	'0 no, 1 yes'	0 - 3388; 1 - 195;	0	1	3583	648
323	fp1p1b'	'eat: ashamed of eating habits (parent1)',	'0 no, 1 yes'	0 - 3448; 1 - 135;	0	1	3583	648
324	fp1p1c'	'eat: deliberate vomiting (parent1)',	'0 no, 1 yes'	0 - 3533; 1 - 50;	0	1	3583	648
325	fp1p1d'	'eat: eating concerns intefere a lot	'0 no, 1 yes'	0 - 3495; 1 - 88;	0	1	3583	648
326	fp1p1e'	'eat: blames self a lot for overeating	'0 no, 1 yes'	0 - 3542; 1 - 41;	0	1	3583	648
327	fp1p2a'	'eat: current height (parent1)',	continuous variable	120 - 39; 130 - 16; 118 - 16; 125 - 15; 122 -	105	150	247	3984
328	fp1p2aexact'	'accuracy of: current height (parent1)',	'0 correct (or almost so), 1 a good guess, 2 a	3 - 106; 0 - 89; 1 - 87; 2 - 71;	0	3	353	3878
329	fp1p2b'	'eat: current weight (parent1)',	continuous variable	22 - 25; 23 - 23; 25 - 20; 20 - 18; 30 - 18; 27 -	12	60	333	3898
330	fp1p2bexact'	'accuracy of: current weight (parent1)',	'0 correct (or almost so), 1 a good guess, 2 a	0 - 161; 1 - 125; 2 - 47; 3 - 19;	0	3	352	3879
331	fp1p2c'	'eat: lowest recent weight (parent1)',	continuous variable	25 - 26; 20 - 25; 18 - 23; 29 - 20; 19 - 20; 22 -	10	45	295	3936
332	fp1p2cexact'	'accuracy of: lowest recent weight	'0 correct (or almost so), 1 a good guess, 2 a	1 - 159; 0 - 84; 3 - 57; 2 - 52;	0	3	352	3879
333	fp1p2d'	'eat: highest weight (parent1)',	continuous variable	30 - 24; 23 - 24; 22 - 23; 26 - 18; 20 - 18; 25 -	14	60	322	3909
334	fp1p2dexact'	'accuracy of: highest weight (parent1)',	'0 correct (or almost so), 1 a good guess, 2 a	0 - 156; 1 - 127; 2 - 39; 3 - 30;	0	3	352	3879
335	fp1p3'	'eat: others think of him as (parent1)',	'0 very thin, 1 thin, 2 average, 3 plump, 4 fat'	2 - 162; 3 - 99; 1 - 61; 0 - 18; 4 - 12;	0	4	352	3879
336	fp1p4'	'eat: always this thin? (parent1)',	'0 very thin, 1 thin, 2 average, 3 plump, 4 fat'	1 - 50; 2 - 21; 0 - 4; 3 - 4;	0	3	79	4152
337	fp1p5'	'eat: he thinks of himself as (parent1)',	'0 even thinner in previous years, 1 always	3 - 144; 2 - 102; 1 - 61; 4 - 42; 0 - 3;	0	4	352	3879
338	fp1p6'	'eat: others think so (parent1)',	'0 no, 1 yes'	0 - 220; 1 - 131;	0	1	351	3880
339	fp1p7'	'eat: he thinks so (parent1)',	'0 no, 1 yes'	0 - 328; 1 - 23;	0	1	351	3880
340	fp1p8'	'eat: afraid of gaining weight, getting fat	'0 no, 1 a little, 2 a lot'	0 - 163; 1 - 135; 2 - 53;	0	2	351	3880
341	fp1p9'	'eat: terrified (parent1)',	'0 no, 1 yes'	1 - 37; 0 - 16;	0	1	53	4178
342	fp1p10'	'eat: hard to accept weight gain (parent1)',	'0 easy, 1 difficult, 2 impossible'	0 - 244; 1 - 90; 2 - 17;	0	2	351	3880
343	fp1p11'	'eat: avoids fattening foods (parent1)',	'0 no, 1 a little, 2 a lot'	0 - 292; 1 - 53; 2 - 6;	0	2	351	3880
344	fp1p12'	'eat: succeeds in this (parent1)',	'0 never, 1 sometimes, 2 most of the time, 3	3 - 2; 2 - 2; 1 - 1; 0 - 1;	0	3	6	4225
345	fp1p13'	'eat: thinks of food a lot (parent1)',	'0 no, 1 yes'	0 - 312; 1 - 39;	0	1	351	3880
346	fp1p14'	'eat: craving for food is like addiction	'0 no, 1 a little, 2 a lot'	0 - 310; 1 - 29; 2 - 12;	0	2	351	3880
347	fp1p15'	'eat: binges (parent1)',	'0 no, 1 yes'	0 - 316; 1 - 35;	0	1	351	3880
348	fp1p16'	'eat: frequency in last 3 months (parent1)',	'0 hasnt happened, 1 occasionally, 2 about	1 - 13; 3 - 11; 2 - 11;	1	3	35	4196
349	fp1p17'	'eat: loss of control (parent1)',	'0 no, 1 yes'	1 - 18; 0 - 17;	0	1	35	4196
350	fp1p18a'	'eat: eats less at meals (parent1)',	'0 no, 1 tries to but not allowed, 2 a little, 3 a	0 - 289; 2 - 37; 1 - 20; 3 - 5;	0	3	351	3880
351	fp1p18b'	'eat: skips meals (parent1)',	'0 no, 1 tries to but not allowed, 2 a little, 3 a	0 - 319; 2 - 20; 1 - 11; 3 - 1;	0	3	351	3880
352	fp1p18c'	'eat: fasts all or most of day (parent1)',	'0 no, 1 tries to but not allowed, 2 a little, 3 a	0 - 328; 2 - 12; 1 - 10; 3 - 1;	0	3	351	3880
353	fp1p18d'	'eat: hides or throws away food (parent1)',	'0 no, 1 tries to but not allowed, 2 a little, 3 a	0 - 340; 2 - 8; 1 - 3;	0	2	351	3880
354	fp1p18e'	'eat: exercises more (parent1)',	'0 no, 1 tries to but not allowed, 2 a little, 3 a	0 - 311; 2 - 30; 1 - 5; 3 - 5;	0	3	351	3880
355	fp1p18f'	'eat: vomits (parent1)',	'0 no, 1 tries to but not allowed, 2 a little, 3 a	0 - 340; 2 - 8; 1 - 2; 3 - 1;	0	3	351	3880
356	fp1p18g'	'eat: pills or medicines to lose weight	'0 no, 1 tries to but not allowed, 2 a little, 3 a	0 - 351;	0	0	351	3880
357	fp1p18h'	'eat: other compensatory behaviours	'0 no, 1 tries to but not allowed, 2 a little, 3 a	0 - 351;	0	0	351	3880
358	fp1p19'	'eat: compensatory behaviour follows	'0 no, 1 yes'	0 - 1; 1 - 1;	0	1	2	4229
359	fp1p20'	'eat: menstrual periods (parent1)',	'0 no, 1 yes'	Series([],	<NA>	<NA>	0	4231
360	fp1p21'	'eat: any in last 3 months? (parent1)',	'0 no, 1 yes'	Series([],	<NA>	<NA>	0	4231
361	fp1p22'	'eat: any ever? (parent1)',	'0 no, 1 yes'	Series([],	<NA>	<NA>	0	4231
362	fp1p26'	'eat: distress (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	1 - 51; 0 - 37; 2 - 6; 3 - 2;	0	3	96	4135
363	fp1p27a'	'eat: impact on family life (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 62; 1 - 29; 2 - 5;	0	2	96	4135
364	fp1p27b'	'eat: impact on friendships (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 84; 1 - 10; 3 - 1; 2 - 1;	0	3	96	4135
365	fp1p27c'	'eat: impact on learning (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 86; 1 - 10;	0	1	96	4135
366	fp1p27d'	'eat: impact on leisure (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 83; 1 - 11; 2 - 2;	0	2	96	4135
367	fp1p28'	'eat: burden (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 68; 1 - 20; 2 - 8;	0	2	96	4135
368	fp1bmi'	'eat: body mass index (bmi) (parent1)',	continuous variable	17.4 - 8; 16.5 - 7; 16.0 - 7; 18.1 - 6; 14.4 - 6;	12	31	245	3986
369	fp1eatband'	'computer prediction: eating disorder	'0 <0.1%, 1 ~0.5%, 2 ~3%, 3 ~15%, 4 ~50%, 5	0 - 3233; 1 - 318; 2 - 31; 4 - 1;	0	4	3583	648
370	fp1q1'	'tic: motor tics in last year (parent1)',	'0 no, 1 yes'	0 - 3376; 1 - 206;	0	1	3582	649
371	fp1q2'	'tic: vocal tics in last year (parent1)',	'0 no, 1 yes'	0 - 3504; 1 - 78;	0	1	3582	649
372	fp1q3a'	'motor tics ever: eye blinking (parent1)',	'0 no, 1 yes'	0 - 210; 1 - 55;	0	1	265	3966
373	fp1q3b'	'motor tics ever: eyebrow raising (parent1)',	'0 no, 1 yes'	0 - 254; 1 - 11;	0	1	265	3966
374	fp1q3c'	'motor tics ever: squinting (parent1)',	'0 no, 1 yes'	0 - 243; 1 - 22;	0	1	265	3966
375	fp1q3d'	'motor tics ever: eye rolling (parent1)',	'0 no, 1 yes'	0 - 255; 1 - 10;	0	1	265	3966
376	fp1q3e'	'motor tics ever: nose twitching (parent1)',	'0 no, 1 yes'	0 - 253; 1 - 12;	0	1	265	3966
377	fp1q3f'	'motor tics ever: nostril flaring (parent1)',	'0 no, 1 yes'	0 - 259; 1 - 6;	0	1	265	3966
378	fp1q3g'	'motor tics ever: mouth pouting (parent1)',	'0 no, 1 yes'	0 - 249; 1 - 16;	0	1	265	3966
379	fp1q3h'	'motor tics ever: mouth stretching wide	'0 no, 1 yes'	0 - 255; 1 - 10;	0	1	265	3966
380	fp1q3i'	'motor tics ever: head nodding (parent1)',	'0 no, 1 yes'	0 - 252; 1 - 13;	0	1	265	3966
381	fp1q3j'	'motor tics ever: screwing up face	'0 no, 1 yes'	0 - 249; 1 - 16;	0	1	265	3966
382	fp1q3k'	'motor tics ever: chin to shoulder (parent1)',	'0 no, 1 yes'	0 - 256; 1 - 9;	0	1	265	3966
383	fp1q3l'	'motor tics ever: neck stretching (parent1)',	'0 no, 1 yes'	0 - 259; 1 - 6;	0	1	265	3966
384	fp1q3m'	'motor tics ever: shoulder shrugging	'0 no, 1 yes'	0 - 258; 1 - 7;	0	1	265	3966
385	fp1q3n'	'motor tics ever: jerking of arm or leg	'0 no, 1 yes'	0 - 258; 1 - 7;	0	1	265	3966
386	fp1q3o'	'motor tics ever: other (parent1)',	'0 no, 1 yes'	0 - 152; 1 - 113;	0	1	265	3966
387	fp1q4'	'tic: motor tics mimicked by other things?	'0 no, 1 yes'	0 - 157; 1 - 43;	0	1	200	4031
388	fp1q6a'	'vocal tics ever: throat clearing (parent1)',	'0 no, 1 yes'	0 - 232; 1 - 30;	0	1	262	3969
389	fp1q6b'	'vocal tics ever: excessive sniffing	'0 no, 1 yes'	0 - 241; 1 - 21;	0	1	262	3969
390	fp1q6c'	'vocal tics ever: coughing (parent1)',	'0 no, 1 yes'	0 - 254; 1 - 8;	0	1	262	3969
391	fp1q6d'	'vocal tics ever: gulping (parent1)',	'0 no, 1 yes'	0 - 258; 1 - 4;	0	1	262	3969
392	fp1q6e'	'vocal tics ever: high-pitched squeaks	'0 no, 1 yes'	0 - 250; 1 - 12;	0	1	262	3969
393	fp1q6f'	'vocal tics ever: little noises, e.g. ah, eh, eeh	'0 no, 1 yes'	0 - 253; 1 - 9;	0	1	262	3969
394	fp1q6g'	'vocal tics ever: sucking noises (parent1)',	'0 no, 1 yes'	0 - 258; 1 - 4;	0	1	262	3969
395	fp1q6h'	'vocal tics ever: burping (parent1)',	'0 no, 1 yes'	0 - 256; 1 - 6;	0	1	262	3969
396	fp1q6i'	'vocal tics ever: word repeated out of	'0 no, 1 yes'	0 - 254; 1 - 8;	0	1	262	3969
397	fp1q6j'	'vocal tics ever: swearing without meaning	'0 no, 1 yes'	0 - 258; 1 - 4;	0	1	262	3969
398	fp1q6k'	'vocal tics ever: other (parent1)',	'0 no, 1 yes'	0 - 241; 1 - 21;	0	1	262	3969
399	fp1q7'	'tic: vocal tics mimicked by other things?	'0 no, 1 yes'	0 - 59; 1 - 25;	0	1	84	4147
400	fp1q13'	'tic: age at first onset (parent1)',	'-1 ?'	6 - 102; 5 - 63; 4 - 35; 3 - 23; 2 - 10; 1 - 6; 0 -	0	7	243	3988

401	fp1q14'	'tic: any bad weeks for tics? (parent1)',	'0 no, 1 yes'	0 - 203; 1 - 46;	0	1	249	3982
402	fp1q15'	'tic: having bad weeks for (parent1)',	'0 less than a month ago, 1 1-11 months	1 - 20; 2 - 19; 0 - 7;	0	2	46	4185
403	fp1q16'	'tic: proportion of bad weeks in the last year	'0 well under half of them, 1 about half of	0 - 19; 1 - 8; 3 - 6; 2 - 6;	0	3	39	4192
404	fp1q17'	'tic: 4 bad weeks in a row (in last year)?	'0 no, 1 yes'	0 - 23; 1 - 16;	0	1	39	4192
405	fp1q18'	'tic: were the last 4 weeks all bad weeks?	'0 no, 1 yes'	1 - 10; 0 - 6;	0	1	16	4215
406	fp1q19'	'tic: any tic-free periods in the last year?	'0 no, 1 yes'	1 - 21; 0 - 18;	0	1	39	4192
407	fp1q20'	'tic: longest tic-free period in the last year	'0 up to 2 months, 1 3 months, 2 more than	2 - 11; 0 - 10;	0	2	21	4210
408	fp1q21'	'tic: distress (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 34; 1 - 11; 2 - 1;	0	2	46	4185
409	fp1q22a'	'tic: impact on family life (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 26; 1 - 14; 2 - 6;	0	2	46	4185
410	fp1q22b'	'tic: impact on friendships (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 39; 1 - 7;	0	1	46	4185
411	fp1q22c'	'tic: impact on learning (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 38; 1 - 6; 2 - 2;	0	2	46	4185
412	fp1q22d'	'tic: impact on leisure (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 39; 1 - 7;	0	1	46	4185
413	fp1q23'	'tic: burden (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 32; 1 - 12; 2 - 2;	0	2	46	4185
414	fp1ticbandd'	'computer prediction: tic disorder (parent1,	'0 <0.1%, 1 ~0.5%, 2 ~3%, 3 ~15%, 4 ~50%, 5	0 - 3320; 1 - 214; 2 - 33; 3 - 13; 4 - 2;	0	4	3582	649
415	fp1ticbandi'	'computer prediction: tic disorder (parent1,	'0 <0.1%, 1 ~0.5%, 2 ~3%, 3 ~15%, 4 ~50%, 5	0 - 3320; 2 - 144; 1 - 70; 3 - 40; 4 - 8;	0	4	3582	649
416	fp1sas1'	'social aptitude scale: can laugh around	'0 a lot worse than average, 1 a bit worse	2 - 172;	2	2	172	4059
417	fp1sas2'	'social aptitude scale: easy to chat with	'0 a lot worse than average, 1 a bit worse	2 - 172;	2	2	172	4059
418	fp1sas3'	'social aptitude scale: flexible, can	'0 a lot worse than average, 1 a bit worse	2 - 171; 3 - 1;	2	3	172	4059
419	fp1sas4'	'social aptitude scale: can defuse tense	'0 a lot worse than average, 1 a bit worse	2 - 172;	2	2	172	4059
420	fp1sas5'	'social aptitude scale: good loser (parent1)',	'0 a lot worse than average, 1 a bit worse	2 - 172;	2	2	172	4059
421	fp1sas6'	'social aptitude scale: puts others at ease	'0 a lot worse than average, 1 a bit worse	2 - 172;	2	2	172	4059
422	fp1sas7'	'social aptitude scale: can tell what others	'0 a lot worse than average, 1 a bit worse	2 - 172;	2	2	172	4059
423	fp1sas8'	'social aptitude scale: apologizes, puts	'0 a lot worse than average, 1 a bit worse	2 - 171; 3 - 1;	2	3	172	4059
424	fp1sas9'	'social aptitude scale: leads without	'0 a lot worse than average, 1 a bit worse	2 - 172;	2	2	172	4059
425	fp1sas10'	'social aptitude scale: recognizes what is	'0 a lot worse than average, 1 a bit worse	2 - 172;	2	2	172	4059
426	fp1sastot'	'social aptitude scale: total score (parent1)',	20, 22	20 - 171; 22 - 1;	20	22	172	4059
427	fp1fr1'	'asd: difficulty making friends (parent1)',	'0 finds it harder than average, 1 about	1 - 1;	1	1	1	4230
428	fp1fr2'	'asd: difficulty keeping friends (parent1)',	'0 finds it harder than average, 1 about	1 - 1;	1	1	1	4230
429	fp1fr3'	'asd: number of friends he fairly often	'0 none, 1 one, 2 2-4, 3 5-9, 4 10+'	0 - 1;	0	0	1	4230
430	fp1fr4'	'asd: shares interests with friends	'0 no, 1 a little, 2 a lot'		<NA>	<NA>	0	4231
431	fp1fr5'	'asd: does things jointly with friends	'0 no, 1 a little, 2 a lot'		<NA>	<NA>	0	4231
432	fp1fr6'	'asd: confides in friends (parent1)',	'0 no, 1 perhaps, 2 definitely'		<NA>	<NA>	0	4231
433	fp1r1'	'asd: general reasoning and school work at	'0 ahead, 1 average, 2 behind'	1 - 172; 0 - 1;	0	1	173	4058
434	fp1r2'	'asd: current mental age (parent1)',	'-1 ?'		<NA>	<NA>	0	4231
435	fp1r3'	'asd: language expression and	'0 ahead, 1 average, 2 behind'	1 - 171; 0 - 1;	0	1	172	4059
436	fp1r4'	'asd: current language age (parent1)',	'-1 ?'		<NA>	<NA>	0	4231
437	fp1r5'	'asd: good at getting round language	'0 no, 1 a little, 2 a lot'		<NA>	<NA>	0	4231
438	fp1r6a'	'serious concerns in the first 3 years: about	'0 no, 1 yes'	0 - 148; 1 - 24;	0	1	172	4059
439	fp1r6b'	'serious concerns in the first 3 years: abour	'0 no, 1 yes'	0 - 161; 1 - 11;	0	1	172	4059
440	fp1r6c'	'serious concerns in the first 3 years: about	'0 no, 1 yes'	0 - 170; 1 - 1;	0	1	171	4060
441	fp1r6d'	'serious concerns in the first 3 years: about	'0 no, 1 yes'	0 - 171; 1 - 1;	0	1	172	4059
442	fp1r6e'	'asd: concern in first 3 years about general	'0 no, 1 yes'	0 - 166; 1 - 6;	0	1	172	4059
443	fp1r7'	'asd: continuing difficulties in any of these	'0 completely cleared up, 1 some continuing	1 - 21; 0 - 13;	0	1	34	4197
444	fp1r8'	'asd: words before aged 2 (parent1)',	'0 no, 1 yes'		<NA>	<NA>	0	4231
445	fp1r9'	'asd: phrases before aged 3 (parent1)',	'0 no, 1 yes'		<NA>	<NA>	0	4231
446	fp1r10'	'asd: restricted use of nonverbal gestures	'0 about the same or more, 1 a little less, 2 a	1 - 1;	1	1	1	4230
447	fp1r11'	'asd: enjoying simple social games as a	'0 no, 1 a little, 2 a lot'	0 - 1;	0	0	1	4230
448	fp1r12'	'asd: sharing enjoyment, interests or	'0 no, 1 a little, 2 a lot'	0 - 1;	0	0	1	4230
449	fp1r13'	'asd: repetitive play, e.g. turning light	'0 no, 1 a little, 2 a lot'	0 - 1;	0	0	1	4230
450	fp1r14'	'asd: very interested in unusual aspects of	'0 no, 1 a little, 2 a lot'	0 - 1;	0	0	1	4230
451	fp1r15'	'asd: regularly taking part in imaginative	'0 no, 1 a little, 2 a lot'	0 - 1;	0	0	1	4230
452	fp1r16'	'asd: adjusts play for older or younger	'0 no, 1 a little, 2 a lot'	0 - 1;	0	0	1	4230
453	fp1r17'	'asd: difficulty taking turns, sharing,	'0 no, 1 a little, 2 a lot'	0 - 1;	0	0	1	4230
454	fp1r18'	'asd: any obsessions? (parent1)',	'0 no, 1 a little, 2 a lot'	0 - 1;	0	0	1	4230
455	fp1r19'	'asd: unusual topic (parent1)',	'0 no, 1 a little, 2 a lot'	Series([],	<NA>	<NA>	0	4231
456	fp1r20'	'asd: dominating his life (parent1)',	'0 no, 1 a little, 2 a lot'	Series([],	<NA>	<NA>	0	4231
457	fp1r21'	'asd: dominating his conversation	'0 no, 1 a little, 2 a lot'	Series([],	<NA>	<NA>	0	4231
458	fp1r22'	'asd: interfering with getting on with other	'0 no, 1 a little, 2 a lot'	Series([],	<NA>	<NA>	0	4231
459	fp1r24'	'asd: good at starting coversations with	'0 no, 1 a little, 2 a lot'	0 - 1;	0	0	1	4230
460	fp1r25'	'asd: good at sustaining coversations	'0 no, 1 a little, 2 a lot'	0 - 1;	0	0	1	4230
461	fp1r26'	'asd: interested in chatting about other	'0 no, 1 a little, 2 a lot'	0 - 1;	0	0	1	4230
462	fp1r27'	'asd: adjusts conversation for formal and	'0 no, 1 a little, 2 a lot'	0 - 1;	0	0	1	4230
463	fp1r28'	'asd: others find it hard to read his tone of	'0 no, 1 a little, 2 a lot'	0 - 1;	0	0	1	4230
464	fp1r29'	'asd: finds it hard to read others tone of	'0 no, 1 a little, 2 a lot'	0 - 1;	0	0	1	4230
465	fp1r30'	'asd: abnormal eye contact at some age	'0 no, 1 perhaps, 2 definitely'	Series([],	<NA>	<NA>	0	4231
466	fp1r31'	'asd: a lot of echoing (ever) (parent1)',	'0 no, 1 a little, 2 a lot'	Series([],	<NA>	<NA>	0	4231
467	fp1r32'	'asd: repetitive questioning (ever)	'0 no, 1 a little, 2 a lot'	Series([],	<NA>	<NA>	0	4231
468	fp1r33'	'asd: repetitive clichés (ever) (parent1)',	'0 no, 1 a little, 2 a lot'	Series([],	<NA>	<NA>	0	4231
469	fp1r34'	'asd: strong or unusual routines (ever)	'0 no, 1 a little, 2 a lot'	Series([],	<NA>	<NA>	0	4231
470	fp1r36'	'asd: very upset by change in routine (ever)	'0 no, 1 a little, 2 a lot'	Series([],	<NA>	<NA>	0	4231
471	fp1r37'	'asd: a lot of flapping (ever) (parent1)',	'0 no, 1 a little, 2 a lot'	Series([],	<NA>	<NA>	0	4231
472	fp1r38'	'asd: parental concern about language,	'0 no, 1 a little, 2 a lot'	Series([],	<NA>	<NA>	0	4231
473	fp1r39'	'asd: distress (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	Series([],	<NA>	<NA>	0	4231
474	fp1r40a'	'asd: impact on family life (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	Series([],	<NA>	<NA>	0	4231
475	fp1r40b'	'asd: impact on friendships (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	Series([],	<NA>	<NA>	0	4231
476	fp1r40c'	'asd: impact on learning (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	Series([],	<NA>	<NA>	0	4231
477	fp1r40d'	'asd: impact on leisure (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	Series([],	<NA>	<NA>	0	4231
478	fp1r41'	'asd: burden (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	Series([],	<NA>	<NA>	0	4231
479	fp1r42'	'asd: always there or sudden onset (with	'0 always there to some extent, 1 sudden	Series([],	<NA>	<NA>	0	4231
480	fp1r43'	'asd: age when change took place	'-1 ?'	Series([],	<NA>	<NA>	0	4231
481	fp1asdband'	'computer prediction: pdd/autism (parent1,	'0 <0.1%, 1 ~0.5%, 2 ~3%, 3 ~15%, 4 ~50%, 5	0 - 175; 2 - 1;	0	2	176	4055
482	fsepabandd'	'band: separation anxiety (computer	'0 <0.1%, 1 ~0.5%, 2 ~3%, 3 ~15%, 4 ~50%, 5	1 - 3042; 2 - 423; 3 - 85; 5 - 33;	1	5	3583	648
483	fsepabandi'	'band: separation anxiety (computer	'0 <0.1%, 1 ~0.5%, 2 ~3%, 3 ~15%, 4 ~50%, 5	0 - 3372; 2 - 186; 4 - 25;	0	4	3583	648
484	fspphband'	'band: specific phobia (computer prediction,	'0 <0.1%, 1 ~0.5%, 2 ~3%, 3 ~15%, 4 ~50%, 5	0 - 2419; 1 - 1019; 3 - 97; 4 - 47;	0	4	3582	649
485	fsophband'	'band: social phobia (computer prediction,	'0 <0.1%, 1 ~0.5%, 2 ~3%, 3 ~15%, 4 ~50%, 5	1 - 2852; 0 - 698; 2 - 27; 3 - 5; 4 - 2;	0	4	3584	647
486	fpanband'	'band: panic disorder (computer prediction,	'0 <0.1%, 1 ~0.5%, 2 ~3%, 3 ~15%, 4 ~50%, 5	0 - 3447; 2 - 126; 3 - 8;	0	3	3581	650
487	fagoband'	'band: agoraphobia (computer prediction,	'0 <0.1%, 1 ~0.5%, 2 ~3%, 3 ~15%, 4 ~50%, 5	0 - 3537; 2 - 29; 3 - 15;	0	3	3581	650
488	fptsdband'	'band: ptsd (computer prediction, dsm-iv &	'0 <0.1%, 1 ~0.5%, 2 ~3%, 3 ~15%, 4 ~50%, 5	0 - 3243; 1 - 306; 2 - 21; 3 - 11; 4 - 3;	0	4	3584	647
489	focdband'	'band: ocd (computer prediction, dsm-iv &	'0 <0.1%, 1 ~0.5%, 2 ~3%, 3 ~15%, 4 ~50%, 5	0 - 3401; 1 - 147; 2 - 21; 3 - 11; 4 - 4;	0	4	3584	647
490	fgenaband'	'band: generalised anxiety (computer	'0 <0.1%, 1 ~0.5%, 2 ~3%, 3 ~15%, 4 ~50%, 5	1 - 3325; 2 - 249; 3 - 8;	1	3	3582	649
491	fdepband'	'band: depression (computer prediction,	'0 <0.1%, 1 ~0.5%, 2 ~3%, 3 ~15%, 4 ~50%, 5	0 - 2842; 1 - 641; 3 - 85; 4 - 14; 5 - 2;	0	5	3584	647
492	fp1l1a'	'concerns in the first 3 years about: speech	'0 no, 1 yes'	Series([],	<NA>	<NA>	0	4231
493	fp1l1b'	'concerns in the first 3 years about: social	'0 no, 1 yes'	Series([],	<NA>	<NA>	0	4231
494	fp1l1c'	'concerns in the first 3 years about:	'0 no, 1 yes'	Series([],	<NA>	<NA>	0	4231
495	fp1l2'	'other: cleared up or continuing? (parent1)',	'0 completely cleared up, 1 some continuing	Series([],	<NA>	<NA>	0	4231
496	fp1l3'	'other: tics (parent1)',	'0 no, 1 yes'	Series([],	<NA>	<NA>	0	4231
497	fp1l4'	'other: thin/dieting (parent1)',	'0 no, 1 yes'	Series([],	<NA>	<NA>	0	4231
498	fp1l5'	'other: other concerns (parent1)',	'0 no, 1 yes'	0 - 3000; 1 - 581;	0	1	3581	650
499	fp1l6'	'other: teacher has complained to parent of	'0 no, 1 yes'	0 - 3339; 1 - 241;	0	1	3580	651
500	fp1a1a'	'attached to: mother (parent1)',	'0 no, 1 yes'	1 - 3231; 0 - 352;	0	1	3583	648

500	fp1a1a'	'attached to: mother (parent1)',	'0 no, 1 yes'	1 - 3231; 0 - 352;	0	1	3583	648
501	fp1a1b'	'attached to: father (parent1)',	'0 no, 1 yes'	1 - 1994; 0 - 1589;	0	1	3583	648
502	fp1a1c'	'attached to: other mother figure (parent1)',	'0 no, 1 yes'	0 - 3556; 1 - 27;	0	1	3583	648
503	fp1a1d'	'attached to: other father figure (parent1)',	'0 no, 1 yes'	0 - 3452; 1 - 131;	0	1	3583	648
504	fp1a1e'	'attached to: grandparents (parent1)',	'0 no, 1 yes'	0 - 2186; 1 - 1397;	0	1	3583	648
505	fp1a1f'	'attached to: adult relatives (parent1)',	'0 no, 1 yes'	0 - 2635; 1 - 948;	0	1	3583	648
506	fp1a1g'	'attached to: childminder, nanny, au pair	'0 no, 1 yes'	0 - 3534; 1 - 49;	0	1	3583	648
507	fp1a1h'	'attached to: teachers (parent1)',	'0 no, 1 yes'	0 - 3555; 1 - 28;	0	1	3583	648
508	fp1a1i'	'attached to: adult non-relatives (parent1)',	'0 no, 1 yes'	0 - 3504; 1 - 79;	0	1	3583	648
509	fp1a1k'	'attached to: brother, sisters (parent1)',	'0 no, 1 yes'	Series([],	<NA>	<NA>	0	4231
510	fp1a1l'	'attached to: friends (parent1)',	'0 no, 1 yes'	Series([],	<NA>	<NA>	0	4231
511	fp1a2'	'sepa: any concerns about separations?	'0 no, 1 yes'	0 - 3123; 1 - 460;	0	1	3583	648
512	fp1a3a'	'sepa: loss of, or harm to, afs (parent1)',	'0 no more than others, or doesnt apply, 1 a	0 - 758; 1 - 239; 2 - 78;	0	2	1075	3156
513	fp1a3b'	'sepa: being taken away from afs	'0 no more than others, or doesnt apply, 1 a	0 - 916; 1 - 115; 2 - 44;	0	2	1075	3156
514	fp1a3c'	'sepa: not wanting to go to school	'0 no more than others, or doesnt apply, 1 a	0 - 1011; 1 - 46; 2 - 18;	0	2	1075	3156
515	fp1a3d'	'sepa: afraid of sleeping alone (parent1)',	'0 no more than others, or doesnt apply, 1 a	0 - 824; 1 - 182; 2 - 69;	0	2	1075	3156
516	fp1a3e'	'sepa: sleeps with or checks on afs at night	'0 no more than others, or doesnt apply, 1 a	0 - 903; 1 - 122; 2 - 50;	0	2	1075	3156
517	fp1a3f'	'sepa: afraid of sleeping in a strange place	'0 no more than others, or doesnt apply, 1 a	0 - 966; 1 - 71; 2 - 38;	0	2	1075	3156
518	fp1a3g'	'sepa: afraid of being in a room alone	'0 no more than others, or doesnt apply, 1 a	0 - 829; 1 - 186; 2 - 60;	0	2	1075	3156
519	fp1a3h'	'sepa: afraid of being at home alone	'0 no more than others, or doesnt apply, 1 a	Series([],	<NA>	<NA>	0	4231
520	fp1a3i'	'sepa: nightmares of separation (parent1)',	'0 no more than others, or doesnt apply, 1 a	0 - 995; 1 - 64; 2 - 16;	0	2	1075	3156
521	fp1a3j'	'sepa: somatic symptoms linked to	'0 no more than others, or doesnt apply, 1 a	0 - 919; 1 - 128; 2 - 28;	0	2	1075	3156
522	fp1a3k'	'sepa: anticipatory anxiety of separations	'0 no more than others, or doesnt apply, 1 a	0 - 779; 1 - 224; 2 - 72;	0	2	1075	3156
523	fp1a4'	'sepa: symptoms for at least 1 month	'0 no, 1 yes'	1 - 172; 0 - 47;	0	1	219	4012
524	fp1a5'	'sepa: age of onset (parent1)',	'-1 ?'	6 - 63; 5 - 54; 4 - 36; 3 - 28; 2 - 19; 0 - 11; 7 -	0	7	219	4012
525	fp1a6'	'sepa: distress (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	1 - 102; 2 - 58; 0 - 37; 3 - 22;	0	3	219	4012
526	fp1a7a'	'sepa: impact on family life (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 92; 1 - 80; 2 - 28; 3 - 19;	0	3	219	4012
527	fp1a7b'	'sepa: impact on friendships (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 145; 1 - 51; 2 - 16; 3 - 7;	0	3	219	4012
528	fp1a7c'	'sepa: impact on learning (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 146; 1 - 40; 2 - 30; 3 - 3;	0	3	219	4012
529	fp1a7d'	'sepa: impact on leisure (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 150; 1 - 46; 2 - 19; 3 - 4;	0	3	219	4012
530	fp1a8'	'sepa: burden (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 105; 1 - 57; 2 - 49; 3 - 8;	0	3	219	4012
531	fp1f1'	'ocd: any concerns? (parent1)',	'0 no, 1 yes'	0 - 3524; 1 - 60;	0	1	3584	647
532	fp1f2a'	'ocd: excessive washing (parent1)',	'0 no, 1 a little, 2 a lot'	0 - 793; 1 - 37; 2 - 35;	0	2	865	3366
533	fp1f2b'	'ocd: avoidance of contamination	'0 no, 1 a little, 2 a lot'	0 - 828; 1 - 25; 2 - 12;	0	2	865	3366
534	fp1f2c'	'ocd: checking (parent1)',	'0 no, 1 a little, 2 a lot'	0 - 838; 1 - 16; 2 - 11;	0	2	865	3366
535	fp1f2d'	'ocd: repetitive actions (parent1)',	'0 no, 1 a little, 2 a lot'	0 - 826; 1 - 21; 2 - 18;	0	2	865	3366
536	fp1f2e'	'ocd: touching things or people (parent1)',	'0 no, 1 a little, 2 a lot'	0 - 849; 1 - 9; 2 - 7;	0	2	865	3366
537	fp1f2f'	'ocd: ordering / symmetry (parent1)',	'0 no, 1 a little, 2 a lot'	0 - 798; 1 - 38; 2 - 29;	0	2	865	3366
538	fp1f2g'	'ocd: counting / avoiding unlucky numbers	'0 no, 1 a little, 2 a lot'	0 - 863; 1 - 2;	0	1	865	3366
539	fp1f3'	'ocd: concern about contamination	'0 no, 1 a little, 2 a lot'	0 - 839; 1 - 13; 2 - 12;	0	2	864	3367
540	fp1f4'	'ocd: concern about bad things happening	'0 no, 1 a little, 2 a lot'	0 - 828; 1 - 26; 2 - 10;	0	2	864	3367
541	fp1f6'	'ocd: due to separation anxiety? (parent1)',	'0 part of separation anxiety, 1 a problem in	0 - 8; 1 - 2;	0	1	10	4221
542	fp1f7'	'ocd: present daily for 2 weeks (parent1)',	'0 no, 1 yes'	1 - 50; 0 - 26;	0	1	76	4155
543	fp1f8'	'ocd: rituals or obsessions >1 hour per day	'0 no, 1 yes'	0 - 56; 2 - 15; 1 - 5;	0	2	76	4155
544	fp1f9'	'ocd: insight that its excessive (parent1)',	'0 no, 1 perhaps, 2 definitely'	0 - 60; 2 - 10; 1 - 6;	0	2	76	4155
545	fp1f10'	'ocd: reaction to rituals or obsessions	'0 no, he enjoys them, 1 neutral - he neither	0 - 54; 1 - 11; 3 - 6; 2 - 5;	0	3	76	4155
546	fp1f11'	'ocd: resistance (parent1)',	'0 no, 1 perhaps, 2 definitely'	0 - 40; 1 - 36;	0	1	76	4155
547	fp1f12a'	'ocd: impact on family life (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 51; 1 - 15; 2 - 6; 3 - 4;	0	3	76	4155
548	fp1f12b'	'ocd: impact on friendships (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 62; 1 - 9; 2 - 3; 3 - 2;	0	3	76	4155
549	fp1f12c'	'ocd: impact on learning (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 60; 1 - 10; 2 - 4; 3 - 2;	0	3	76	4155
550	fp1f12d'	'ocd: impact on leisure (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 61; 1 - 12; 2 - 3;	0	2	76	4155
551	fp1f13'	'ocd: burden (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 58; 1 - 11; 2 - 6; 3 - 1;	0	3	76	4155
552	fp1ocdband'	'computer prediction: ocd (parent1, dsm-iv	'0 <0.1%, 1 ~0.5%, 2 ~3%, 3 ~15%, 4 ~50%, 5	0 - 3401; 1 - 147; 2 - 21; 3 - 11; 4 - 4;	0	4	3584	647
553	fp1g2'	'gena: ever worries? (parent1)',	'0 no, 1 yes'	0 - 2609; 1 - 973;	0	1	3582	649
554	fp1g2a'	'gena: specific or generalised? (parent1)',	'0 no, he just has a few specific worries, 1	0 - 737; 1 - 242;	0	1	979	3252
555	fp1g3'	'gena: excessive worry (parent1)',	'0 no, 1 perhaps, 2 definitely'	0 - 460; 1 - 43; 2 - 35;	0	2	538	3693
556	fp1g4a'	'gena: past behaviour (parent1)',	'0 no more than others, 1 a little more than	0 - 394; 1 - 47; 2 - 3;	0	2	444	3787
557	fp1g4b'	'gena: school work/examinations	'0 no more than others, 1 a little more than	0 - 367; 1 - 65; 2 - 12;	0	2	444	3787
558	fp1g4c'	'gena: disasters/accidents (parent1)',	'0 no more than others, 1 a little more than	0 - 403; 1 - 34; 2 - 7;	0	2	444	3787
559	fp1g4d'	'gena: own health (parent1)',	'0 no more than others, 1 a little more than	0 - 401; 1 - 38; 2 - 5;	0	2	444	3787
560	fp1g4e'	'gena: bad things happening to others	'0 no more than others, 1 a little more than	0 - 325; 1 - 111; 2 - 8;	0	2	444	3787
561	fp1g4f'	'gena: the future (parent1)',	'0 no more than others, 1 a little more than	0 - 378; 1 - 54; 2 - 12;	0	2	444	3787
562	fp1g4g'	'gena: making and keeping friends	'0 no more than others, 1 a little more than	0 - 378; 1 - 60; 2 - 6;	0	2	444	3787
563	fp1g4h'	'gena: death and dying (parent1)',	'0 no more than others, 1 a little more than	0 - 360; 1 - 62; 2 - 22;	0	2	444	3787
564	fp1g4i'	'gena: being bullied and teased (parent1)',	'0 no more than others, 1 a little more than	0 - 364; 1 - 67; 2 - 13;	0	2	444	3787
565	fp1g4j'	'gena: own appearance or weight	'0 no more than others, 1 a little more than	0 - 359; 1 - 71; 2 - 14;	0	2	444	3787
566	fp1g4k'	'gena: other worries (parent1)',	'0 no more than others, 1 a little more than	0 - 433; 1 - 6; 2 - 5;	0	2	444	3787
567	fp1g6'	'gena: worried on most days in last 6	'0 no, 1 yes'	0 - 18; 1 - 7;	0	1	25	4206
568	fp1g7'	'gena: worry difficult to control (parent1)',	'0 no, 1 yes'	0 - 17; 1 - 8;	0	1	25	4206
569	fp1g8a'	'gena: restlessness (parent1)',	'0 no, 1 yes, but not on most days, 2 yes,	1 - 5; 2 - 3; 0 - 2;	0	2	10	4221
570	fp1g8b'	'gena: fatigue (parent1)',	'0 no, 1 yes, but not on most days, 2 yes,	0 - 6; 1 - 3; 2 - 1;	0	2	10	4221
571	fp1g8c'	'gena: poor concentration (parent1)',	'0 no, 1 yes, but not on most days, 2 yes,	1 - 6; 2 - 3; 0 - 1;	0	2	10	4221
572	fp1g8d'	'gena: irritable (parent1)',	'0 no, 1 yes, but not on most days, 2 yes,	2 - 4; 0 - 4; 1 - 2;	0	2	10	4221
573	fp1g8e'	'gena: muscular tension (parent1)',	'0 no, 1 yes, but not on most days, 2 yes,	0 - 8; 2 - 2;	0	2	10	4221
574	fp1g8f'	'gena: insomnia (parent1)',	'0 no, 1 yes, but not on most days, 2 yes,	0 - 5; 2 - 3; 1 - 2;	0	2	10	4221
575	fp1g9'	'gena: distress (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	1 - 6; 3 - 2; 2 - 2;	1	3	10	4221
576	fp1g10a'	'gena: impact on family life (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	1 - 8; 2 - 1; 3 - 1;	1	3	10	4221
577	fp1g10b'	'gena: impact on friendships (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 5; 1 - 3; 2 - 2;	0	2	10	4221
578	fp1g10c'	'gena: impact on learning (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 5; 1 - 3; 3 - 1; 2 - 1;	0	3	10	4221
579	fp1g10d'	'gena: impact on leisure (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 5; 1 - 5;	0	1	10	4221
580	fp1g11'	'gena: burden (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 7; 1 - 2; 2 - 1;	0	2	10	4221
581	fp1genaband'	'computer prediction: generalised anxiety	'0 <0.1%, 1 ~0.5%, 2 ~3%, 3 ~15%, 4 ~50%, 5	1 - 3325; 2 - 249; 3 - 8;	1	3	3582	649
582	fp1h1'	'dep: sad (parent1)',	'0 no, 1 yes'	0 - 3075; 1 - 509;	0	1	3584	647
583	fp1h2'	'dep: miserable daily (parent1)',	'0 no, 1 yes'	0 - 409; 1 - 100;	0	1	509	3722
584	fp1h3'	'dep: miserable most of day (parent1)',	'0 no, 1 yes'	0 - 394; 1 - 115;	0	1	509	3722
585	fp1h4'	'dep: can be cheered up (parent1)',	'0 easily, 1 with difficulty/only briefly'	0 - 367; 1 - 116; 2 - 26;	0	2	509	3722
586	fp1h5'	'dep: duration (weeks) (parent1)',	'0 less than 2 weeks, 1 2 weeks or more'	0 - 438; 1 - 71;	0	1	509	3722
587	fp1h7'	'dep: irritable (parent1)',	'0 no, 1 yes'	0 - 3205; 1 - 376;	0	1	3581	650
588	fp1h8'	'dep: irritable daily (parent1)',	'0 no, 1 yes'	0 - 268; 1 - 107;	0	1	375	3856
589	fp1h9'	'dep: irritable most of day (parent1)',	'0 no, 1 yes'	0 - 284; 1 - 91;	0	1	375	3856
590	fp1h10'	'dep: improved by friends (parent1)',	'0 easily, 1 with difficulty/only briefly, 2 not	0 - 289; 1 - 75; 2 - 11;	0	2	375	3856
591	fp1h11'	'dep: duration (weeks) (parent1)',	'0 less than 2 weeks, 1 2 weeks or more'	0 - 298; 1 - 77;	0	1	375	3856
592	fp1h13'	'dep: loss of interest (parent1)',	'0 no, 1 yes'	0 - 3500; 1 - 80;	0	1	3580	651
593	fp1h14'	'dep: no interest daily (parent1)',	'0 no, 1 yes'	0 - 48; 1 - 32;	0	1	80	4151
594	fp1h15'	'dep: no interest for most of the day	'0 no, 1 yes'	0 - 45; 1 - 35;	0	1	80	4151
595	fp1h16'	'dep: duration (weeks) (parent1)',	'0 less than 2 weeks, 1 2 weeks or more'	0 - 58; 1 - 22;	0	1	80	4151
596	fp1h17'	'dep: coincided with irritability/misery	'0 no, 1 yes'	1 - 12; 0 - 3;	0	1	15	4216
597	fp1h18a'	'dep: tired/no energy (parent1)',	'0 no, 1 yes'	0 - 62; 1 - 37;	0	1	99	4132
598	fp1h18b'	'dep: changed appetite (parent1)',	'0 no, 1 yes'	1 - 62; 0 - 37;	0	1	99	4132
599	fp1h18c'	'dep: weight loss/gain (parent1)',	'0 no, 1 yes'	0 - 68; 1 - 31;	0	1	99	4132
600	fp1h18d'	'dep: insomnia (parent1)',	'0 no, 1 yes'	0 - 61; 1 - 38;	0	1	99	4132

601	fp1h18e'	'dep: hypersomnia (parent1)',	'0 no, 1 yes'	0 - 81; 1 - 18;	0	1	99	4132
602	fp1h18f'	'dep: agitation (parent1)',	'0 no, 1 yes'	1 - 55; 0 - 44;	0	1	99	4132
603	fp1h18g'	'dep: feels worthless, guilty (parent1)',	'0 no, 1 yes'	0 - 66; 1 - 33;	0	1	99	4132
604	fp1h18h'	'dep: poor concentration (parent1)',	'0 no, 1 yes'	0 - 56; 1 - 43;	0	1	99	4132
605	fp1h18i'	'dep: thoughts of death (parent1)',	'0 no, 1 yes'	0 - 82; 1 - 17;	0	1	99	4132
606	fp1h18j'	'dep: recent talk of dsh (parent1)',	'0 no, 1 yes'	0 - 3491; 1 - 85;	0	1	3576	655
607	fp1h18k'	'dep: dsh recently (parent1)',	'0 no, 1 yes'	0 - 3554; 1 - 22;	0	1	3576	655
608	fp1h18l'	'dep: dsh ever (parent1)',	'0 no, 1 yes'	0 - 3542; 1 - 34;	0	1	3576	655
609	fp1h19'	'dep: distress (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	1 - 59; 2 - 20; 0 - 15; 3 - 5;	0	3	99	4132
610	fp1h20a'	'dep: impact on family life (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	1 - 59; 2 - 18; 0 - 16; 3 - 6;	0	3	99	4132
611	fp1h20b'	'dep: impact on friendships (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	1 - 43; 0 - 42; 2 - 11; 3 - 3;	0	3	99	4132
612	fp1h20c'	'dep: impact on learning (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 58; 1 - 22; 2 - 14; 3 - 5;	0	3	99	4132
613	fp1h20d'	'dep: impact on leisure (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 46; 1 - 41; 2 - 10; 3 - 2;	0	3	99	4132
614	fp1h21'	'dep: burden (parent1)',	'0 not at all, 1 a little, 2 a medium amount, 3	0 - 43; 1 - 37; 2 - 17; 3 - 2;	0	3	99	4132
615	fp1depband'	'computer prediction: depression (parent1,	'0 <0.1%, 1 ~0.5%, 2 ~3%, 3 ~15%, 4 ~50%, 5	0 - 2842; 1 - 641; 3 - 85; 4 - 14; 5 - 2;	0	5	3584	647
616	fb155'	school situation'	'1 vai bem, 2 tem dificuldade, 3 tem muita	1 - 3154; 2 - 250; 3 - 44;	1	3	3448	783
617	fb156'	reading	'0 n□o, 1 sim, algumas palavras, 2 sim, le	0 - 1844; 1 - 1351; 2 - 466;	0	2	3661	570
618	fb157'	learning problem	0 - não, 1 - sim	0 - 3409; 1 - 255;	0	1	3664	567
619	fb158'	ident problem'	'1 professor, 2 medico, 3 parente, 4 outro'	1 - 211; 2 - 26; 4 - 14; 3 - 4;	1	4	255	3976
620	fb159'	which other problem'	qualitative	Variable has embedded blanks			4231	2583
621	edi6a'	Edinburgh Scale 6 years',	continuous variable	2 - 273; 3 - 272; 0 - 264; 5 - 263; 4 - 259; 6 -	0	30	4231	928
622	ac32'	depression or nervous problem during	0 não, 1 sim, não tratado, 2 sim, tratado, 9	0 - 3168; 1 - 919; 2 - 140; 9 - 2;	0	9	4229	2
623	ac33'	already had nervous problem before	0 não, 1 sim, não tratado, 2 sim, tratado, 9	8 - 3170; 0 - 528; 1 - 385; 2 - 141; 9 - 5;	0	9	4229	2
624	ac45'	felt sad or depressed during this pregnancy',	'1 nunca, 2 □s vezes, 3 a maior parte do	1 - 1979; 2 - 1867; 3 - 249; 4 - 124;	1	4	4219	12
625	acomp3m'	'followed up at 3 months (2004)',	0 - não, 1 - sim	1 - 3985; 0 - 246;	0	1	4231	0
626	bsrq3m'	SRQ at 3 months'	0 - não, 1 - sim	0 - 2930; 1 - 1044;	0	1	3974	257
627	acomp12m'	Indicates whether the participant was	0 - não, 1 - sim	1 - 3907; 0 - 324;	0	1	4231	0
628	cf02'	how did the mother feel until the child was 6	facea6m	1 - 1890; 2 - 999; 3 - 661; 4 - 169; 5 - 104; 7 -	1	9	3907	324
629	cf03'	how did the mother feel since the child was 6	facea6m	1 - 2132; 2 - 946; 3 - 484; 4 - 145; 5 - 94; 6 -	1	9	3907	324
630	cf04'	mother had trouble sleeping in the last 2	0 - não, 1 - sim, 9 - IGN	0 - 2786; 1 - 1117; 9 - 3; 8 - 1;	0	9	3907	324
631	cf05'	type of sleeping difficulty', 'TWOYEARS_'	0 - ?, 1 não pode pegar no sono, 2 acorda	8 - 2790; 1 - 471; 2 - 466; 5 - 123; 4 - 31; 3 -	0	8	3907	324
632	df02'	how have you felt since your child turned 1	faces?	1 - 1607; 2 - 1244; 3 - 688; 4 - 136; 5 - 76; 7 -	1	9	3834	397
633	ef01'	how does the mother consider her health	'1 excelente, 2 muito boa, 3 boa, 4 regular, 5	3 - 1781; 1 - 689; 2 - 625; 4 - 614; 5 - 71; 8 -	1	9	3799	432
634	ef17'	after the birth of the child, some doctor told	'0 nao, 1 sim, 8 NSA, 9 IGN'	0 - 3009; 1 - 772; 8 - 16; 9 - 2;	0	9	3799	432
635	ef18'	age of child at diagnosis of depression		88 - 3026; 0 - 280; 3 - 192; 2 - 143; 1 - 109; 4	0	99	3799	432
636	ef19'	Mrs. took medicine for depression',	'0 nao, 1 sim, 8 NSA, 9 IGN'	8 - 3026; 1 - 538; 0 - 234; 9 - 1;	0	9	3799	432
637	ef20a'	for how long did you take pills for depression	'77 ainda toma, 88 NSA, 99 IGN'	88 - 3260; 0 - 268; 77 - 181; 1 - 57; 2 - 18; 3 -	0	99	3799	432
638	ef20m'	for how long did you take pills for depression	'77 ainda toma, 88 NSA, 99 IGN'	88 - 3260; 77 - 181; 0 - 86; 1 - 65; 6 - 58; 2 -	0	99	3799	432
639	ef21'	Ms. has had therapy for depression',	'0 nao, 1 sim, 2 esta fazendo, 8 NSA, 9 IGN'	8 - 3026; 0 - 603; 1 - 126; 2 - 43; 9 - 1;	0	9	3799	432
640	fh01'	quality of life	1 muito ruim, 2 ruim, 3 regular, 4 boa, 5	4 - 2155; 3 - 707; 5 - 689; 2 - 47; 1 - 18;	1	5	3616	615
641	fh02'	health satisfaction	1 muito insatisfeita, 2 insatisfeita, 3 regular,	4 - 1961; 3 - 827; 5 - 551; 2 - 232; 1 - 43;	1	5	3614	617
642	fh03'	feels pain	1 completamente, 2 bastante, 3 mais ou	5 - 2284; 3 - 551; 2 - 410; 4 - 320; 1 - 50;	1	5	3615	616
643	fh04'	needs treatment	1 completamente, 2 bastante, 3 mais ou	5 - 2952; 3 - 241; 2 - 237; 4 - 111; 1 - 73; 77 -	1	77	3615	616
644	fh05'	enjoys life	1 não, 2 muito pouco, 3 mais ou menos, 4	4 - 1752; 3 - 999; 5 - 392; 2 - 306; 1 - 167;	1	5	3616	615
645	fh06'	thinks that life has meaning	1 não, 2 muito pouco, 3 mais ou menos, 4	4 - 1911; 5 - 1333; 3 - 254; 1 - 62; 2 - 55; 77 -	1	77	3616	615
646	fh07'	can concentrate	1 não, 2 muito pouco, 3 mais ou menos, 4	4 - 1860; 3 - 831; 5 - 609; 2 - 208; 1 - 108;	1	5	3616	615
647	fh08'	feels safe	1 não, 2 muito pouco, 3 mais ou menos, 4	4 - 1984; 3 - 776; 5 - 626; 1 - 132; 2 - 96;	1	5	3614	617
648	fh09'	the environment in which he lives is healthy	1 não, 2 muito pouco, 3 mais ou menos, 4	4 - 1886; 3 - 837; 5 - 643; 1 - 160; 2 - 90;	1	5	3616	615
649	fh10'	has energy	1 não, 2 muito pouco, 3 mais ou menos, 4	4 - 1815; 3 - 997; 5 - 512; 1 - 159; 2 - 132; 77	1	77	3616	615
650	fh11'	accepts physical appearance	1 não, 2 muito pouco, 3 mais ou menos, 4	4 - 1603; 3 - 996; 5 - 645; 1 - 232; 2 - 139; 77	1	77	3616	615
651	fh12'	has enough money for necessities	1 não, 2 muito pouco, 3 mais ou menos, 4	3 - 1749; 4 - 773; 1 - 563; 5 - 293; 2 - 235;	1	5	3613	618
652	fh13'	gets information he needs	1 não, 2 muito pouco, 3 mais ou menos, 4	1 - 104, 2 - 155, 3 - 1085, 4 - 1662, 5 - 605	1	5	4231	620
653	fh14'	has leisure activities	1 não, 2 muito pouco, 3 mais ou menos, 4	1 - 491, 2 - 449, 3 - 1129, 4 - 1208, 5 - 337, 7 -				
654	fh15'	able to move around	1 muito mal, 2 mal, 3 regular, 4 bem, 5 muito	1 - 8, 2 - 16, 3 - 212, 4 - 1463, 5 - 1914	1	5	4231	618
655	fh16'	satisfied with sleep',	1 muito insatisfeita, 2 insatisfeita, 3 regular,	4 - 1728; 3 - 810; 5 - 703; 2 - 293; 1 - 82;	1	5	3616	615
656	fh17'	ability to perform tasks',	1 muito insatisfeita, 2 insatisfeita, 3 regular,	4 - 2108; 5 - 697; 3 - 647; 2 - 130; 1 - 33;	1	5	3615	616
657	fh18'	ability to work	1 muito insatisfeita, 2 insatisfeita, 3 regular,	4 - 2093; 5 - 817; 3 - 518; 2 - 139; 1 - 46; 88 -	1	88	3614	617
658	fh19'	satisfied with oneself	1 muito insatisfeita, 2 insatisfeita, 3 regular,	4 - 2049; 5 - 697; 3 - 658; 2 - 162; 1 - 48;	1	5	3614	617
659	fh20'	'satisfied with personal relationships',	1 muito insatisfeita, 2 insatisfeita, 3 regular,	4 - 2084; 5 - 769; 3 - 593; 2 - 126; 1 - 42; 7 -	1	7	3615	616
660	fh21'	satisfied with sex life',	1 muito insatisfeita, 2 insatisfeita, 3 regular,	4 - 2022; 5 - 779; 3 - 572; 2 - 170; 1 - 65; 88 -	1	88	3615	616
661	fh22'	satisfied with support from friends',	1 muito insatisfeita, 2 insatisfeita, 3 regular,	4 - 1996; 5 - 834; 3 - 580; 2 - 150; 1 - 54; 88 -	1	88	3616	615
662	fh23'	satisfied with housing',	1 muito insatisfeita, 2 insatisfeita, 3 regular,	1 - 109, 2 - 274, 3 - 664, 4 - 1737, 5 - 831	1	5	4231	616
663	fh24'	satisfied with health services	1 muito insatisfeita, 2 insatisfeita, 3 regular,	1 - 466, 2 - 758, 3 - 1196, 4 - 935, 5 - 258, 7 -	1	77	4231	616
664	fh25'	satisfied with means of transport	1 muito insatisfeita, 2 insatisfeita, 3 regular,	1 - 107, 2 - 281, 3 - 838, 4 - 1862, 5 - 527, 77 -	1	77	4231	615
665	fh26'	has negative feelings	1 muito insatisfeita, 2 insatisfeita, 3 regular,	4 - 1693; 5 - 792; 3 - 705; 2 - 267; 1 - 158;	1	5	3615	616
666	fh27'	self-applied questionnaire	1 sim, 2 parcialmente (com ajuda), 3 não	1 - 1858; 2 - 1263; 3 - 495;	1	3	3616	615
667	fh28'	who answered'	1 mãe biológica, 2 pai biológico, 3 mãe	1 - 3403; 4 - 93; 2 - 44; 3 - 35; 5 - 31; 6 - 5;	1	6	3611	620
668	fh29'	'other	qualitative	Variable has embedded blanks	-	-	36	4195
669	atotmoradores'	'Total household residents in Perinatal (not	continuous variable		0	28	4231	2
670	aigdubo'	'Dubowitz gestational age',	continuous variable	38.597599 - 431; 38.861801 - 420;	29	42	4155	76
671	aigduboi'	'Entire gestational age (Dubo)',	continuous variable	38 - 1570; 39 - 1014; 37 - 854; 36 - 236; 40 -	28	42	4155	76
672	aigdumref'	'DUM gestational age referred',	continuous variable	39.142857 - 129; - 39.714287 - 125; - 40.0 -	-13	11	3784	447
673	aigdumcar'	'gestational age LMP chart',	continuous variable	39.714287 - 106; 40.0 - 101; 39.0 - 95;	11	85	2901	1330
674	afumo'	'pregnancy smoking'	'0 nao, 1 sim'	0 - 3067; 1 - 1162;	0	1	4229	2
675	afumo1t'	'smoke 1 trimester',	'0 nao, 1 sim'	0 - 3121; 1 - 1108;	0	1	4229	2
676	afumo2t'	'smoke 2 trimester',	'0 nao, 1 sim'	0 - 3264; 1 - 965;	0	1	4229	2
677	afumo3t'	'smoke 3 trimester',	'0 nao, 1 sim'	0 - 3338; 1 - 891;	0	1	4229	2
678	afumotot'	'cigarettes smoked in pregnancy',	continuous variable	0 - 3147; 1800 - 45; 180 - 35; 5460 - 33;	0	15960	4231	2
679	aigfer'	'gestational age after revision',	continuous variable	39 - 903; 38 - 832; 40 - 730; 41 - 439; 37 -	22	44	4215	16
680	fb91'	'read stories (last week)',	0 n□o, 1 sim, alguem contou, 2 sim,	1 - 2100; 0 - 1372; 3 - 142; 2 - 25;	0	3	3639	592
681	fb92'	'went to the park (last week)',	0 - não, 1 - sim	1 - 1889; 0 - 1774;	0	1	3663	568
682	fb93'	'went to other people's houses (last week)',	0 - não, 1 - sim	1 - 3155; 0 - 504;	0	1	3659	572
683	fb94'	'has book or magazine at home',	0 - não, 1 - sim	1 - 3399; 0 - 267;	0	1	3666	565
684	fb95'	'watches TV',	0 n□o, 1 sim, 2 TV sempre ligada, 9 IGN	1 - 3333; 2 - 283; 0 - 49;	0	2	3665	566
685	fb96'	'daily hours TV',	número de horas por dia	2 - 894; 3 - 741; 1 - 528; 4 - 527; 5 - 244; 6 -	0	18	3319	912
686	fsdqed'	'sdq: emotional disorder (computer	'0 unlikely, 1 possible, 2 probable'	0 - 3427; 1 - 108; 2 - 45;	0	2	3580	651
687	fsdqcd'	'sdq: behavioural disorder (computer	'0 unlikely, 1 possible, 2 probable'	0 - 3052; 1 - 455; 2 - 73;	0	2	3580	651
688	fsdqhk'	'sdq: hyperactivity disorder (computer	'0 unlikely, 1 possible, 2 probable'	0 - 3363; 1 - 217;	0	1	3580	651
689	fsdqcase'	'sdq: any disorder (computer prediction)',	'0 unlikely, 1 possible, 2 probable'	0 - 2922; 1 - 540; 2 - 118;	0	2	3580	651
690	fdeptypei'	'type: depression (computer prediction, icd-	'0 no, 1 minor, 2 moderate, 3 severe'	0 - 3565; 2 - 12; 1 - 7;	0	2	3584	647
691	fadhdbandd'	'band: adhd (computer prediction, dsm-iv)',	'0 <0.1%, 1 ~0.5%, 2 ~3%, 3 ~15%, 4 ~50%, 5	0 - 2905; 1 - 344; 2 - 148; 3 - 129; 4 - 32; 5 -	0	5	3581	650
692	fadhdtype'	'type: adhd (computer prediction, dsm-iv)',	'0 no, 1 inattentive, 2 hyperactive-impulsive,	0 - 3543; 3 - 26; 2 - 8; 1 - 4;	0	3	3581	650
693	fadhdbandi'	'band: hyperkinesis (computer prediction,	'0 <0.1%, 1 ~0.5%, 2 ~3%, 3 ~15%, 4 ~50%, 5	0 - 2905; 1 - 419; 2 - 158; 3 - 65; 5 - 23; 4 -	0	5	3581	650
694	foddband'	'band: oppositional defiant (computer	'0 <0.1%, 1 ~0.5%, 2 ~3%, 3 ~15%, 4 ~50%, 5	1 - 2697; 2 - 596; 3 - 225; 4 - 37; 5 - 26;	1	5	3581	650
695	fcdband'	'band: conduct disorder (computer	'0 <0.1%, 1 ~0.5%, 2 ~3%, 3 ~15%, 4 ~50%, 5	1 - 3224; 2 - 268; 3 - 48; 4 - 23; 5 - 18;	1	5	3581	650
696	featband'	'band: eating disorder (computer prediction,	'0 <0.1%, 1 ~0.5%, 2 ~3%, 3 ~15%, 4 ~50%, 5	0 - 3233; 1 - 318; 2 - 31; 4 - 1;	0	4	3583	648
697	feattyped'	'type: eating disorder (computer prediction,	'0 no, 1 anorexia, 2 bulimia'	0 - 3578; 1 - 4; 2 - 1;	0	2	3583	648
698	feattypei'	'type: eating disorder (computer prediction,	'0 no, 1 anorexia, 2 bulimia'	0 - 3582; 2 - 1;	0	2	3583	648
699	fticbandd'	'band: tic disorder (computer prediction,	'0 <0.1%, 1 ~0.5%, 2 ~3%, 3 ~15%, 4 ~50%, 5	0 - 3320; 1 - 214; 2 - 33; 3 - 13; 4 - 2;	0	4	3582	649
700	fticktyped'	'type: tic disorder (computer prediction, dsm-	'0 no, 1 chronic, 2 tourette'	0 - 329; 1 - 3;	0	1	332	3899

701	fticbandi'	'band: tic disorder (computer prediction, icd-	'0 <0.1%, 1 ~0.5%, 2 ~3%, 3 ~15%, 4 ~50%, 5	0 - 3320; 2 - 144; 1 - 70; 3 - 40; 4 - 8;	0	4	3582	649
702	ftictypei'	'type: tic disorder (computer prediction, icd-	'0 no, 1 chronic, 2 tourette'	0 - 319; 1 - 10; 2 - 3;	0	2	332	3899
703	fasdband'	'band: pdd/autism (computer prediction,	'0 <0.1%, 1 ~0.5%, 2 ~3%, 3 ~15%, 4 ~50%, 5	0 - 175; 2 - 1;	0	2	176	4055
704	fasdtyped'	'type: pdd/autism (computer prediction,	'0 no, 1 asperger, 2 autism'	0 - 84;	0	0	84	4147
705	fasdtypei'	'type: pdd/autism (computer prediction, icd-	'0 no, 1 asperger, 2 autism'	0 - 84;	0	0	84	4147
706	flevelband'	'band: any disorder (computer prediction,	'0 <0.1%, 1 ~0.5%, 2 ~3%, 3 ~15%, 4 ~50%, 5	1 - 1725; 2 - 1238; 3 - 442; 4 - 102; 5 - 77;	1	5	3584	647
707	fdcany'	'any disorder (clinical rating, dsm-iv)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3000; 2 - 584;	0	2	3584	647
708	fdcemot'	'emotional (clinical rating, dsm-iv)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3242; 2 - 342;	0	2	3584	647
709	fdcsepa'	'separation anxiety (clinical rating, dsm-iv)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3471; 2 - 113;	0	2	3584	647
710	fdcspph'	'specific phobia (clinical rating, dsm-iv)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3389; 2 - 195;	0	2	3584	647
711	fdcsoph'	'social phobia (clinical rating, dsm-iv)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3579; 2 - 5;	0	2	3584	647
712	fdcpanic'	'panic disorder (clinical rating, dsm-iv)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3584;	0	0	3584	647
713	fdcagor'	'agoraphobia (clinical rating, dsm-iv)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3583; 2 - 1;	0	2	3584	647
714	fdcptsd'	'ptsd (clinical rating, dsm-iv)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3557; 2 - 27;	0	2	3584	647
715	fdcocd'	'ocd (clinical rating, dsm-iv)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3578; 2 - 6;	0	2	3584	647
716	fdcgena'	'generalised anxiety (clinical rating, dsm-iv)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3578; 2 - 6;	0	2	3584	647
717	fdcotanx'	'other anxiety (clinical rating, dsm-iv)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3582; 2 - 2;	0	2	3584	647
718	fdcmadep'	'major depression (clinical rating, dsm-iv)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3539; 2 - 45;	0	2	3584	647
719	fdcotdep'	'other depression (clinical rating, dsm-iv)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3583; 2 - 1;	0	2	3584	647
720	fdcundif'	'undiff anx/dep (clinical rating, dsm-iv)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3582; 2 - 2;	0	2	3584	647
721	fdcmania'	'mania/bipolar (clinical rating, dsm-iv)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3584;	0	0	3584	647
722	fdcanyso'	'social (clinical rating, dsm-iv)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3584;	0	0	3584	647
723	fdcmutis'	'selective mutism (clinical rating, dsm-iv)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3584;	0	0	3584	647
724	fdcdisat'	'attach disorder (disin) (clinical rating, dsm-	'0 no, 1 ?unsure?, 2 yes'	0 - 3584;	0	0	3584	647
725	fdcinhat'	'attach disorder (inhib) (clinical rating, dsm-	'0 no, 1 ?unsure?, 2 yes'	0 - 3584;	0	0	3584	647
726	fdcothat'	'attach disorder (other) (clinical rating, dsm-	'0 no, 1 ?unsure?, 2 yes'	0 - 3584;	0	0	3584	647
727	fdcanyhk'	'adhd (clinical rating, dsm-iv)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3491; 2 - 93;	0	2	3584	647
728	fdcadhdc'	'adhd combined (clinical rating, dsm-iv)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3528; 2 - 56;	0	2	3584	647
729	fdcadhdi'	'adhd inattentive (clinical rating, dsm-iv)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3572; 2 - 12;	0	2	3584	647
730	fdcadhdh'	'adhd hyp-imp (clinical rating, dsm-iv)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3571; 2 - 13;	0	2	3584	647
731	fdcadhdo'	'other hyperactivity (clinical rating, dsm-iv)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3572; 2 - 12;	0	2	3584	647
732	fdcanycd'	'conduct/oppositional (clinical rating, dsm-	'0 no, 1 ?unsure?, 2 yes'	0 - 3490; 2 - 94;	0	2	3584	647
733	fdcodd'	'oppositional defiant (clinical rating, dsm-iv)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3512; 2 - 72;	0	2	3584	647
734	fdccd'	'conduct disorder (clinical rating, dsm-iv)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3563; 2 - 21;	0	2	3584	647
735	fdcothcd'	'other disruptive (clinical rating, dsm-iv)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3582; 2 - 2;	0	2	3584	647
736	fdcother'	'other (clinical rating, dsm-iv)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3428; 2 - 156;	0	2	3584	647
737	fdcpdd'	'pdd/autism (clinical rating, dsm-iv)',	'0 no, 1 ?unsure?, 2 autism, 3 asperger, 4	0 - 3574; 2 - 6; 4 - 4;	0	4	3584	647
738	fdctic'	'tic disorder (clinical rating, dsm-iv)',	'0 no, 1 ?unsure?, 2 tourette, 3 chronic tic, 4	0 - 3571; 3 - 9; 4 - 3; 2 - 1;	0	4	3584	647
739	fdceat'	'eating disorder (clinical rating, dsm-iv)',	'0 no, 1 ?unsure?, 2 anorexia nervosa, 3	0 - 3583; 4 - 1;	0	4	3584	647
740	fdcpsych'	'psychosis (clinical rating, dsm-iv)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3584;	0	0	3584	647
741	fdcstere'	'stereotypic (clinical rating, dsm-iv)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3582; 2 - 2;	0	2	3584	647
742	fdcototh'	'any other (clinical rating, dsm-iv)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3444; 2 - 140;	0	2	3584	647
743	ficany'	'any disorder (clinical rating, icd-10)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3017; 2 - 567;	0	2	3584	647
744	ficemot'	'emotional (clinical rating, icd-10)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3249; 2 - 335;	0	2	3584	647
745	ficsepa'	'separation anxiety (clinical rating, icd-10)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3480; 2 - 104;	0	2	3584	647
746	ficspph'	'specific phobia (clinical rating, icd-10)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3392; 2 - 192;	0	2	3584	647
747	ficsoph'	'social phobia (clinical rating, icd-10)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3579; 2 - 5;	0	2	3584	647
748	ficpanic'	'panic disorder (clinical rating, icd-10)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3584;	0	0	3584	647
749	ficagor'	'agoraphobia (clinical rating, icd-10)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3583; 2 - 1;	0	2	3584	647
750	ficptsd'	'ptsd (clinical rating, icd-10)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3558; 2 - 26;	0	2	3584	647
751	ficocd'	'ocd (clinical rating, icd-10)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3578; 2 - 6;	0	2	3584	647
752	ficgena'	'generalised anxiety (clinical rating, icd-10)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3578; 2 - 6;	0	2	3584	647
753	ficotanx'	'other anxiety (clinical rating, icd-10)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3582; 2 - 2;	0	2	3584	647
754	ficmadep'	'depressive episode (clinical rating, icd-10)',	'0 no, 1 ?unsure?, 2 mild depressive	0 - 3538; 3 - 24; 2 - 19; 4 - 3;	0	4	3584	647
755	ficotdep'	'other depression (clinical rating, icd-10)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3584;	0	0	3584	647
756	ficundif'	'undiff anx/dep (clinical rating, icd-10)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3582; 2 - 2;	0	2	3584	647
757	ficmania'	'mania/bipolar (clinical rating, icd-10)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3584;	0	0	3584	647
758	ficanyso'	'social (clinical rating, icd-10)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3584;	0	0	3584	647
759	ficmutis'	'selective mutism (clinical rating, icd-10)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3584;	0	0	3584	647
760	ficdisat'	'attach disorder (disin) (clinical rating, icd-	'0 no, 1 ?unsure?, 2 yes'	0 - 3584;	0	0	3584	647
761	ficreact'	'attach disorder (react) (clinical rating, icd-	'0 no, 1 ?unsure?, 2 yes'	0 - 3584;	0	0	3584	647
762	ficothat'	'attach disorder (other) (clinical rating, icd-	'0 no, 1 ?unsure?, 2 yes'	0 - 3584;	0	0	3584	647
763	ficanyhk'	'hyperactivity (clinical rating, icd-10)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3505; 2 - 79;	0	2	3584	647
764	fichyper'	'hyperkinesis (clinical rating, icd-10)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3526; 2 - 58;	0	2	3584	647
765	ficothk'	'other hyperactivity (clinical rating, icd-10)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3563; 2 - 21;	0	2	3584	647
766	ficanycd'	'conduct/oppositional (clinical rating, icd-	'0 no, 1 ?unsure?, 2 yes'	0 - 3493; 2 - 91;	0	2	3584	647
767	ficodd'	'oppositional defiant (clinical rating, icd-10)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3514; 2 - 70;	0	2	3584	647
768	ficcdfam'	'cd confined to family (clinical rating, icd-	'0 no, 1 ?unsure?, 2 yes'	0 - 3579; 2 - 5;	0	2	3584	647
769	ficunsoc'	'unsocialised cd (clinical rating, icd-10)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3583; 2 - 1;	0	2	3584	647
770	ficsoccd'	'socialised cd (clinical rating, icd-10)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3570; 2 - 14;	0	2	3584	647
771	ficothcd'	'other cd (clinical rating, icd-10)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3583; 2 - 1;	0	2	3584	647
772	ficother'	'other (clinical rating, icd-10)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3428; 2 - 156;	0	2	3584	647
773	ficpdd'	'pdd/autism (clinical rating, icd-10)',	'0 no, 1 ?unsure?, 2 autism, 3 asperger, 4	0 - 3574; 2 - 6; 4 - 4;	0	4	3584	647
774	fictic'	'tic disorder (clinical rating, icd-10)',	'0 no, 1 ?unsure?, 2 tourette, 3 chronic tic, 4	0 - 3571; 3 - 9; 4 - 3; 2 - 1;	0	4	3584	647
775	ficeat'	'eating disorder (clinical rating, icd-10)',	'0 no, 1 ?unsure?, 2 anorexia nervosa, 3	0 - 3583; 4 - 1;	0	4	3584	647
776	ficpsych'	'psychosis (clinical rating, icd-10)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3584;	0	0	3584	647
777	ficstere'	'stereotyped (clinical rating, icd-10)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3582; 2 - 2;	0	2	3584	647
778	ficototh'	'any other (clinical rating, icd-10)',	'0 no, 1 ?unsure?, 2 yes'	0 - 3444; 2 - 140;	0	2	3584	647
779	fratename'	'rated by (clinical rating, dsm-iv & icd-10)',	empty, "Sandra Petresco"		-	-	3584	647
780	fratedate'	'rated on (clinical rating, dsm-iv & icd-10)',			29/01/12	09/07/12	3584	647
781	flocal'	'local de realização',	'1 cl□nica, 2 domic□lio'	1 - 2902; 2 - 682;	1	2	3584	647
782	db03'	na ultima semana alguem leu/contou	0 nao, 1 sim, alguem contou, 2 sim,	1 - 1953, 0 - 1813, 2 - 81, 3 - 14, 9 - 8	0	9	3869	362
783	db04'	na ultima semana crianca esteve na praca	0 nao, 1 sim, 9 IGN	0 - 2242, 1 - 1626, 9 - 1	0	9	3869	362
784	db05'	na ultima semana crianca foi a casa de	0 nao, 1 sim, 9 IGN	1 - 3443, 0 - 426	0	1	3869	362
785	db06'	crianca tem livro dele em casa	0 nao, 1 sim, 9 IGN	1 - 2147, 0 - 1721, 9 - 1	0	9	3869	362
786	db07'	crianca ve televisao	0 nao, 1 sim, 2 TV sempre ligada, 8 nsa, 9 ign	1 - 3171, 0 - 637, 2 - 61	0	2	3869	362
787	db08'	crianca ve TV pela manha	0 nao, 1 sim, 9 IGN	30 - 625, 888 - 617, 60 - 562, 0 - 537, 10 -	0	999	3869	362
788	db09'	crianca ve TV pela tarde	0 nao, 1 sim, 9 IGN	0 - 1672, 888 - 617, 60 - 373, 30 - 353, 120 -	0	999	3869	362
789	db10'	quanto tempo crianca ve TV pela noite	0 nao, 1 sim, 9 IGN	0 - 1077, 60 - 648, 888 - 616, 30 - 455, 120 -	0	999	3869	362
790	db11'	tem animal de estimação em casa	0 nao, 1 sim, 9 IGN	1 - 2294, 0 - 1575	0	1	3869	362
791	db13'	tem cachorro em casa	0 nao, 1 sim, 9 IGN	1 - 1967, 8 - 1575, 0 - 327	0	8	3869	362
792	db14'	tem gato em casa	0 nao, 1 sim, 9 IGN	0 - 1775, 8 - 1575, 1 - 519	0	8	3869	362
793	db15'	tem hamster em casa	0 nao, 1 sim, 9 IGN	0 - 2277, 8 - 1575, 1 - 17	0	8	3869	362
794	db16'	tem passarinho em casa	0 nao, 1 sim, 9 IGN	0 - 2061, 8 - 1575, 1 - 233	0	8	3869	362
795	db17'	tem cocota em casa	0 nao, 1 sim, 9 IGN	0 - 2208, 8 - 1575, 1 - 86	0	8	3869	362
796	db18'	tem tartaruga em casa	0 nao, 1 sim, 9 IGN	0 - 2274, 8 - 1575, 1 - 20	0	8	3869	362
797	db19'	tem outro animal em casa	0 nao, 1 sim, 9 IGN	0 - 2019, 8 - 1575, 1 - 275	0	8	3869	362
798	eb03'	ultima semana, leu/contou historias para	0 nao, 1 sim, alguem contou, 2 sim,	1 - 2374, 0 - 1297, 2 - 79, 3 - 39, 9 - 10	0	9	3799	432
799	eb04'	ultima semana, esteve na praca ou parque	0 nao, 1 sim, 9 IGN	1 - 2070, 0 - 1729	0	1	3799	432
800	eb05'	ultima semana, foi a casa de outras pessoas	0 nao, 1 sim, 9 IGN	1 - 3356, 0 - 440, 9 - 3	0	9	3799	432
801	eb06'	crianca tem livro/revistinhas em casa	0 nao, 1 sim, 9 IGN	1 - 2912, 0 - 886, 9 - 1	0	9	3799	432
802	eb07'	crianca ve televisao	0 nao, 1 sim, 2 TV sempre ligada, 9 IGN	1 - 3599, 0 - 155, 2 - 45	0	2	3799	432
803	eb08'	quanto tempo ve TV manha minutos	0 nao, 1 sim, 9 IGN	60 - 794, 120 - 723, 0 - 635, 30 - 445, 180 -	0	999	3799	432
804	eb09'	quanto tempo ve TV tarde minutos	0 nao, 1 sim, 9 IGN	0 - 1597, 60 - 602, 120 - 437, 30 - 261, 180 -	0	999	3799	432
805	eb10'	quanto tempo ve TV noite minutos	0 nao, 1 sim, 9 IGN	60 - 956, 0 - 742, 120 - 674, 30 - 345, 180 -	0	999	3799	432
806	eb11'	crianca mora em	0 casa, 1 apartamento, 9 IGN	0 - 3313, 1 - 485, 9 - 1	0	9	3799	432
807	eb21'	brinca mais com meninos, meninas ou com	0 meninos, 1 meninas, 3 todos, 8 NSA, 9 IGN	3 - 1871, 8 - 979, 1 - 522, 0 - 426, 9 - 1	0	9	3799	432
808	eb22h'	ultimo 6 meses, quantas horas por dia usa	0 nao, 1 sim, 9 IGN	0 - 3346, 1 - 260, 2 - 107, 3 - 40, 4 - 18, 99 -	0	99	3799	432
809	eb22m'	ultimo 6 meses, quantas horas por dia usa	0 nao, 1 sim, 9 IGN	0 - 3081, 30 - 291, 15 - 75, 20 - 60, 10 - 59, 5 -	0	99	3799	432
810	eb23'	a Sra tem animal de estimacao em casa	0 nao, 1 sim, 9 IGN	1 - 2529, 0 - 1270	0	1	3799	432
811	eb24'	tem cachorro	0 nao, 1 sim, 8 NSA, 9 IGN	1 - 2178, 8 - 1270, 0 - 351	0	8	3799	432
812	eb25'	tem gato	0 nao, 1 sim, 8 NSA, 9 IGN	0 - 1928, 8 - 1270, 1 - 601	0	8	3799	432
813	eb26'	tem hamster	0 nao, 1 sim, 8 NSA, 9 IGN	0 - 2510, 8 - 1270, 1 - 19	0	8	3799	432
814	eb27'	tem passarinho	0 nao, 1 sim, 8 NSA, 9 IGN	0 - 2266, 8 - 1270, 1 - 263	0	8	3799	432
815	eb28'	tem cocota	0 nao, 1 sim, 8 NSA, 9 IGN	0 - 2449, 8 - 1270, 1 - 80	0	8	3799	432
816	eb29'	tem tartaruga	0 nao, 1 sim, 8 NSA, 9 IGN	0 - 2497, 8 - 1270, 1 - 32	0	8	3799	432
817	eb30'	tem outro animal	0 nao, 1 sim, 8 NSA, 9 IGN	0 - 2137, 8 - 1270, 1 - 392	0	8	3799	432

Appendices 5: Academic/personal journey and motivation

This content was only added to the final version of the thesis, and it was not available to the examiner before the VIVA.

Hopefully, it might help others to remember that many other dimensions of our life carry on while we are PhD students.

> *"There is no consolation in saying that what happens to us, happens to us. We do part of it; part of it is done to us. Sometimes, you have to go a long way to get there from behind and reach the eve of the eve of the eve of the event. The precise moment when we take, or we are taken in a direction and one fine day... or one sad day, we are what we are."* Madeira, Carla. Véspera (2021)

I pursued a PhD to answer my **restlessness** about my role as a public policy manager. In Brazil, I was coordinating a national project for the Ministry of Health to prevent alcohol and drug abuse among children and adolescents, and I always talked about reducing inequalities. However, countless times, I questioned whether the projects I was coordinating were reducing inequalities, and my years as a PhD student were challenging in finding answers to these questions.

My **first year** was marked by the **challenge of adjustment and belonging**. Still thinking as a public policy manager, I was delighted to be able to stop and study. It may seem trivial, but being able to STOP and look for answers is a privilege. Public management demands immediate action as if all the answers have already been given and just need to be implemented. Seizing the opportunity to learn, I immersed myself in endless hours of incredible reading of books and articles. And, still, in the manager's mind, the answers were already there. I struggled, almost childishly, to have a research question. Professor *Tracey Bywater* guided me in this search and kindly offered me possibilities. However, as a Brazilian modernist artist and feeling the weight of being a Latin immigrant from the global south, I could only answer what I didn't want to study but was unable to formulate a research question. Thanks to scientific pragmatism and deadlines, the research question came, and with it, a significant change in the direction of the topic and method.

The **following year** was the time to **operationalise the PhD** itself. Finally, I could answer the fateful question that haunts PhD students: "What do you study?". I used to respond with a mixture of pride and relief: "A causal path on the impact of cash transfer programmes on children's cognitive development and the role of mothers' control in their environment". It was a lengthy response, including an extensive systematic review and two longitudinal database studies that were also considerable in size and complexity of analyses. Professor *Richard Cookson* enchanted me with his econometric models, and I dared to dream of evaluating them using a RDD (regression discontinuity design). On the personal side, life went on, and I was **pregnant**. Perhaps the hormones of the pregnancy and the joy of my recent marriage made me too optimistic about what I would be able to achieve and not realise the harsh reality of the already tight schedule. This added to the innocence that I would be able to cope with the complexity of the

analysis and the large systematic review that I was proposing, alongside caring for a newborn in a country that wasn't my own (and with no immediate support network).

The third year was marked by the (almost absolute) loss of my sense of control: a baby, a pandemic, financial challenges, a new pregnancy, and the challenges of remaining intellectually active. It was a daily struggle to be a PhD student in the face of all the other roles that imposed themselves with a greater sense of urgency and survival. In addition, I had an enormous and inspiring database, which was also too imposing to overcome. Time changed shape; study activities that used to be completed in a few hours now required the whole week. Undeniably, interruptions that come with motherhood changes the experience of time—the third academic year, officially recorded in the university's enrolment register system, comprised several chronological years and successive requests for 'leave of absence'. The leave requests occurred between the COVID-19 pandemic, moving country and the arrival of another baby. The hormones, now without the innocence of the first pregnancy, were not enough for very optimistic moments in this long third year. Luckily, Professor *Trevor Sheldon*'s sharp acid humour, intellectual ability and genuine empathy counterbalanced the risks of these mood swings.

Finally, the fourth year. It was the year marked by a request (even to God) for no more "dramas". I just wanted to sit and write and finish the thesis. It was also a year when I realised how much I had learned as a scientist. If I started my PhD without being able to formulate a research question, I ended up with countless questions that I would still like to investigate. If, at the beginning, it seemed that this "field of research" had advanced enough and it was time to put it into practice; today, I see how many gaps still need reliable answers. Today, I understand Professor *Kate Pickett*, who sought action to reduce inequality but remained in academia looking for answers and realising the new questions. My passion for the subject still exists, but I am less emotional and more suspicious of the findings, questioning the methods or conclusions of other authors and, inevitably, being more cautious in meetings with my public policies managerial friends about their "certainties" of what needs to be done to reduce inequalities in Brazil and beyond.

That initial question: "*Does my practice as a Brazilian public policy manager reduce inequalities?*" remains unanswered. Not least, inequality has gained new concepts and ways of being measured, explored, analysed, and discussed. Fortunately (or just pragmatically), my appreciation for scientific knowledge, my eyes on the future and my dreams of a less unequal Brazil remain. Anyway, I hope to contribute to my country in some way.