The life of juggling paid work and informal eldercare: the demand and resource perspective

Winnie WY Lam

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Abstract

An increasing number of people are juggling their paid work and informal care due to the ageing population. However, this area of research remains underexplored in the field of work psychology. This PhD thesis focuses on juggling paid work and informal eldercare from the perspective of demands and resources. The thesis has five chapters: a general introduction, followed by three studies, and a general discussion.

In Chapter 2, the first study presents a systematic literature review that identifies the demands and resources of informal caregivers of older people using the Individual, Group, Leader, and Organisation Model. It proposes a future research agenda based on the synthesised knowledge. In Chapter 3, the second study develops in-depth knowledge about the experience of informal caregivers from the lens of Cognitive Appraisal Theory, by collecting rich data via the qualitative diary method. In Chapter 4, the time separated survey study examines the relationship between eldercare demands, unhealthy cognitive emotion regulation, workplace resources, and the health and well-being of informal caregivers.

This thesis as a whole generates knowledge regarding the experience of informal caregivers, their immediate social environment, and the relationship between their experience and their immediate social environment.

Acknowledgement

I would like to start by thanking my PhD supervisors, Karina Nielsen and Ciara Kelly, for their wonderful support. It is beyond words to convey how fortunate I am to have both of you guiding me through this journey. My heartfelt thanks to you for your continuous encouragement and guidance over the years. I am also thankful to the late Christine Sprigg for accepting me as a PhD student and for her support during my first year of study. Special thanks to Chris Stride for his teaching on data management and statistical analysis.

I am immensely grateful for the support provided by my parents and my husband. Without their support, I would not have been able to embark on and complete this journey. Working from home is still working, fitting in a hiking trip amidst workdays would still not be possible after completing my PhD. However, I assure you that I will take time off soon to fulfil the long-discussed family holiday.

I would also like to thank the PhD community in SUMS, CIRCLE, and my friends who have been incredibly supportive and helpful. I cherished the moments when we engaged in stimulating and interesting discussions, as well as all random chats about cats, food, games, and everything else. The social and emotional support I received, especially during low points in my life, has been invaluable. The Pokémon community in the Student Union, Sheffield, Chesterfield, and beyond has also contributed to making my PhD journey enjoyable. Although it is impossible to name everyone I want to thank, I extend special gratitude to Kara, Christos, Arbaz, Caroline, Madoka, Yang, JJ, Justin, Patricia, Chandler, and Nathan.

I am humbled by the kindness I have received from all the people I have encountered over the years. I can only hope to repay this kindness with even more kindness.

Table of Content

Declaration

I, the author, confirm that the Thesis is my own work. I am aware of the University's Guidance on the Use of Unfair Means (www.sheffield.ac.uk/ssid/unfair-means). This work has not been previously been presented for an award at this, or any other, university.

Publications arising from the thesis:

Lam, W. W. Y., Nielsen, K., Sprigg, C. A., & Kelly, C. M. (2022). The demands and resources of working informal caregivers of older people: A systematic review. *Work & Stress*, *36*(1), 105-127. https://doi.org/10.1080/02678373.2022.2028317

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Chapter 1

General Introduction

Authors' contribution

This is a publication format thesis that contains 2 published papers and 1 planned for submission for publication. For chapter 2, Winnie Lam is the lead author contributor of the paper. She developed the idea of the paper, was responsible for the data search and analysis, and the writing of the paper, along with her supervisors Karina Nielsen, the late Christine A Sprigg, and Ciara Kelly as co-authors who contributed intellectually with their comments and suggestions. For chapter 3, Winnie Lam is the lead author of the paper. She developed the idea for the paper, was responsible for the data collection and analysis, and the writing of the paper, along with her supervisors Karina Nielsen, and Ciara Kelly as co-authors who contributed intellectually with their comments and suggestions on the study design and the paper. For chapter 4, Winnie Lam is the lead author of the paper. She developed the idea for the paper, was responsible for the data collection and analysis, and the writing of the paper, along with her supervisors Ciara Kelly and Karina Nielsen as co-authors who contributed intellectually over the course with their comments and suggestions on the study design and paper; and with Chris Stride as co-author who provided data management and statistical analysis advice and comments on the paper.

It takes a village to raise a child, as the old saying goes. Eldercare is perhaps not too different from raising a child when we think about the time, effort, and emotion needed when caring for an elder loved one. Longevity, delay in retirement age, and an increase in women's participation in the labour force have all contributed to the increase in the number of individuals who have to take on informal eldercare and remain in employment at the same time (Colombo et al, 2011; Carers UK, 2019). According to the Organisation for Economic Co-operation and Development (OECD, 2017a), 28% of the population in OECD countries will be 65 or above by the year 2050. The OECD countries encourage people to work for a longer number of years by using different measures, such as reforming their retirement pension arrangements and increasing their statutory retirement age (OECD, 2017b). Fewer women take on a full-time homemaker role and their labour force participation rate has steadily increased, from 59.2% in 2000 to 63.8% in 2020 (OECD, 2020). Due to the above reasons, it is likely that in future there will be even more working informal caregivers of older people (thereafter referred to as informal caregivers). Consequently, there is a need to understand this group of the population, including their experience, the demands they face when having dual responsibilities, and the resources that are helpful to them in coping with their demands.

Researchers have debated the costs and benefits of combining work and family responsibilities, in terms of work-family conflicts and enrichment (Casper et al, 2018). However, much of the previous literature has mostly focused on childcare rather than on informal eldercare (Calvano, 2013), because the rise in interest in the work-family interface was mainly driven by the phenomenon of women entering the workforce. There has been more interest in the work-family interface concerning eldercare due to population ageing in many developed countries (Colombo et al, 2011; Yeandle et al, 2017). However, there are still many gaps in the knowledge regarding our understanding of the role and issues of informal caregivers.

The OECD defines eldercare as a form of long-term care. Specifically, “As people get older, it becomes more likely that they will need day-to-day help with activities such as washing and dressing, or help with household activities such as cleaning and cooking. This type of support (along with some types of medical care) is what is called long-term care.” (OECD, 2018, para.2). An informal caregiver of older people is defined as a person providing unpaid care for someone with problems related to old age (Smith, 2004 in Calvano, 2013). Eldercare requires the devotion of resources, such as time, effort, and money, and involves a variety of tasks. It is a type of long-term care that requires assistance in performing activities in daily living (ADLs), which are performed by everyone habitually at a physical level, such as dressing, bathing, and feeding (Katz et al., 1963). It also involves instrumental activities of daily living (IADLs), which represent functional competence, such as financial management, transportation, housekeeping, and shopping (Lawton & Brody, 1969). Eldercare also includes providing emotional support and organising care (Hoff et al., 2014). These tasks not only require physical, but also psychological effort, such as providing managerial skills, daily planning, and counselling skills.

We need to be cautious of the extent to which the knowledge of the work-family interface, in general, can be applied to informal caregivers. Eldercare, despite also requiring time, effort, and emotional input in a similar way to childcare, is fundamentally different in nature. This is because a child gradually gains autonomy and independence over the years and the care trajectory is mostly predictable (Kossek et al., 2001), while the start time, intensity, and duration of eldercare are all much less predictable factors. As a result, eldercare demands can build up gradually as the care-receiver becomes older, or grow intense quite suddenly due to an unforeseen illness or accident (Calvano, 2013). There will eventually be an end to the care needs, but no one knows when and if they want to reach the end, because this means the care-receiver will no longer be with them. The roles of those providing childcare and eldercare are different as well. In eldercare, caregivers are likely to be caring for someone who once cared for them, for example, their grandparents, or parents. Generally speaking, they are likely to be caring for someone who is older and with similar or even more life experience than they have and who has already established a set of ways of doing things and of thinking.

There are also factors which distinguish providing informal from other types of care. Older people are more likely to have multiple chronic conditions and be more prone to accidents, which may be different to the situation when caring for someone with a long-term stable condition. For example, there may be complication in terms managing the communication and coordination of related bodies ranging from clinics, hospitals, care homes, insurance companies, and other paid caring services (Calvano, 2013; Williams et al., 2016). Moreover, older people can be living in residential homes, alone in their own home, or together with caregivers, and each of these situations may impose its own challenges on informal caregivers (Duxbury et al., 2011; Kossek et al., 2001). Caring for an older person may also involve a larger team of people in comparison to childcare or other adult care, including but not limited to the older person's children, sons-or-daughters-in-law, grandchildren, other relatives, and friends. In some cultures, women may be expected to care for their parents-in-law, and if they do not have male siblings, they may have to care for their parents at the same time (Liu et al., 2010). Caregivers from such cultures and a smaller family may not face the demand of co-ordinating with other caregivers to such an extent, but they may face an overwhelming level of informal eldercare responsibility. Each situation poses different challenges, and therefore, the intensity of eldercare can be affected by a range of factors.

Due to the unique characteristics of eldercare, there is a need to study the experience of informal caregivers. In this thesis, I add to our understanding of eldercare using an incremental approach built on three key steps. The first step involves consolidating the knowledge of informal caregivers by conducting a systematic review based on the increasing number of studies of informal eldercare in recent years. This also helps pinpoint what we do not know about this population of caregivers. Second, we need to understand their experience as another foundational building block of our knowledge base relating to informal carers. Without clearly knowing what they do and how they perceive their caring experience, we may be missing out on important activities that caregivers perform and the characteristics of eldercare provision due to the aforementioned differences between eldercare and childcare. This will be addressed in the qualitative study. These two blocks allow the shaping of the third building block, which involves studying the research gap based on the knowledge synthesised and developed in the first two building blocks. This PhD thesis aims to provide new knowledge and unveil knowledge gaps for further research in order to increase understanding and knowledge of the life of informal caregivers, thereby building a foundation for advancement in research and intervention development.

To build such a foundation, this thesis focuses on the “what”, “how” and “why” to contribute theoretically (Whetten, 1989) to the area of balancing work and informal eldercare by increasing understanding of the following three areas.

Firstly, there is a discussion of the nature of the constructs (the “what”) in regard to eldercare responsibilities, demands and resources, appraisals, work-related outcomes, and the health and well-being of informal caregivers. These include what eldercare responsibilities are involved in terms of care activities, what factors hinder or help with informal caregivers’ dual responsibilities, what informal caregivers think of these activities, and their work-related outcomes, health and wellbeing when facing these responsibilities.

Secondly, this study investigates the relationships between the constructs in the theory (the “how”), such as how demands and resources contribute to the health and wellbeing of informal caregivers, and how these contribute to the appraisal of eldercare for informal caregivers.

Thirdly, this study will propose possible explanations for these relationships (the “why”), such as why informal caregivers perceive their care responsibilities in a certain way.

By increasing the understanding of these factors, this thesis will challenge and extend the existing knowledge and provide justification for any proposed alternative or novel views.

The potential practical implications of this research include unfolding the complexion of the constructs under the theoretical framework and the relationships between them, while providing insights into how to improve future research and practice. For example, Cognitive Appraisal Theory (Folkman et al, 1986) can be used as a basis to design interventions when aiming to reduce the negative impact of eldercare responsibilities on informal caregivers through the resources they require and their appraisal of their individual eldercare responsibilities.

Theoretical Framework

To investigate all of the above elements, I am applying a theoretical framework that allows both subjective and objective factors to be considered, which makes use of Cognitive Appraisal Theory (Folkman et al., 1986). This thesis takes the position that both objective incidences and subjective interpretations of these incidents are important to study as the antecedents of health and well-being. Cognitive Appraisal Theory (Folkman et al., 1986) suggests there are at least three major elements that lead to lower well-being in individuals. Stressors are the incidents or demands that individuals are confronted with, while appraisals are how individuals perceive these stressors, which will then affect whether or not and to what extent they feel stressed. Appraisals are also affected by other demands and resources which individuals have and which may contribute to helping or hindering them from coping with any target stressors. Therefore, this project aims to study the characteristics and role of such stressors, appraisals, and the demands and resources relating to informal caregivers.

The process of how stressors, appraisals, demands and resources interact with each other, as suggested by Cognitive Appraisal Theory, incorporates the complexity of how caregivers' health and well-being, and subsequently, other parts of their lives might be influenced by factors from their environment and within themselves. Whether or not an event is a stressor, and how stressful the event is, may be influenced by the appraisal of each individual (Folkman et al., 1986). In the case of informal caregivers, they evaluate the nature of a care-related event and then re-evaluate it after taking into consideration whether or not they have the resources to cope with it. It is important to consider participants' perceptions and construction of their experiences as well as their environment because humans are sense-making beings who interpret and ascribe meaning to their interaction with the environment (Schutz in Fox, 2012). This thesis aims to investigate both the role of individuals and their environment in shaping the experience of informal caregivers.

The Individual, Group, Leader and Organisational (IGLO) Model devised by Nielsen et al. (2017) provides an organising structure within which we can understand the existing body of research into eldercare demands and resources that informs this PhD project. At the individual level, I will consider a range of personal characteristics or behaviours affecting the management and experience of informal caregivers. At the group level, I will look at the domains of the supportiveness and role of immediate groups at work (for example, colleagues) and non-work (for instance, family or friends), all of which may affect the experience of informal caregivers. While the leader level mainly concerns the impact of the leader's behaviour on informal caregivers, the organisational level concerns policies and practices at work, therefore a series of studies will investigate these levels and factors.

The comprehensiveness of the Cognitive Appraisal Theory and IGLO Model provides a framework for the variety of factors which will form the focus of consideration in this thesis, while the suggested process provides a direction for hypothesis testing of the relationship between various factors. By applying Cognitive Appraisal Theory, this project aims to shed light on those areas that have provided the least amount of knowledge concerning the experience of informal caregivers.

Therefore, the research aims of this PhD project are threefold. First, to synthesise existing knowledge around informal caregivers in terms of the impact of the dual responsibilities and their demands and resources. Second, to pinpoint the existing knowledge gaps within this topic area. Finally, the study aims to address some of these identified gaps in knowledge by increasing understanding of the experience in terms of behavioural and cognitive aspects, and the demands and resources of informal caregivers at various levels. In short, the key research aims of this PhD project are to explore knowledge in the area of informal caregivers under various concepts within the field of psychology.

To achieve the above research aims, the research questions that will be answered in the three areas of this PhD project are described in this section.

A systematic review is the most appropriate method to identify and integrate current knowledge regarding the impact of dual responsibilities on informal caregivers, and the factors that may help or hinder them in managing such dual responsibilities. They are important questions to ask because the integrated knowledge can provide a holistic picture of current knowledge, which will allow a clear view of the consistencies, contractions and absence in this area of research. Hence, the systematic review will answer the following research questions:

1) What impacts does managing paid work and eldercare provision have on the health and well-being, as well as work-related outcomes, of informal caregivers?
2) What resources do informal caregivers receive at each IGLO level and how are these resources related to their health and well-being outcomes and work-related outcomes?
3) What demands do informal caregivers experience at each IGLO level and how are these demands related to their health and well-being outcomes and work-related outcomes?

A qualitative study is the most appropriate method to explore the nature of the matter of concern (eldercare in this thesis) and the potential links and explanations between the various factors. Answering these questions can help us to understand the experience of informal caregivers in terms of what they do, how they feel about it and potentially how they make sense of their experience. The in-depth understanding of this group of the population can act as the foundation for designing future interventions and further theoretical development. Hence, the qualitative study will answer the following research questions:

4) What eldercare activities do informal caregivers report performing over a two-week period?
5) How do informal caregivers appraise their experiences in eldercare provision?
6) What factors may have contributed to informal caregivers' appraisal of the situation?

A quantitative study allows the testing of certain relationships among factors that are linked empirically and acts as the basis for further theoretical development. In this thesis, the focus is on individuals and their immediate environment. A quantitative study can establish the direction and potential insights into the sequence of how various individuals and contextual factors stand related to each other. Hence, the quantitative study will answer the following research questions:

7) How do informal caregivers lose health and well-being resources? Can unhealthy cognitive emotion regulation as a reaction to stressors be a potential link?
8) How does unhealthy cognitive emotion regulation interact with workplace resources in this process?

The relations between the overall aim and the content of the chapter and research presenting in this thesis is summarised in the table below:

Table 1. Overall aim of thesis and content of chapters:

Overall aim of PhD thesis: This PhD thesis aims to provide knowledge and unveil knowledge gaps for further research in order to increase understanding of knowledge around the life of informal caregivers, thereby building a foundation for advancement in research and intervention development.	Content of thesis: Begins with a general introduction of the reasons for conducting research in this area, followed by a systematic literature review, a qualitative study, a quantitative study and a general discussion of the findings.
Chapter 2 aims to integrate knowledge to provide a holistic picture of current knowledge, which will allow a clear view of the consistencies, contractions and absence in this area of research to guide future research.	Examining knowledge gaps based on a synthesis of earlier published work examining the health and wellbeing outcomes of working informal caregivers and presenting a research agenda for future research.
Chapter 3 aims to establish the direction and potential insights into the sequence of how various individuals and contextual factors stand related to each other.	Increase our understanding of knowledge around the life of informal caregivers by qualitatively examining the nature of reported caregiving activities, the experiences of informal caregivers, and the factor that impact their experience, and challenge existing assumptions and understanding of informal care.
Chapter 4 aims to fill the knowledge gap based on the lack of multi-level study and emotion regulation of informal caregivers on their health and wellbeing.	Examining the role of emotion regulation and workplace resources in relation to the health and wellbeing of informal caregivers and discussing the implications of the relationships on research and practice.
Chapter 5 aims to discuss the findings from Chapter 2-4 and provide future research direction.	Discussing the complexity and nuances in this research area and suggesting future research considerations.

Methodology

The underlying assumption of the methodological approach of this PhD project is post-positivism. Post-positivists believe multiple methods are necessary to identify the underlying relationships in social phenomena because no single research method is perfect (Moon & Blackman, 2014). For post-positivists, knowledge is not neutral, and reality does not exist independent of the human mind and behaviour (Crossan, 2003; Leung & Shek, 2018; Moon & Blackman, 2014; Ryan, 2006). Reality is a product of individuals' mental constructions, influenced by behaviours, attitudes and socio-cultural factors (Crossan, 2003). Pursuing knowledge by increasing understanding in this area is an important objective of this project. Hence, I designed this project to engage with the participants in their social construction of reality and reveal their knowledge rather than discovering the absolute objective truth inside the participants' minds (Ryan, 2006).

To achieve the above research aims based on post-positivist assumptions, mixed methods were used because they allow the engagement of the construction of reality by the participants and understanding of the underlying relationships in the circumstance of working and delivering unpaid care. It has the advantage of complementing and overcoming the limitations of a single method (Neal, Hammer, & Morgan, 2005) and allows for the collection of both qualitative and quantitative data. By using multiple methods, each research question can be addressed thoroughly by analysing different types of data. Qualitative data will provide rich information on what informal caregivers do as well as valuable accounts of the subjective aspects of how they appraise their experience, which would not be possible or be limited in in depth if using quantitative data collection methods. On the other hand, quantitative methods allow the researcher to investigate the relationship among variables and test specific factors of the theoretical framework.

This PhD project will also deepen our understanding of the event, namely, care responsibilities, and unfold the relationship among some of the variables within the framework. The first two research aims are addressed by a systematic review and qualitative study. The systematic review allows the identification (the "what") of demands and resources and their influences on informal caregivers from the existing literature, while the qualitative study allows for the capture of any missing factors to date, given the depth of understand and detail which are required to understand often complex care experiences. Both the qualitative study and the quantitative study address the third aim. The qualitative study gives insights into the "why" and "how" of the "what" experiences that informal caregivers have. In the quantitative study, I focus on any understudied demands or resources in order to fill the knowledge gap identified in the systematic review. Further, the quantitative data and analysis enable an investigation of the relationships between variables (the "how"), including effects that may not be observable in qualitative research, such as those that were not expressed by the participants or any complicated relationships such as interactions and mediation which were not commented on.

Structure of the thesis

This PhD project is designed to address the research questions based on the above objectives and philosophical assumptions. The first study involves a systematic literature review to synthesise knowledge regarding the impact of eldercare on informal caregivers and the demands and resources they use to manage their dual responsibilities, especially at the individual level and in their workplace, by using the Job Demands and Resources (JD-R) Model (Demerouti et al., 2001) and the Individual, Group, Leader and Organisational (IGLO) Model (Nielsen et al., 2017). The systematic literature review focuses on the demands and resources part of Cognitive Appraisal Theory when synthesising current knowledge and pinpointing any knowledge gaps.

The second part of the PhD project is a qualitative diary study that aims to gather rich information on the environment and the behavioural, emotional, and cognitive experience of informal caregivers. Further, it can complement the systematic review by identifying any demands and resources that were not examined in previous studies but were mentioned by the participants. This study analyses the events, appraisals, demands and resources under the framework of Cognitive Appraisal Theory to make sense of how these factors are linked together. Moreover, Cognitive Appraisal Theory will also allow the capture of both subjective and objective aspects of the caregivers' experience, providing a holistic way to make sense of the data gathered.

The third part of the PhD addresses knowledge gaps identified in the systematic literature review and the qualitative study. It will follow up on the first two studies and investigate the Conservation of Resources (COR) process (Hobfoll, 2001) in analysing eldercare demands on the health and well-being of informal caregivers. This study aims to identify the underlying relationships among various demands and resources and the health and well-being of informal caregivers, especially the role of the most understudied levels and interaction between various demands and resources. By introducing COR theory and analysing its process, the role of resources in health and well-being outcomes can also be examined, thus helping to increase our understanding of the dynamic involved.

Lastly, the final chapter presents a discussion of how the findings from the different parts of the thesis together contribute to the field and also provides suggestions for future research. In summary, the thesis aims to generate knowledge that will act as a pointer to future development in the field by novel applications of methods and theories in the area of informal caregiver research.

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Chapter 2

The demands and resources of working informal caregivers of older people: A systematic review

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ABSTRACT

This systematic literature review synthesises the existing knowledge regarding the impact on working caregivers managing the dual responsibilities of paid work and informal eldercare, as well as the demands and resources related to juggling these duties. Due to the increasing volume of research in this area, it is important to synthesise the current knowledge and identify gaps for future research in the area of Occupational Health Psychology. We identified 45 papers for inclusion in our systematic literature review. Demands and resources were categorised according to the Individual, Group, Leader, and Organisation (IGLO) model. The findings suggest ways in which the workplace can provide support to informal caregivers, such as peer-to-peer, manager-to-subordinate, organisational policy, and cultural aspects. The evidence shows that certain levels of the IGLO model, such as the individual, leader, and organisational-level resources as well as individual demands have received more research attention. Current studies mostly focus on one or two specific levels of the IGLO model rather than taking a holistic approach to examining the factors at all levels. Our findings suggest that future research should take into account all levels of the IGLO model to fully capture the dynamics of juggling paid work and eldercare and we proposed a future agenda for such research.

Introduction

The burden of eldercare is increasing among working informal caregivers in the Western world due to an ageing population (OECD/European Commission, 2013; The World Bank, 2017) and the delay in retirement age (Yeandle & Buckner, 2017). Informal caregivers were the only source of support for 65% of people aged 65 and above who received help with Activities of Daily Living (ADLs) and 74% for Instrumental Activities of Daily Living (IADLs) in England (Health and Social Care Information Centre, 2017). Working informal caregivers are individuals who provide informal (i.e. unpaid) care, while also juggling the responsibilities of paid employment. In the UK, one in seven workers juggled work and care responsibilities, increasing from one in nine during 2011 (Carers UK, 2019). With the increased responsibilities associated with eldercare, working informal caregivers face challenges when striving to fulfil both employment and family responsibilities. In the field of Occupational Health Psychology (OHP), research has mainly focused on the care demands stemming from children or work–family relations as a whole, rather than the specific demands from eldercare (Calvano, 2013). The growing number of studies into working informal caregivers of older people stem from various disciplines, thus the knowledge in this area is scattered. The sustainability of eldercare may be better understood through a nuanced understanding of how working informal caregivers juggle their dual responsibilities and how these efforts influence their work, health, and wellbeing. Thus, it is important to synthesise the current literature from these diverse disciplines to develop an integrated framework and thereby develop an OHP research agenda. The knowledge synthesised under OHP frameworks will enable organisations to better support working informal caregivers and thus improve not only the sustainability of informal eldercare but also the maintenance of employment.

The present study systematically reviews relevant studies examining the impact of eldercare on the personal and work-related outcomes of working informal caregivers. Specifically, we will examine the factors that affect these relationships with a particular focus on the demands and resources in each of the Individual, Group, Leader, and Organisation (IGLO) levels (Nielsen et al., 2017). This paper aims to provide a comprehensive understanding of how informal eldercare care impacts the health and wellbeing of working informal caregivers, such as their general, physical and mental health, their overall satisfaction (Danna & Griffin, 1999), as well as how it impacts their work, such as their behaviour and performance (e.g., absenteeism and productivity). Our paper draws on two OHP models – the Job Demands and Resources model (JD-R) (Demerouti et al., 2001) and the IGLO model (Nielsen et al., 2017). Factors affecting the impact of eldercare at each level from demand or resource perspectives are systematically identified and the knowledge is synthesised through the lens of OHP, adding knowledge to existing reviews from other disciplines.

Informal eldercare provision

The Organisation for Economic Co-operation and Development defined eldercare as a type of long-term care including helping with day-to-day activities such as washing and dressing, household activities such as cleaning and cooking, and some types of medical care (OECD, 2018). Eldercare requires the devotion of resources (e.g., time, effort, and money) and involves a variety of tasks. The care-receivers are often parents, parents-in-law, and/or relatives of caregivers, but can sometimes be friends and neighbours (Carers UK, 2015).

Eldercare has different characteristics compared to other types of care, e.g., childcare (Tennstedt & Gonyea, 1994). Eldercare is characterised by complexity and more acute incidences than childcare since older people are more likely to have multiple chronic conditions and may require sudden hospitalisation (Calvano, 2013). Furthermore, eldercare is distinctly different from childcare (Calvano, 2013) because the demands of childcare tend to ease over time since children gain autonomy as they grow up, whereas the demands of eldercare tend to increase over time as care-receivers lose autonomy (Kossek et al., 2001). Eldercare typically requires adaptation and involves the employment of many different skills. Therefore, the ways in which eldercare impacts health and wellbeing and work-related outcomes may be different to childcare or other informal adult care (Larsen, 2010; Scharlach & Fredriksen, 1994) and are worthy of further investigation.

The impact of eldercare on employees

Past reviews have identified the negative impacts of managing work and caring responsibilities on caregivers' emotional life, stress levels, and work–family conflicts and established that informal caregivers are at risk of leaving the workforce due to their care responsibilities (Burch et al., 2019; Calvano, 2013; Clancy et al., 2020; Tennstedt & Gonyea, 1994). Impacts on caregivers may differ as a function of the nature of individuals' care responsibilities. Combining paid work and caregiving need not only be perceived as a burden but may provide working informal caregivers with a sense of personal growth and challenge (Hoff et al., 2014). Paid work roles may offer caregivers a respite from their caregiving role, while providing eldercare could bring satisfaction and a sense of accomplishment (Calvano, 2013; Martire & Stephens, 2003; Tennstedt & Gonyea, 1994; Williams et al., 2016). There is therefore a need to explore both the positive and negative aspects of juggling paid work and informal care provision and how they influence working informal caregivers' health, wellbeing, and performance.

Recent reviews have explored how informal care impacts employees who provide informal care. Clancy et al. (2020) grouped these outcomes into four levels, societal (e.g. labour supply), work-related (e.g. discrimination, job performance, work-related strain, work attitudes, absenteeism/presenteeism), family (e.g. marital quality, care recipients' health and wellbeing), and individual caregiver outcomes (e.g. psychological wellbeing, physical health, financial strain). They also identified mediators (work-related), and moderators (individual caregiver, caregiving context, work-related) in the impacts of the caregiving process. Similarly, Burch et al. (2019) summarised the outcomes in terms of individual, work, and labour supply levels. Both reviews considered the non-work antecedents of individual, work, and labour supply outcomes, such as societal level and family factors. In their analysis, both studies included articles that did not separate other forms of adult care (e.g., caring for adult children who require care due to disability or ill health) from eldercare. The current review focuses on synthesising knowledge directly related to the work context for informal caregivers of older people. More specifically, we will examine how factors in the workplace influence the health and wellbeing outcomes and work-related outcomes of employees providing informal eldercare, due to the growing scale of this issue internationally. Our review identifies current research gaps specifically in the work context, thus offering a promising research agenda within OHP that will lead to further insights into how to support this growing group of employees. Therefore, we propose the following as our first research question.

Research question 1: What is the impact of managing paid work and eldercare provision on the health and wellbeing as well as the work-related outcomes of informal caregivers of older people?

Theoretical frameworks

The JD-R and IGLO models provide the theoretical framework for the second part of our review. The JD-R model highlights the central role of demands and resources in optimal functioning within roles (Bakker & Demerouti, 2007). Then, each demand and resource will be further classified according to the IGLO model (Day & Nielsen, 2017; Nielsen et al., 2017). The following sections will introduce the JD-R model and outline the demands and resources at each level of the IGLO model.

The Job Demands and Resources (JD-R) model

The JD-R model (Bakker & Demerouti, 2007) proposes that working conditions can be categorised into demands and resources. Demands are defined as the physical, social, or organisational aspects of work that involve continuous physical or mental effort (Demerouti et al., 2001). Resources are anything that individuals perceive as helping them to attain their goals (Halbesleben et al., 2014). Generally, demands are valued negatively, while resources are valued positively, associated with improved work and personal outcomes, such as organisational commitment and health (Schaufeli & Taris, 2014). Many informal caregivers juggle multiple roles, thus facing multiple demands. Consequently, when there are insufficient resources (e.g., time and energy) to cope with demands from paid work and family care, strain increases and wellbeing decreases (Bakker & Demerouti, 2007).

The individual, group, leader, and organisation (IGLO) model

To systematically classify demands and resources, we employed the IGLO classification of resources (Day & Nielsen, 2017; Nielsen et al., 2017; Nielsen & Christensen, 2021), which enabled us to have a clearer idea of the level of research attention received for different levels of factors.

Individual-level demands are characteristics or behaviours of individuals, which burden them (e.g. behaviour and personality that increase the burden on individuals, such as being high in neuroticism), while resources are those that help them to achieve their goals (e.g., being high in optimism, self-efficacy) (Allen et al., 2012; Nielsen et al., 2017). It can also be the case that a higher socio-economic background provides the resources needed to help individuals better cope with the situation, such as education and finance since eldercare is often associated with managerial skills (Calvano, 2013) and financial pressure (Duxbury et al., 2011). Group-level demands include workplace interpersonal conflict (Ilies et al., 2011), while group-level resources include support from colleagues, which are important for individuals' work–family conflict (Michel et al., 2011). Leader-level demands and resources concern leadership characteristics and social interactions between leaders and employees (Nielsen et al., 2017). Leader-level demands include over-demanding or abusive leader behaviours (Carlson et al., 2012). Supervisor support, leadership style, and leader-member exchanges have been found to affect work and family outcomes (Morganson et al., 2017; Skakon et al., 2010). Organisational-level demands and resources are aspects of job design, organisational culture, human resources (HR) policies and HR practices, all of which affect employees (Nielsen et al., 2017). An example of demand and resource respectively is the work climate for family sacrifices (Kossek et al., 2001) and job autonomy (Nielsen et al., 2017).

Many factors that stem from the workplace can either provide resources or impose demands on working informal caregivers of older people. Consequently, employers can play a key role in supporting informal caregivers to manage their dual responsibilities. Employers can influence the level of work–family conflicts experienced by employees by changing the characteristics of job role (e.g., role conflict, role ambiguity, role overload, time demands, task variety, job autonomy) and the level of work support (e.g., organisational support, supervisor support, coworker support) (Michel et al., 2011), or by providing information on available assistance and financial support (Keefe & Fancey, 2002). To explore the resources at the IGLO levels, we proposed the following research questions:

Research question 2: What resources do working informal caregivers of older people receive at each IGLO level and how are these resources related to their health and wellbeing outcomes and work-related outcomes?

Research question 3: What demands do working informal caregivers of older people experience at each IGLO level and how are these demands related to their health and wellbeing outcomes and work-related outcomes?

Method

Our review focused on papers published in psychology, organisational studies, economics and gerontology since the year 2000. Relevant studies were identified from Web of Science, Google Scholar and ProQuest. ProQuest includes databases such as the Asian Business Database, European Business Database, Health & Medical Collection, PsycARTICLES, PsycINFO, Science Database, and Social Science Database, while Web of Science covers MEDLINE and many Social Science and Business databases. In our initial search, we used the combinations of search terms, which included (employees, eldercare), (informal eldercare, employee), (caregiving, elder, employee), (eldercare, work), (dementia, informal caregiver, work), (dementia, caregiving, work), and (caregiving, employment), which identified 29 relevant articles. We then utilised the search terms used by Burch and colleagues (2019) and adapted other search terms based on the wellbeing criteria in Danna and Griffin (1999), which identified further 5 articles, as the former is a recent review of the topic and the latter focuses specifically on work-related outcomes. Finally, a manual search was conducted by checking the references of articles from previous searches, email notifications from search engines, and other sources, all of which yielded 11 additional papers. Thus, a total of 45 papers were included in the current review. Seven papers used a longitudinal research study design, one used a cross-sectional shortitudinal research design, and the remaining were cross-sectional research. An overview of the papers reviewed can be found in Table 1.

The inclusion criteria were quantitative, empirical studies that explored the impact of eldercare on working caregivers. We included only quantitative studies to achieve a better synchronisation and produce a systematic qualitative analysis of quantitative research, which is considered valuable in reviewing a body of relatively sparse, but growing literature on a specific topic (Suri & Clarke, 2009). We excluded papers that did not separate eldercare from disabled care or other forms of informal care. However, if the study included employees caring for older people with a certain old age-related condition (e.g., dementia), it would still be included in the analysis because the participants were involved in caring for older people.

Findings

Table 1 – An Overview of the Articles Included in the Review

Author(s)	**Summary of findings [Method/Design (Cross-Sectional, CS; Longitudinal, L)/Country]**
1. Andersson et al. (2019)	Employees caring for older people with unmet caring needs were more likely to experience work interruptions. Psychological wellbeing is associated with lower odds of incurring a work interruption. [Survey/ CS/ US]
2. Barnett et al. (2009)	Greater usable flexibility was linked with lower caregiving concerns, which is linked to job changes. [Survey/ CS/ US]
3. Barrah et al. (2004)	For women, work interference with family was positively linked to intention to seek new employment, negatively linked to flexible work, supervisor support and supportive workplace culture. Family interference with work was related to work absence for men. [Interview/ CS/ US]
4. Brown and Pitt-Catsouphes (2013)	Work hours and work overload were linked with higher work-to-family conflict (WFC). Supervisor support, family-supportive environment, and access to flexibility were each linked with lower levels of WFC. Access to flexibility had a stronger effect on reducing WFC among intermittent caregivers. [Survey/ CS/ US]
5. Brown and Pitt-Catsouphes (2016)	The relationship between perceived workplace flexibility and caregiver stress and the relationship between access to flexible work options and caregivers stress were mediated by WFC. Being older, being in good health, and lower levels of WFC were associated with lower levels of stress. [Survey/ CS/ US]
6. Cheng et al. (2020)	Eldercare provision had a positive impact on subjective wellbeing, while high caring intensity had a negative impact. Eldercare provision affected men and women and different types of workers differently. [Survey/ L/ Australia]
7. Crespo et al. (2019)	Caregiving overload and positive job experience predicted depression and positive affect. [Interview, Survey/ CS/ Spain]
8. Dembe et al. (2011)	Employer-sponsored elder care programmes can help employees find and arrange care for elder dependents, which helped reduce absences, improve working productivity, and employees staying employed. [Survey/ CS/ USA]

9. Dugan et al. (2020)	Compared with no ECD group, depressive symptoms were higher for the acquired ECD group and the relinquished ECD group, family-work conflict was higher for the persistent ECD group; work stress was higher for the relinquished ECD group and the persistent ECD group. [Survey/ L/ US]
10. Dugan et al. (2016)	Providing personal care and providing 5 or more hours per week of eldercare were linked with increased depressive symptoms and FWC, compared with no care. [Survey/ CS/ US]
11. Duxbury et al. (2011)	Caregivers living with elder dependents had the highest levels of financial, physical, and emotional strain. Women had higher physical and emotional strain than men. [Survey/ CS/ Canada]
12. Ghaffar (2020)	Eldercare financial burden generates stress at work that results in emotional exhaustion. [Survey/ L/ Pakistan]
13. Gordon and Rouse (2013)	Work-family conflict plays a mediating role between types (behavioural & psychological) of work and caregiving involvement and work costs (job interruptions and turnover intentions (TI)). [Survey/ CS/ US]
14. Greaves et al. (2015)	Low supervisor care support predicted a negative relationship between core self-evaluation (CSE) and TI. High current supervisor work and care support predicted a negative relationship between CSE and TI three months later, mediated by employees' satisfaction and emotional exhaustion from work. [Survey/ CS & L/ Australia, US, India]
15. Juratovac and Zauszniewski (2014)	Higher caregiving mental effort and caregiving workload, and poorer self-assessed health were significantly correlated with high depressive symptoms. [Survey/ CS/ US]
16. Kim and Cho (2018)	Eldercare demands were related to musculoskeletal disorders in Korean female workers. [Survey/ CS/ Korea]
17. Kim and Gordon (2014)	The negative impact of work interfering with care on the psychological wellbeing of female informal caregivers was stronger for those with high perceived financial needs. Care interfering with work was negatively linked to the psychological wellbeing of female informal caregivers with low perceived financial needs. [Survey/ CS/ Korea]
18. Kim et al. (2011)	Work performance of employees with employers support was less affected by work interruptions. The link between stress and work interruptions was stronger positively among employees with a supportive employer. [Survey/ CS/ US]

19. Kossek et al. (2001)	A work environment that had a concern-sharing atmosphere benefits performance and wellbeing, whereas a work environment that had an atmosphere to making family sacrifices negatively impacted wellbeing and increaseed conflicts between work and family. [Survey/ CS/ US]
20. Kossek et al. (2019)	The STAR Intervention led to more effective in reducing stress and psychological distress for elder and sandwiched informal caregivers compared with employees without caregiving. [Interview & survey/ Intervention/ US]
21. Lam and Garcia-roman (2017)	On the days caregivers provided care, they spent less time on paid work and reported higher levels of sadness. [Survey/ CS/ US]
22. Lee et al. (2010)	Eldercare-givers reported time- and strain-based conflict. FWC predicted hours of work missed [Survey/ CS/ USA]
23. Lee et al. (2001)	Employed caregivers who spent more hours on caregiving reported poorer emotional health, and female caregivers reported more depression symptoms. [Survey/ CS/ US]
24. Longacre et al. (2017)	Caring for a longer period, round-the-clock care and work interference were linked with higher levels of stress. Informal caregivers reported care interfered with work had higher level of education. [Survey/ CS/ US]
25. Lozano et al. (2016)	Being aware of referral service and using community services were linked to lower emotional strain. [Survey/ CS/ US]
26. Oldenkamp et al. (2018)	The chance of informal caregivers using one or more work arrangements increased if they had a more disrupted schedule and more health problems due to caregiving, or when they worked more hours a week. [Survey/ CS/ Netherlands]
27. Pei et al. (2017)	Higher care hours and care financial expenses were linked with the chance of employment consequence and psychological burden. More women had physical stress due to eldercare than men. [Structured interview/ CS/ China]
28. Peng et al. (2020a)	Variations in eldercare demands increased next-week FWC and time theft at work. [Diary survey/ L/ China]
29. Peng et al. (2020b)	Eldercare supportive supervision indirectly linked positively to job performance and negatively to time banditry via work engagement for those with high caregiver burden. [Experiment & Survey/CS & L/ US]

30. Reid et al. (2010)	Caregivers reported change in work hours, decrease in work performance, being late, absent, and work interruption. Caregivers who reported that their work performance was affected because of caregiving tended to report higher levels of burden, lower levels of wellbeing and self-esteem. [Structured interview/ CS/ Canada]
31. Rofcanin et al. (2019)	FSSBs were negatively associated with unsupportive work-family culture while positively associated with perceived organisational support (POS). FSSBs were positively associated with the perceived overall health (POH) and work-family balance satisfaction (WFBS). FSSBs was the mediator of (1) the positive links between POS and POH as well as WFBS; (2) the negative links between unsupportive work-family culture and POH as well as WFBS. [Survey/ CS/ Peru]
32. Sakka et al. (2016)	Negative family-to-work spillover was higher in caregivers than in non-caregivers. [Survey/ CS/ Japan]
33. Schneider et al. (2013)	Time conflict between eldercare and paid work was linked with the job change intention of female workers, but flexible work arrangements increase their attachment to their jobs and the labour market. Physical care burden triggered intentions to leave the labour market of male workers. [Survey/ CS/ Austria]
34. Shoptaugh et al. (2004)	Work time flexibility and satisfaction with eldercare arrangement negatively linked with absenteeism. [Survey/ CS/ US]
35. Stephens et al. (2001)	Women who experienced parent care conflict tended to have parents with lower functional and cognitive ability and fewer socio-economic resources. [Face-to-face interview/ CS/ US]
36. Tement and Korunka (2015)	Support from co-workers may not help lessen the possible negative effects of the demands of caregiving. In conditions of low autonomy, WFE levels of elder caregivers were higher than the work-only group. [Survey/ CS/ Slovenia]
37. Trukeschitz et al. (2013)	Some aspects of eldercare reduced the level of perceived work-related strain. [Survey/ CS/ Austria]
38. Wang et al. (2018)	Caregiving demands and job demands contributed to health outcomes of caregivers of older people with dementia, the effect of caregiving demands on health outcomes was partially mediated by job demands. [Survey/ CS/ Taiwan]

39. Wang et al. (2011)	Informal caregivers of older people with dementia with full-time job and reported difficulty reconciling work and caregiving experienced more role strain. Education level was negatively linked with the level of role strain. Work inflexibility schedule increased their depressive symptoms. [Survey/ CS/ Taiwan]
40. Wang et al. (2013)	For informal caregivers with low work-care conflict, there was a negative relationship between their perceived preparedness and experienced role strain. [Survey/ CS/ Taiwan]
41. Wilson et al. (2007)	Depression is positively associated with the time missed at work. [Survey/ L/ US]
42. Wolff et al. (2016)	Informal caregivers providing substantial help with health care activities to older people with disabilities were more than 3 times as likely to experience work productivity loss (absenteeism and presenteeism). [Survey/ CS/ US]
43. Zacher and Schulz (2014)	POS in eldercare alleviated the link between eldercare demands and strain. [Survey/ CS/ Germany]
44. Zacher and Winter (2011)	POS in eldercare moderated the positive relationship between eldercare demand and strain, and the negative relationship between eldercare strain and work engagement. [Survey/ CS/ Germany]
45. Zacher et al. (2012)	Dependency of the older care-receiver in terms of impairment affects mental health and work performance of working informal caregivers, and the relationship is moderated by eldercare satisfaction. [Survey/ CS/ Germany]

Impact of eldercare on working informal caregivers

Research question 1 aims to identify the impact of managing paid work and eldercare provision on health and wellbeing outcomes and work-related outcomes of informal caregivers to shed light on why informal caregivers may need additional support from their workplace. Broadly, our review suggests that working informal caregivers experience conflicts between work and family, spillover between roles, and health and wellbeing implications as a result of engaging in both eldercare and work.

According to the studies reviewed, eldercare provision was associated with conflicts between family and work, such that work/family demands conflicted with the functioning of family/work (Crespo et al., 2019; Dugan et al., 2016, 2020; Gordon & Rouse, 2013; Peng, Jex, et al., 2020; Wang et al., 2013), especially for those who worked more hours (Barrah et al., 2004). Both eldercare and paid work were associated with time and strain conflicts (Lam & Garcia-roman, 2017; Lee et al., 2010; Schneider et al., 2013). Both work and family roles were associated with spillover, where emotions and behaviours expressed in one role carry over to the other (Sakka et al., 2016). Eldercare provision negatively affected the health (e.g. physical strain, physical health, depressive symptoms) and wellbeing (e.g. work engagement, emotional strain, life satisfaction, affect) of working informal caregivers (Crespo et al., 2019; Dugan et al., 2020; Duxbury et al., 2011; Juratovac & Zauszniewski, 2014; Y. M. Kim & Cho, 2018; Lam & Garcia-roman, 2017; Lee et al., 2001; Lozano et al., 2016; Pei et al., 2017; Wang et al., 2018; Zacher et al., 2012; Zacher & Winter, 2011). Working informal caregivers who felt their performance was negatively affected by caregiving reported lower life satisfaction and lower self-esteem (Reid et al., 2010), providing further evidence of the spillover effect between informal care and work.

Evidence for the role of eldercare provision in relation to work stress is context dependent, depending on the care hours of care provided and care trajectory (Dugan et al., 2016, 2020; Trukeschitz et al., 2013). Ghaffar (2020) suggested that the financial burden of eldercare provision (e.g. paying for goods and services, financial worries due to caregiving) lead to stress at work. In line with the findings relating to increased work–family conflict, informal caregivers who worked more hours were more likely to experience a higher level of stress (J. Kim et al., 2011). These findings indicate that the negative impact of juggling work and eldercare on wellbeing may only occur under certain contexts, such as when informal caregivers' finance or work performance is hampered. Further, especially when care hours were not long, eldercare provision was linked to better subjective wellbeing (measured by satisfaction with life, family, and work) and a reduced level of perceived work-related strain (Cheng et al., 2020; Trukeschitz et al., 2013).

In terms of impact on informal caregivers' work role, studies found negative relationships between eldercare and work performance (J. Kim et al., 2011; Reid et al., 2010; Zacher et al., 2012). Our review identified studies that demonstrated links between eldercare provision and reduced focus and commitment to work among informal caregivers. For example, providing eldercare was positively related to absenteeism (Reid et al., 2010; Shoptaugh et al., 2004; Wolff et al., 2016), presenteeism (Wolff et al., 2016), interruptions at work, and engaging in behaviours known as time theft or time banditry (i.e. spending work time on non-work activities). For informal caregivers these non-work activities may consist of leaving early, arriving late, or taking time off to perform care responsibilities, managing care over the phone, feeling worried about the care-receiver, and taking a longer than permitted break or day-dream (Gordon & Rouse, 2013; Peng, Jex, et al., 2020; Peng, Xu, et al., 2020; Reid et al., 2010). To cope with eldercare demands, informal caregivers may also change work arrangements such as adjusting their work schedules, taking a leave of absence, reducing their hours to work part-time, rejecting promotion, or changing jobs (Andersson et al., 2019; Barnett et al., 2009; Gordon & Rouse, 2013; Greaves et al., 2015; Trukeschitz et al., 2013).

In summary, the findings show that managing both paid work and eldercare provision can have a negative impact on informal caregivers' health and wellbeing, their work–family life, and their employing organisations, however, the wellbeing of informal caregivers can improve if care provision is not too intensive.

Resources

Research question 2 examines the resources for working informal caregivers according to the IGLO framework. In the following sections, we discuss the findings at each level of resource: individual, group, leader, and organisation. For the purpose of this investigation, we define resources as anything that helps working informal caregivers to manage their dual responsibilities.

Individual-level resources

In terms of personality, core self-evaluation, which refers to the appraisal of self-capabilities, competence, and the positive expectation of life, helped individuals juggle work and eldercare demands (Greaves et al., 2015). From a coping perspective, Wang et al. (2013)

found that informal caregivers who felt prepared reported less role strain in low work-care conflict settings when the care-receivers had dementia.

The physical health, mental health, and wellbeing of informal caregivers affected how well they managed the dual responsibilities and therefore their work. Brown and Pitt-Catsouphes (2013, 2016) found that good self-assessed health was linked to lower levels of perceived stress and work–family conflict among informal caregivers. Mental health was a mediator between the interaction of eldercare demands with eldercare satisfaction and work performance (Zacher et al., 2012). Psychological wellbeing (self-esteem, mastery, and optimism) lowered the odds of incurring work interruptions (e.g., adjusting starting and ending hours of work, moving to part-time work, turning down progression, retiring early, or taking a leave of absence) among informal caregivers (Andersson et al., 2019). Good physical and mental health of informal caregivers could be a crucial resource for them to manage their dual responsibilities and act as either a mediator or moderator in the relationship between eldercare demands and work-related outcomes.

A higher socio-demographic background was found to be a protective factor for the informal caregiver due to the ease of access to any resources needed to cope with eldercare responsibilities. Caregivers with higher levels of education reported less eldercare-related role strain and emotional distress than those with lower educational attainment (Pei et al., 2017; Wang et al., 2011). The findings in the aforementioned studies did not provide an explanation regarding the influence of education, but Pei et al. (2017) discussed how education might be a protective factor because it enabled informal caregivers to manage their demands more effectively and education is usually linked to a better paid job. In a similar vein, personal and household income were negatively related to eldercare role conflicts (Stephens et al., 2001). The negative impact of work interfering with caregiving on psychological wellbeing was stronger among informal caregivers with higher perceived financial needs (N. Kim & Gordon, 2014).

In summary, past studies have shown that individual resources can protect informal caregivers from the negative work, family, and health and wellbeing outcomes related to juggling their dual responsibilities. Such individual resources vary in their form, ranging from stable constructs such as personality traits and socio-economic background to less stable ones such as health and coping strategies.

Group-level resources

Group-level resources which appeared within the studies in our review included co-worker support. Co-worker support was not found to impact either work–family conflict or the work–family enrichment of informal caregivers (Tement & Korunka, 2015). Specifically, with regards to the strain-based conflict, one study found that perceived support from co-workers was related to the levels of strain reported by informal caregivers until perceived organisational support was included within the analysis (Zacher & Schulz, 2014).

Based on current evidence, the benefit of group-level resources appears limited, particularly since the impacts of group-level resources appear to be explained largely by organisational resources.

Leader-level resources

Five studies included in our review suggested supportive supervisors may be an important resource to enhance the health and wellbeing of informal caregivers. Family supportive supervisor behaviours (FSSBs) were positively associated with the perceived overall health and work–family balance satisfaction for informal caregivers (Rofcanin et al., 2019). An intervention study that aimed to improve leaders' engagement in family and work support demonstrated that having a supportive leader benefitted informal caregivers by reducing their stress and psychological distress (Kossek et al., 2019).

Leaders also play a role in influencing the work-related outcomes of informal caregivers. Specifically, informal caregivers who received eldercare supportive supervision improved job performance due to the positive impact of such support on work engagement and limited time banditry, especially among those with a high caregiver burden (Peng, Xu, et al., 2020). Supervisor support was found to reduce turnover intentions through a reduction in work interference with family of informal caregivers (Barrah et al., 2004).

Supervisor support has also been studied as a moderator. Greaves et al. (2015) found that supervisor support was more beneficial to informal caregivers with high core self-evaluation, reducing turnover intentions via improved work satisfaction and reduced emotional exhaustion from work. When overall organisational support was taken into account, supervisor support no longer showed a significant effect on strain and had no moderating effect with eldercare demands on strain (Zacher & Schulz, 2014).

In summary, studies showed that supervisors' support towards eldercare or family care improved employees' health and wellbeing as well as their work-related outcomes, although its relative importance after considering other factors has yet to be explored.

Organisation-level resources

Organisational support for employees with informal care responsibilities impacts work engagement and strain (Zacher & Schulz, 2014; Zacher & Winter, 2011). Organisational support was found to be especially helpful when eldercare demands and strain levels were high (Zacher & Winter, 2011). The work performance of informal caregivers receiving organisational support was less affected by work interruptions (e.g., missing work, making frequent calls, and worrying about care recipients at work) than those without organisational support (J. Kim et al., 2011).

Flexible work arrangements are a form of organisational resource used to successfully manage work and care responsibilities, leading to outcomes such as reduced turnover among women (Schneider et al., 2013). Flexible work was associated with fewer interruptions at work, work–family conflicts, absenteeism, and depressive symptoms (Brown & Pitt-Catsouphes, 2013; Shoptaugh et al., 2004; Wang et al., 2011), although one study also found no association between work flexibility and work–family conflicts (Barrah et al., 2004).

In terms of organisational climate, Kossek et al. (2001) found that it was important for both the family and workplace to have a sharing and caring atmosphere for informal caregivers to improve their work performance, family performance, and wellbeing. A family-supportive workplace was found to be negatively associated with work interference with family, which positively linked to turnover intention (Barrah et al., 2004), work–family balance satisfaction, and perceived overall health (Rofcanin et al., 2019), while it was negatively linked with work–family conflict (Brown & Pitt-Catsouphes, 2013). One intervention study found that a result-oriented work environment increased employees' control over work time, reduced stress and psychological distress among informal caregivers (Kossek et al., 2019). This suggests that an organisational culture that increases job resources (in this case job control) can benefit the psychological health and wellbeing of informal caregivers, even when such support may not be directly linked with family needs. However, informal caregivers in jobs with low levels of autonomy reported higher levels of work–family enrichment than those employees who provided childcare only or no care at all, and the level of work–family enrichment for informal caregivers did not increase in moderate and high job autonomy, unlike in the childcare only and no care groups (Tement & Korunka, 2015). Thus, the benefit of increased job resources may be limited in some respects.

Employer-sponsored eldercare programmes (including referral services, counselling, financial assistance, day-care service, flexible work schedule) were found to lower job absence, increase work productivity, and help working informal caregivers to stay employed (Dembe et al., 2011). Moreover, when such support was not available within the organisation, organisational efforts to make employees aware of caregiving referral services and use community programmes was beneficial in easing the emotional strain of employees (Lozano et al., 2016). Informal caregivers who utilised organisational eldercare support programmes (e.g., eldercare resources and referral, employee assistance programmes, financial counselling, flexible work arrangements, medical leave, or unpaid leave) were less likely to experience work interruptions, had lower turnover intentions, and lower intention to change their employment arrangements (Andersson et al., 2019; Barnett et al., 2009). This indicated that it was not only the availability, but also the utilisation of support that was important in leading to a positive impact. However, usage of flexible work options depended on individuals' experience of juggling eldercare and work hours (Oldenkamp et al., 2018).

In summary, studies showed that both official arrangements (i.e., flexible work and organisation support programmes) and soft management in organisations (i.e., creating a caring atmosphere) can help informal caregivers.

Demands

Research question 3 examines the demands faced by working informal caregivers according to the IGLO framework. The findings at each level will be described in turn in this section.

Individual-level demands

We did not identify any studies examining how personality or behaviour may act as a demand in negatively affecting the personal and work-related outcomes of working informal caregivers. Employees' wellbeing was affected by informal eldercare differently in relation to their individual job characteristics and socioeconomic status. White-collar informal caregivers reported slightly reduced job satisfaction over time, whereas blue-collar informal caregivers were not affected (Cheng et al., 2020). Full-time working informal caregivers of older people with dementia reported more role strain than those who worked part-time (Wang et al., 2011), while eldercare provision increased satisfaction with work–life balance among part-time workers (Cheng et al., 2020).

As good health is a resource, poor health is a demand and can negatively impact work outcomes. Depressive symptoms were positively associated with the hours of work missed in the past 30 days for informal caregivers of older people with dementia (Wilson et al., 2007), which is consistent with our findings on individual resources.

Education was a protective factor (Pei et al., 2017; Wang et al., 2011), however, Longacre et al. (2017) found that highly educated informal caregivers were more likely to report that care interfered with work, especially for women (Stephens et al., 2001). Longacre et al. (2017) suggested that individuals with higher education levels may have more demanding jobs, which makes it harder for them to juggle care and work. Women and men were affected by informal eldercare provision differently. Women took more leave of absence and were more likely to consider early retirement (Pei et al., 2017) and they also reported more depressive symptoms and emotional strain than their male counterparts (Lee et al., 2001; Lozano et al., 2016). Eldercare demands were related to musculoskeletal disorders in women only (Y. M. Kim & Cho, 2018) and a higher percentage of them reported that their health had suffered due to their caregiving duties (Pei et al., 2017). The aspects of eldercare that caregivers were most burdened by also differed between men and women. The additional physical demands from eldercare (i.e., helping with ADLs) triggered their exit from the labour market among men only, while the number of hours devoted to eldercare influenced the turnover intentions of women (Schneider et al., 2013).

In summary, individual differences may play a role as demands in terms of informal caregivers' occupation, employment mode, health, care trajectory, and gender. These factors are potential moderators in the relationship between informal eldercare provision and informal caregivers' wellbeing and work outcomes.

Group-level demands

Our search did not identify any studies that examined how group-level demands affect the well-being and work outcomes of informal caregivers.

Leader-level demands

Our search did not identify any studies that examined how leader-level demands affect the well-being and work outcomes of informal caregivers.

Organisational-level demands

Two studies explored the impact of organisational-level demands on informal caregivers. One study found negative associations between an unsupportive work–family culture (e.g., demanding long work hours, negative consequences of turning down transfer due to family reasons) and the perceived overall health and work–family balance satisfaction of informal caregivers (Rofcanin et al., 2019). A work climate that encourages sacrificing family, that is an expectation at the workplace that encourages informal caregivers to reduce fulfilment of family duties in favour of their work performance, was positively linked to both work-to-family and family-to-work conflict, and negatively linked to the wellbeing of individuals (Kossek et al., 2001). This suggested that a work climate that is not supportive towards a balanced work–family life is detrimental to the wellbeing of informal caregivers due to increased conflicts between their roles.

Discussion

The present study reviewed and synthesised the findings from quantitative studies into the impact of informal eldercare on workers in paid employment. The impact of demands and resources, especially those from the workplace, on the health and wellbeing outcomes and work-related outcomes of informal caregivers found in previous studies were systematically summarised under four levels of demands and resources using the JD-R and IGLO models to complement each other. The focuses and gaps in the existing research studies are identified from the OHP perspective and subsequently, areas requiring further research are suggested.

Impact of eldercare provision

The findings in the papers that we reviewed suggest that eldercare provision conflicts with employment and contributes to the health and wellbeing of working informal caregivers. Such provision also negatively impacts organisations in terms of work engagement, absenteeism, and productivity, which has financial costs. These findings are in line with other recent reviews (Burch et al., 2019; Calvano 2013; Clancy et al., 2020) and we expanded on them further by pointing out that the nature of the job can affect the ability of informal caregivers to juggle work and care demands. For example, blue-collar workers usually have limited control over the work schedule, unlike white-collar workers. Further, informal caregivers may find ways to cope with multiple responsibilities, by making use of annual leave for care or by forgoing training opportunities and social time (Bernard & Phillips, 2007). Thus, any support offered to informal caregivers should be adjusted according to their needs and job nature. In line with the findings of recent reviews (Burch et al., 2019; Clancy et al., 2020), we note the presence of research that demonstrates the positive effects of dual responsibilities. Juggling multiple roles can be burdensome, but there are also positive sides to these situations, such as bringing informal caregivers satisfaction. Future studies should also examine the positive influences which informal caregivers receive from their eldercare responsibilities, whereby a positive care model could then be proposed.

Demands and resources

We identified the demands and resources for working informal caregivers of older people at the IGLO levels to address Research Questions 2 and 3. The IGLO model provided a clear framework for the identification of the levels of demands and resources in the workplace that could modify the relationship between the negative impacts of eldercare to health and wellbeing outcomes, as well as work-related outcomes.

Individual-level demands and resources

The papers included in our review examined individual-level demands and resources in terms of gender, personality, health, and socio-economic background. Male and female informal caregivers were found to be affected differently by eldercare provision. This is possibly due to the fact that working women tend to be more burdened with care responsibilities (Carers UK, 2015), and the difficulties of participation in caregiving for men, who may find that taking family care arrangement requests do not fit general expectations, while organisations often lack family friendly policies targeting men (Lewis et al., 2007). The cost of changing jobs for female and male informal caregivers may similarly be different (Schneider et al., 2013). Together, these reasons might explain why flexible work arrangements reduced turnover among women only. Eldercare responsibility was found to affect health and wellbeing outcomes, as well as work-related outcomes differently among men and women, which is worth further investigation as to how and why this is the case.

At the individual level, few studies examined how personality or behaviours affect informal caregivers as a demand. Findings suggested that core self-evaluation, planning and preparation, and health are factors that could help in certain circumstances, and there were many studies examining how personality affects or moderates work–family conflicts (Allen et al., 2012), personal outcomes (Park et al., 2012) and work-related outcomes (Judge et al., 2002). However, little research has been conducted specifically into the experiences of the working informal caregivers of older people. Past studies also suggested that some emotion regulation strategies at work may benefit the work performance and wellbeing of employees (Alam et al., 2019), but we did not identify any studies investigating these possible individual-level demands and resources among informal caregivers. The limited number of studies into how personality, cognitive processes, and behaviours affect working informal caregivers of older people may imply an assumption that there are no differences in how these individual factors affect work–family conflict, health and wellbeing, and work-related outcomes among workers with and without eldercare responsibility. It has yet to be tested whether findings from studies into working informal caregivers in general (e.g., parenting) can be directly applied to working informal caregivers of older people.

Informal caregivers in good health seemed to cope better with juggling work and eldercare. However, we cannot rule out any directional pathway between health, work, and caregiving. Good health may protect employees who juggle dual responsibilities, but such responsibilities may also hamper the health of individuals. Similar to wellbeing variables, Reid et al. (2010) examined self-esteem as a wellbeing outcome of work performance in informal caregivers, but self-esteem could also be viewed as a predictor of how well individuals manage work and family (Allen et al., 2012). There could be a feedback loop between health and wellbeing variables and other variables, and future research could explore how the care trajectory may affect the relationship among these variables.

Socio-economic background could also affect how effective informal caregivers juggle work and eldercare. For instance, informal caregivers from high better socio-economic backgrounds may be able to hire paid care or not worry about the expenses associated with eldercare. These findings were consistent with those of previous reviews (Burch et al., 2019; Clancy et al., 2020). The findings were mixed as to on whether a higher educational background helps. A higher level of education may be associated with better care knowledge and managerial skills to manage multiple demands, but people with better job prospects or in more demanding jobs may find it harder to balance their work and care responsibilities. Further research should take education level as a factor that may contribute to individuals' different circumstances, such as occupation or managerial skills, which in turn may positively or negatively contribute towards their ability to juggle work and eldercare. Moreover, managers and employers should take into consideration these different circumstances that individuals may face when they are supporting employees who are informal caregivers.

Group-level demands and resources

At the group level, the usefulness of group support at work for informal caregivers was uncertain, especially when additional factors were taken into account (Zacher et al., 2012). Support from colleagues might be embedded within the organisational climate, as a family-friendly organisation could enable employees to embrace the importance of work–

family balance and thus be more supportive and compassionate towards the family needs of informal caregivers. More studies will need to be conducted to examine how and whether group-level resources benefit informal caregivers, especially in the time and behavioural aspects of the work–family interface. Compared to other levels of the IGLO model, group-level demands and resources have received less research attention. We call for more research on how peer-to-peer interactions (such as making colleagues feel guilty for taking leave for family reasons) affect the health, wellbeing, and work-related outcomes of informal caregivers. Work groups influence employees' wellbeing and performance (Nielsen et al., 2017), therefore, it is important to understand how interpersonal interactions and team characteristics may have a positive or negative impact on informal caregivers.

Leader-level demands and resources

We found no studies of leader-level demands. Intuitively, leaders who are abusive and not supportive of informal caregivers will negatively affect the wellbeing of informal caregivers. Based on the findings in the above section, the role which leaders can play is to reduce stress and psychological distress and increase work engagement among informal caregivers. Thus, the ways in which leaders can help informal caregivers to juggle their responsibilities in different work or care contexts (e.g. work environments, care trajectories, and care intensity) can be explored, as well as the mechanisms of how supervisors can support work.

Supervisors can make supportive work adjustments when organisational-level policies are absent, but they can also put pressure on informal caregivers not to make use of existing family-friendly organisational policies. Supervisors are also employees that are affected by organisational culture, with their behaviour found to be associated with organisational culture and support (Rofcanin et al., 2019). Research looking into the interactions between organisational policies and leadership is needed. Supervisor support and behaviours can be examined as a moderator of organisational support to look at the possible cross-level impacts, and how these maybe influenced by organisational factors such as organisational culture and support.

Organisation-level demands and resources

Organisation-level demands and resources have been studied in terms of work climate, as well as policies and benefits. Family-friendly policies and benefits (e.g. flexible work options and organisation eldercare programme) were found to be helpful to informal caregivers and could eventually benefit organisations. Past reviews mentioned that such forms of support were beneficial to informal caregivers (Burch et al., 2019; Clancy et al., 2020), while our review extended on these summaries by discussing organisations' effort in promoting and referring informal caregivers to existing community services, which could still benefit both parties if the organisation is not able to offer an eldercare programme or flexible work options. The availability of such support and the utilisation of it are both important in examining the relationships among relevant variables. Organisations should put more effort into creating a climate or culture that caters to the needs of informal caregivers and attenuate the negative impacts related to eldercare provision. Findings suggested that such climate or culture may not be limited to being family supportive, while further findings also suggested that mutually beneficial outcomes can be achieved for both employees and organisations through the increase in organisational flexibility and understanding of informal caregivers' indivduals needs.

A future research agenda

The IGLO model (Nielsen et al., 2017) provided us with a practical and actionable framework to organise the many factors that may impact the health and wellbeing and work-related outcomes of working informal caregivers. The model enabled us to provide specific actionable insights, as well as identy research gaps. At the individual level, we need more studies examining the impact of the personality and cognitive–behavioural aspects of informal caregivers on their health and wellbeing and work-related outcomes. Demands have received less attention than resources, especially at the group- and leader-levels. Group, leader, and organisation-level demands and resources impacts the work experience of informal caregivers which in turn may affect their wellbeing (Crespo et al., 2019). Future research should address the gaps in these areas to look at how peer-to-peer pressure and manager-to-employee pressures can influence the health and wellbeing and work-related outcomes of informal caregivers.

The studies included in our review rarely focused on more than two levels of demands and resources, despite some studies including multiple levels of resources (e.g. Brown & Pitt-Catsouphes, 2013, 2016; Tement & Korunka, 2015; Zacher & Schulz, 2014). Future studies should examine the multi-level interactions to examine the importance, frequency, and effects of each level of demand or resource, as well as the potential feedback loops between outcome variables (e.g., health and wellbeing, work-related outcomes) and demands and resources (e.g., health, co-worker support). For example, the impact of group-level resources may be embedded in organisational factors, since supportive organisations might create supportive teams where managers encourage the use of flexible work options. The way organisational factors interact with group and leader level factors should be studied further to identify important elements to improve on the status quo.

In terms of research methods, the majority of studies we identified draw on cross-sectional data, which limits the ability to examine causality among factors. There is a need for more longitudinal studies to better understand the topic and the relationship between different levels of factors in the IGLO model, for example, the way organisational factors affect group and leader-level factors.

Strengths and limitations of this study

The main strengths of our systematic literature review are (1) the clear overview of the factors that may support working informal caregivers of older people based on the IGLO model and our review, which showcases the complexity and the numerous factors that influence the impact of eldercare on informal caregivers. We provided an in-depth analysis of the different levels of demands and resources regarding their implications, interactions with other factors and limitations especially in the work context and (2) the identification of understudied areas based on the IGLO model. The IGLO model provides a framework to guide changes in HR approaches and may bring benefits beyond the practical implications found in existing reviews. For example, if an organisation applies the IGLO model to examine the resources and demands within specific cases of informal eldercare, it can integrate these findings with other HR approaches that apply IGLO. Thus, organisations may find it less effortful to structure or prioritise interventions that are able to support a broad audience rather than having separate interventions for all the different issues which may impact employees (Nielsen & Christensen, 2021).

Despite these strengths, some limitations must also be considered. We included only English literature. The majority of the studies analysed data collected from Western countries such as the US and countries in Europe, thus the findings may represent phenomena heavily influenced by Western culture and societal settings. We also excluded qualitative studies to better integrate the findings from quantitative studies. A subsequent review should include qualitative studies to identify and amplify the subjective experience and thoughts of individuals. Grey literature, such as dissertations, unpublished articles, public or private sector research were also not included in this review due to concerns in relation to methodological rigour and conflicts of interest. Due to the heterogeneity of the studies included in this literature review, we were unable to conduct a meta-analysis. We are, therefore, not able to make conclusions as to the exact importance, frequency, and effects of each demand and resource that we mentioned above. Without adequate studies available for meta-analysis, or a single study that examines multi-levels of resources and demands at the same time, this leaves us with an incomplete jigsaw puzzle. In the future, when there are sufficient studies, a meta-analysis could be conducted to verify the results of this review and clarify any current inconsistencies.

Conclusions

The contributions of this paper are threefold. First, by synthesising research from different disciplines regarding the impact of eldercare on their working informal caregivers, we identified factors that could modify the relationship between the impacts of eldercare to health and wellbeing outcomes and work-related outcomes. This is the first paper to review the knowledge around working informal caregivers systematically by employing the JD-R model and a four-level IGLO model to identify the gaps in research in the area of OHP. Second, this study provides specific insights which may enable employers, managers, and occupational health psychologists to support working informal caregivers in the workplace. Interventions to support informal caregivers can be developed at different levels, and some support is achievable even for organisations with limited resources. Third, we found that the current literature tends to be focused on certain levels and/or outcomes. The field also needs more diverse methods and broader scopes when further exploring this topic. The comprehensiveness of variable considerations and diversity in research methods are key areas to improve in this field of study.

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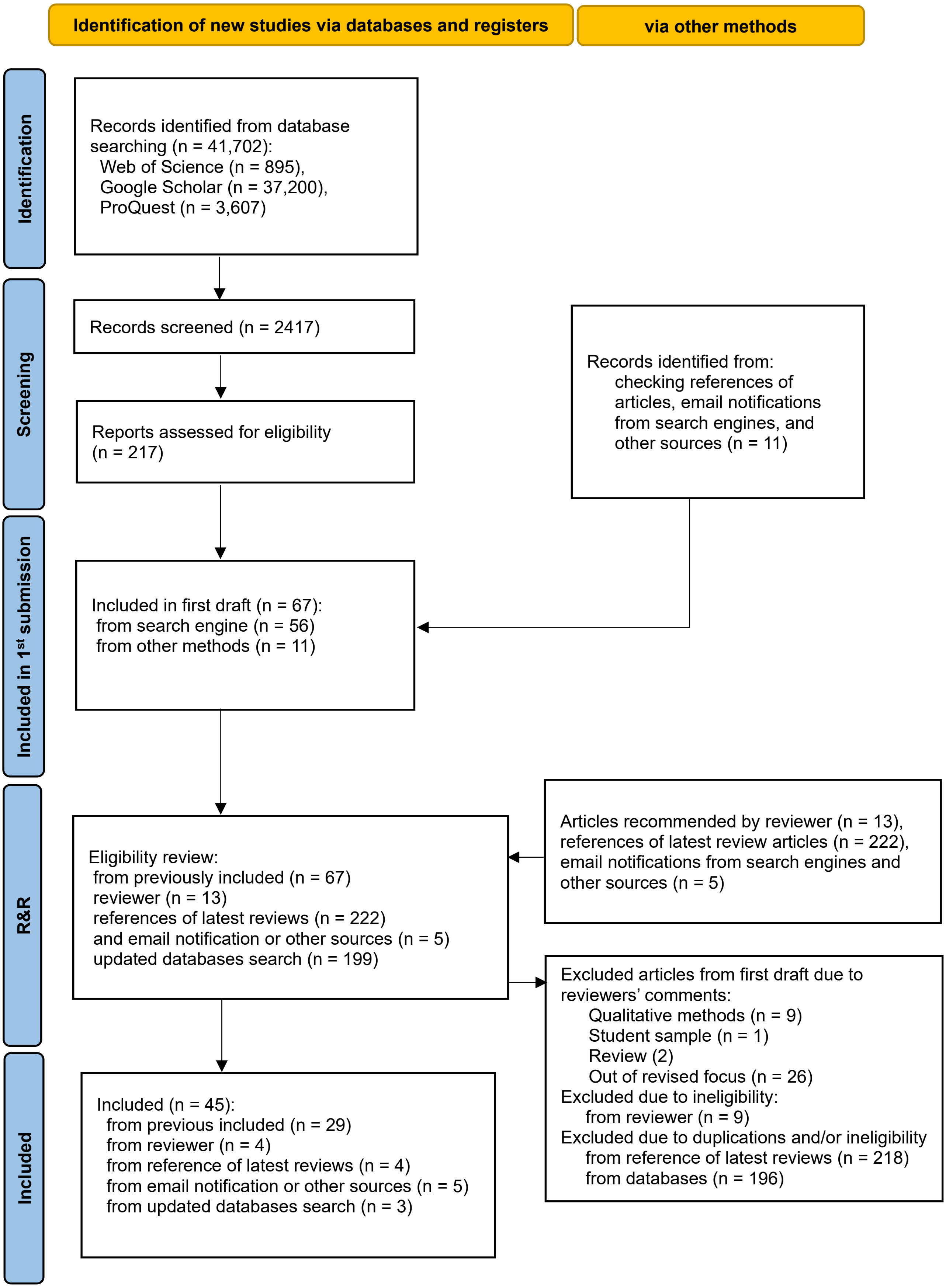
Supplementary Information

I: Flow chart for literature screening process



Notes:

Search terms and databases used during first submission: records identified through databased searching (N = 41,702): Web of Science, Google Scholar and ProQuest
Combination of search terms include (employees, eldercare), (informal eldercare, employee), (caregiving, elder, employee), (eldercare, work), (dementia, informal caregiver, work), (dementia, caregiving, work), and (caregiving, employment).

Screening for first submission: all search results were screened except for the ProQuest search of (caregiving, elder, employee) and the Google Scholar search for (caregiving, employment). Only the first 200 results and first 150 results were screened respectively due to large amounts of search results (2,435 and 37,200 respectively) and a considerable drop in search result relevance was also observed in later results.

Inclusion and exclusion criteria: papers had to meet the following criteria to be included in the review: (1) the study reported results of empirical data analysis; (2) the study reported on the impact of providing informal eldercare on the working population. We excluded papers that (1) did not separate eldercare from disabled care or other forms of informal care; and (2) articles examining professional caregivers of older people, such as nurses or staff working in residential home, because the focus of this chapter is on informal caregivers rather than on paid caregivers.

Revise and resubmit: As a result of the reviewer comments, we narrowed our focus in terms of IGLO demands and resources, significantly reduced our coverage on the impact of eldercare on working informal caregivers, especially on their work participation, and conducted a qualitative review of quantitative studies instead of a general review of all empirical studies. Hence, the number of included studies decreased despite the fact that we included recommended papers from reviewers and from the updated search.

II: Process to enhance the robustness of single person screening

Despite studies suggested that double-reviewer screening is more robust than single-reviewer screening (Gartlehner et al, 2020) and single-reviewer screening of the titles and subtracts of studies may be more appropriate for rapid reviews (Waffenschmidt et al., 2019), the screening of this chapter has involved in processes that increase its robustness in appropriate to this chapter.

During the search process, the second and third author reviewed the list of articles included and excluded to check if there was any inconsistency in the application of inclusion and exclusion criteria of the first author. Throughout the process, the second author who is experienced in publishing review and meta-analytic papers was overseeing the process. Further, upon the first review and resubmit process, the first author conducted an updated literature search using different search terms and database, referencing search terms in at that time a recently published review in the same area (Burch et al., 2019) and the wellbeing criteria in Nielsen et al (2018) and Danna & Griffin (1999). The first author also diligently searched through the reference list of Burch et al (2019), Clancy et al (2020) and Calvano (2013) to identify any missing articles.

The results suggested that this chapter managed to identify 19 articles (See Table 1) that were not included in at the time recently published review papers (Burch et al, 2019, Clancy et al, 2020). This illustrates that there were more recently published articles to be included as well as the process was rigorous enough to effectively identify and include the appropriate articles for review, due to personal effort and diligence of the first author, the continuous review of and discussion with co-authors throughout the process, and suggestions from reviewers.

I recognise despite the search was effective in identifying articles for the chapter, this may have not been the most efficient way of doing it, given the development of software and automation tools supporting such process (Clark et al., 2020; Waffenschmidt et al., 2023).

Table 1 – List of articles included in this chapter but not in reviews published at similar time

Andersson, M. A., Walker, M. H., & Kaskie, B. P. (2019). Strapped for Time or Stressed Out? Predictors of Work Interruption and Unmet Need for Workplace Support Among Informal Elder Caregivers. Journal of Aging and Health, 31(4), 631–651. https://doi.org/10.1177/0898264317744920

Barnett, R. C., Gareis, K. C., Gordon, J. R., & Brennan, R. T. (2009). Usable flexibility, employees' concerns about elders, gender, and job withdrawal. The Psychologist-Manager Journal, 12(1), 50–71. https://doi.org/10.1080/10887150802665356
Cheng, Z., Jepsen, D. M., & Wang, B. (2020). A Dynamic Analysis of Informal Elder Caregiving and Employee Wellbeing. Journal of Business and Psychology, 35, 85–98. https://doi.org/https://doi.org/10.1007/s10869-018-9603-4
Crespo, M., Guillén, A. I., & Piccini, A. T. (2019). Work Experience and Emotional State in Caregivers of Elderly Relatives. Spanish Journal of Psychology, 22(e34), 1–11. https://doi.org/10.1017/sjp.2019.34
Dembe, A. E., Partridge, J. S., Dugan, E., & Piktialis, D. S. (2011). Employees' satisfaction with employer-sponsored elder-care programs. International Journal of Workplace Health Management, 4(3), 216–227. https://doi.org/10.1108/17538351111172581
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Chapter 3

The experience of working informal carers of older people: a qualitative diary study

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https://doi.org/10.1332/239788221X16745596718955

Lam, W. W. Y., Nielsen, K., & Kelly, C. M. (2023). The experience of working informal carers of older people: a qualitative diary study. *International Journal of Care and Caring* (published online ahead of print 2023).

Abstract

This article expands understanding of the experiences of working carers by analysing their care activities and applying cognitive appraisal theory to explore how different resources affect carers' appraisal processes. A total of 18 carers from the UK and Hong Kong took part in a qualitative daily diary study. The contributions of the article include providing a broader conceptualisation of care activities and considering the implications of cognitive appraisals and resources in the experience of combining work and care. The findings provide insights into future research design and support development.

Introduction

An ageing population has increased the demand for eldercare (Carers UK, 2019). With inadequacies in formal support (Yeandle and Buckner, 2017), eldercare responsibilities have increasingly fallen on the shoulders of ‘informal carers’ (hereafter, ‘carers’), namely, the family and friends of care-receivers. Due to an increase in dual-income households and later retirement ages, informal care is increasingly provided by individuals who are also in paid employment (Colombo et al, 2011; Carers UK, 2019). It is thus important to understand both what care activities they perform and their subjective experience of caring. As Pearlin et al’s (1990) caregiver stress model suggests, eldercare demands cause strains in family, employment, financial and social life, creating psychological strain and a likelihood of deterioration in health and well-being.

Informal eldercare

Past debates refer to care as the ability to care about the right things in the right way, with the sensitivity and skills to nurture and protect (Allmark, 1995), while caring activity involves being continuously attentive, responsible, competent and responsive to others (Tronto, 1998). Whitmore et al (2015) found that caring had three features: responsibility (personal and family ties that implied care should be provided); vulnerability (facing stress-inducing incidents and environments, including financial challenges); and mutuality (carers and care-receivers sharing feelings about changes in a care-receiver’s health condition and experiences). Eldercare provision can be complex and unpredictable, depending on the health condition of the care-receiver (Burch et al, 2019). A carer engaged in eldercare usually has a close relationship with the care-receiver, who is often a family member or friend (Lam et al, 2022). The way in which working carers engage in eldercare requires independent study, as they provide care arising from personal ties, not to earn income, while their paid employment often prevents them from providing round-the-clock care (Williams et al, 2016).

Studies conducted before 2010 often measured eldercare using a dichotomous measure of the number of hours spent on care (Bramble et al, 2020). Recent studies have explored the operationalisation of eldercare as diversified and tend to involve multiple questions about eldercare, such as the health condition(s) of the care-receiver, their proximity, the number and range of care tasks, and the relationship with the care-receiver (Trukeschitz et al, 2013; Rofcanin et al, 2019; Bramble et al, 2020). Some studies also include subjective measures of eldercare ‘burden’ or stress (Trukeschitz et al, 2013).

Care activities commonly considered in previous research include: assisting with activities of daily living (ADLs) (for example, feeding, showering and changing); assisting with instrumental activities of daily living (IADLs) (for example, grocery shopping, housekeeping and cooking); and providing emotional support and organising care (Katz et al, 1963; Lawton and Brody, 1969; James, 1992; Hoff et al, 2014). However, working carers who have close ties to care-receivers may go 'above and beyond' ADLs and IADLs, and recent studies have considered a wider range of activities. Bramble and colleagues (2020) measured eldercare activities in terms of personal care, mobility help, errands/chores and finance/medical management in latent eldercare profiles. Research has also identified care activities using a 'course of care' trajectory (Schulz et al, 2020) and as fulfilling the social, financial, medical and emotional needs of care-receivers (Rofcanin et al, 2019). As these examples indicate, care activities can be interactive, supportive and supervisory (Folbre and Wright, 2012), and care provision can be physically and emotionally taxing (Williams et al, 2016). Thus, care is not only about hands-on physical tasks; rather, it may also require cognitive judgement and emotional content (James, 1992; Allmark, 1995; Fine, 2015).

There seems to be no consensus on what counts as care regarding the activities carers engage in to support older people, and (to the best of our knowledge) there are no systematic categorisations of the emotional support and managerial aspects of care. Some activities may not have been considered as care, such as visiting the theatre or going on holiday with the care-receiver to enhance their well-being and enrich their life. Furthermore, patterns of caring and carers' decision making are affected by welfare systems and cultural phenomena (Fine, 2015). For example, some cultures place a strong emphasis on family and taking care of older family members (Laidlaw et al, 2010), while the level of support offered to older people differs between countries (Starr and Szebehely, 2017). Societal and cultural factors may thus add to the lack of consensus on how to define informal eldercare activities. These inconsistencies may also help to explain why many individuals providing care do not self-identify as carers. Further ambiguity comes from the potential for some people to self-identify as carers even though they do not carry out care activities as per narrow definitions of a carer used in the literature (AARP, 2001). This ambiguity hinders carers' ability to seek help and to deliver care (O'Connor, 2007), and may cause the misallocation of support and public resources.

It is therefore important to understand what day-to-day eldercare entails for this growing group of carers and to build a foundation for a more inclusive measurement of eldercare. To address this, we identified three research questions. The first such question is: 'What eldercare activities do carers report performing over a two-week period?'

The experience and meaning of eldercare provision are different for each carer, especially considering the variety of care activities carers perform. In the context of care, carers' well-being is somewhat dependent on care-receivers' health and well-being (Kittay, 2011). Despite the pressures of juggling care and employment (Calvano, 2013; Yeandle et al, 2017), carers of older people have reported both positive and negative emotions regarding their care experiences (Bourke et al, 2010). Caring for loved ones, for example, also means spending time with them and engaging in positive social interactions. This resonates with the mutuality in care mentioned by Whitmore and colleagues (2015). Eldercare provision may thus not always involve stress or strain for carers, and for many carers, it has positive aspects. In the present study, we explore the reasons behind positive and negative appraisals of care experience.

The extent to which carers experience caring activities as positive or negative is influenced by both context and by individuals' own appraisal of the situation. According to cognitive appraisal theory (Folkman et al, 1986), when individuals are confronted with an event, they may appraise it as a threat, as positive or as irrelevant. Similarly, when working carers confront eldercare activities (and have experienced these), whether they perceive these as negative, positive or neutral (their subjective experience) may vary, both between individuals and at different times for the same individual. We formulated our second research question to explore the cognitive processes of working carers: 'How do carers appraise their experiences in eldercare provision?'

Individuals reappraise potentially stressful situations by considering how well they can manage them, for example, by considering what resources are available to help them. Resources are anything perceived by individuals as helping them to attain their goals (Halbesleben et al, 2014). Thus, carers may consider both the situation(s) they face and the resources available to them when appraising if they can take on eldercare tasks. Resources identified in past reviews have included: public or community resources (for example, support services and financial compensation); family-friendly work policies; friends and family (Burch et al, 2019); and individual resources, such as their own good health and well-being (Lam et al, 2022). If carers perceive that they are unable to cope, stress is the likely outcome, leading to our third research question: 'What factors may have contributed to carers' appraisal of the situation?'

We wanted to investigate the daily life of working carers of older people by documenting the actions and processes of eldercare without relying on participants' retrospective memories. A daily diary study offers a unique opportunity to capture previously undocumented care activities, particularly those undertaken within the context of carers balancing caring with paid employment, and carers' thoughts on their caring experiences during the study period. We chose to include carers from the UK and Hong Kong because these countries have a similar (somewhat limited) level of public support for eldercare, which creates expectations that carers will undertake caring responsibilities (Starr and Szebehely, 2017). These contexts are similar enough to be studied together. Hong Kong was a British colony until 1997, and both regions have liberal residual welfare states that provide limited state support for care (Esping-Andersen, 1990; Sawada, 2004; Flynn and Schröder, 2021). The two countries differ in terms of their culture. Hong Kong is a mainly Chinese society with an emphasis on care for elders that originates in Confucianism (Yeh et al, 2013), and Chinese immigrants (76 per cent from Hong Kong) living in the UK have been found to emphasise filial piety more than their British counterparts (Laidlaw et al, 2010). Rather than comparing the experiences of the UK and Hong Kong carers, we hope to add depth to our understanding of carer experiences within the context of a liberal/residual welfare state by including data from both the UK and Hong Kong. This study aims to explore the experience of working carers through the lens of cognitive appraisal theory. We aim to provide insights into the experiences and appraisals of carers, and suggest a rethink of the current definition of informal care in various support systems and fields of research.

Methods

The present study used a qualitative diary study design. The sample consisted of 18 working carers of older people in Hong Kong (n = 11) and the UK (n = 7). The data collection mainly took place in 2019 (one participant, HK_L [see Table 1], participated in March 2020, when Hong Kong was still unscathed by COVID-19). Inclusion criteria for participation in the study were: (1) being a carer providing care for at least one older person aged 55 or older who is experiencing problems related to old age; and (2) being in paid employment, either part-time or full-time.

Table 1: Characteristics of the participants and the person(s) they cared for.

Code (No. of completed daily diary entries)	Carers' gender, age	Family & occupational information	Care-receivers' relationship to the carer, age	Health conditions of care-receivers & care context
UK (94)				
UK_A (14)	F, 57	N/A, with 2 adult children, full-time nurse	Mother, 82	Had falls and moved in with the carer for a period
UK_B (13)	F, 56	Married with 2 children in 20s, working in NGO	Father, 85 Mother, 76	Had 2 knee replacements, takes medication for blood pressure Takes medication for blood pressure
UK_C (14)	F, 52	Single*, with 3 children aged 17-22, one has disabilities. School lab technician.	Mother, 85	Mobility issues, diabetes & high blood pressure
UK_D (10)	M, 31	N/A, lecturer	Grandfather, 96	Has dementia
UK_E (15)	F, 55	Single*, charity shop manager	Father, 78	Has problems with dizziness, vision, hearing and shoulders
UK_F (14)	F, 69,	Married, with two adult children. Part-time school cleaner.	Mother, 94	Has diabetes
UK_G (14)	F, 51	Married with two children aged 17 & 20. Part-time podiatrist	Mother, 76,	Recent knee replacement surgery
Hong Kong (130)				
HK_A (28)	F, 29,	Single*, nurse	Mother, 65	N/A

HK_B (14)	F, 30	Single*, office worker	Mother, 64 father, 68,	N/A Has chronic intestinal illness
HK_C (13)	F,39	Single*, one son, administration	Mother, 70	N/A
HK_D (14)	F, 57	Married, with adult 2 children, paediatrician	Father, 80+	N/A
HK_E (14)	F, 41	N/A, merchandiser	Mother, N/A	Has chronic intestinal illness
HK_F (13)	M, 47	N/A, accountant	Father, N/A	Has mobility issues
HK_G (17)	F, 46	Single* with two adult children, tunnel toll collector and part-time waitress	Mother, 70	Has dementia
HK_H (14)	F, 54	Married, 2 adult children and 1 teenage child, civil servant	Mother, 92	Needs to do regular dialysis
HK_I (3)	M, 31	Single*, property management.	Girlfriend's grandma, 80+	N/A
HK_J (14)	F, 57	Married with two adult children, finance manager	Mother, 82	Daughter moved in temporarily while the full-time paid carer was on holiday
HK_K (13)	F, 30,	Single*, assistant retail project manager	Grandma, 90	Has dementia
HK_L (13)	F, 29	Single*, assistant retail store manager	Aunt, 56	Has dementia, temporarily moved in with participant's family.

*Divorced & widowed are included in single, N/A = Not Applicable/Not stated

Study participants were invited to write, or to provide audio recordings of, their daily diary describing their experiences of work and care for two consecutive weeks. They were provided with prompts for their diary entries, for example: ‘Please describe how long you have spent on caring today’; ‘What type of caring tasks did you do today?’; ‘How did you juggle the tasks of work and family care (especially eldercare) today?’; and ‘What do you think has helped, or could have helped, you to handle both work and care responsibilities?’ These prompts and a diary were provided; answers were not required for any prompt, as there may have been nothing to record that day or other things participants thought important to mention. We wanted participants to have complete freedom in deciding what to record.

Participants were recruited via social media posts, posters and personal and extended contacts. Multiple recruitment methods were used, as the study required a substantial time commitment and thus a broad range of potential participants needed to be reached during recruitment. A small financial reward was offered for participation (GBP10/HKD100). Participants returned their completed diaries directly to the researcher, either in hand-written format or as soft copies.

Demographic information on study participants and their care-receivers is shown in Table 1. English entries were transcribed and Chinese entries translated into English. Two participants provided diary entries that did not follow the standard daily diary format. HK_I provided a diary for weekends and a summary of workdays, as he felt workdays followed a routine amenable to such a summarised format. Participant UK_D provided summaries of specific periods within the four months prior to the data collection, as these periods were characterised by high levels of caring duties and could be recalled with detail, assisted by digital records like calendars and text messages. As the data provided in the two retrospective diaries were helpful in addressing the research aim, they were included in the analysis.

Data organisation and analysis were conducted using NVivo 12. We conducted thematic analysis following the six steps outlined in Braun and Clarke (2006). We familiarised ourselves with the data and generated initial codes from the data before searching for themes. Each care activity was coded according to its action, such as ‘preparing food’. These activities were then mapped against existing caring categories (ADLs and IADLs), and those remaining were grouped into new themes based on their similarities. We reviewed, defined and discussed the new themes before naming them, agreeing on ‘social and emotional support activities’ (SESAs) and ‘life administration activities’ (LAAs). We discussed the naming options of ‘life enrichment activities’ (LEAs) and ‘quality of life activities’ and decided on LEAs, which we believed was less open to multiple interpretations and better represented the activities we grouped under that theme.

Findings

Care activities

The first research question aimed to explore what eldercare activities carers reported performing. The diaries revealed that eldercare involved a wide range of tasks, including, but not limited to, assisting with ADLs and IADLs. Carers also performed LAAs, SESAs and LEAs. The following sections describe each type of activity (the numbers in brackets after each activity indicate how many participants reported performing the activity).

ADLs

Participants (especially those caring for someone with high dependence due to old age or health conditions, such as dementia) reported assisting their care-receivers with ADLs (for instance, assisting with toilet visits [1], helping with personal hygiene [5], assisting with movement [4] and dressing [1]). Most participants reported assisting care-receivers to perform ADLs, rather than performing these fully for them. HK_E reported that she “prepared tooth brushing and face washing things, then tidied up clothes and medicines”, but said that she did not have to brush her mother’s teeth. In examples where the carer carried out ADLs for the care-receiver, it was unusual for them to do so. For example, on one day, HK_F assisted his father to have a bath – “[I] prepared hot water, soap and [a] support-chair for him [dad]. After that, I needed to dry him using the towel” – but indicated that there was usually a paid foreign domestic helper to take care of his father.

IADLs

Help with IADLs (for example, shopping [13], food preparation [11], preparation of and assistance with taking medications [3], housework [9], transport [3], assisting in making phone calls or with other technology [3], and managing bills and finances [4]), was frequently provided by the participants. For example, UK_F checked her mother’s insulin levels and administered insulin injections. Carers saw helping with IADLs as necessary due to the older care-receivers’ health, which meant that they could not perform certain activities unaided.

Carers also reported providing support beyond the basic requirements needed to complete IADLs. When shopping, for example, carers described investing additional effort and thought into the older person’s preferences and needs. HK_I described food shopping for his girlfriend’s grandmother: “Every Saturday morning, I will purchase bread for Grandma … the bread is bought from a specific bread shop nearby, since the size of the bread is bigger, softer and looser. … And it is very good for elderly people to eat.”

LAAs

Carers also performed LAAs to maintain a smooth life operation for care-receivers. The main difference between LAAs and assisting with IADLs was that LAAs were typically performed 'in the background' (similar to the 'back office' function within a business), whereas assisting with IADLs was more like working on the shop floor. LAAs involve cognitive skills, such as coordination, negotiation, communication, identifying needs, monitoring and researching. Examples include private or public care management (2), coordination and communication with other family members about care arrangements (3), research for information (1), applications for welfare payments (1), arranging medical appointments (2), negotiations with care-receivers (2) and the supervision or surveillance of care-receivers (5).

UK_E provided an example of coordination and communication with family members during the care of his grandfather and the National Health Service (NHS): "Phone calls, emails with family – Grandad moved hospital, had to keep getting update checking progress"; and "Phone conversation with other family members, trying to chase up [the] setting up [of] NHS in-house visits." HK_J was involved in the management of a paid care worker, which involved deciding what the worker should do and how certain tasks should be carried out: "I bought some tools for the helper to work more efficiently. I also told her about how to clean the foot of the chair, how to clean CDs and the CD player." HK_H provided an example of a negotiation with the care-receiver:

'I rang my mum to check how she felt, she said she is a lot better and does not need to see a doctor. But I [tried to] convince her to check up. She refused. She said she has an appointment with the kidney department Dr T, so she does not have to go today. I said I will pay for her dim-sum but she still refused. So, up to her then.'

Other examples of LAAs included: supervision, surveillance and monitoring of care-receivers (4) (including reminding care-receivers of things to be done, such as attending a medical appointment, and activities to be avoided [not going out alone]); monitoring care-receivers' health and behaviour (2) (for example, diet management); and identifying safety needs (2) (such as setting up the railing on a medical bed and checking if a safety alarm should be installed). Since HK_E needed to attend her work despite her mother's dementia, she set up CCTV at home to be able to monitor her mother's activities remotely. Future-focused monitoring (2), where a carer proactively anticipates and scans the environment for potential problems for the care-receiver, frequently occurs in the background. This was reflected in participants' thoughts, rather than described as actions in their diaries, such as when HK_J wrote about what constitutes good care: "Pay attention to the health of the elderly. … Sometimes when people get old, they can't be bothered to move, don't think that it is a huge problem, or even are not aware that they can get vaccinations. Carers need to be proactive in bringing them to doctors."

SESAs

Carers also reported providing social and emotional support to care-receivers. Carers often have a close personal relationship with the care-receiver, making SESAs important, as they help maintain the quality of interpersonal interactions and the mental well-being of care-receivers. These activities, which included providing company, having a chat and checking how the care-receiver was doing remotely by text message or phone calls, were performed by almost every participant; the emotional side of these activities included providing comfort and reassurance (3). HK_L reported that her aunt with dementia sobbed in the morning, so emotional labour (James, 1992) was involved as she managed her own emotions while comforting her aunt: “I smiled because I knew she did not intend to annoy anyone. She just can’t control it. So, all I had to do is to ask her to remember that soon she can meet her family, she has to be patient.” There were times when the SESAs comprised a two-way engagement that benefited both parties, whereby the carer also enjoyed socialising with the care-receiver: “After work, I rushed back to have afternoon tea with mum, my friend joined us as well. Today I am happy and contented. Mum knows my friend too, so we can eat and share what happened together” (HK_A).

LEAs

Carers organised activities to improve care-receivers’ enjoyment of life and to provide what they believed was important for them, including holidays (3), family gatherings (9), leisure activities (2) and wellness or beauty activities (2) (for example, hair styling or massage). These were grouped within the theme of LEAs. We distinguished LEAs from SESAs and LAAs because these were activities organised mostly to create good times and memories for the care-receivers, and were not directly related to, or essential for, maintaining their everyday physical and mental well-being. As HK_E mentioned: “I arranged a holiday 3–4 times each year … hoping that she [mum] can go to more places while she can still walk.” UK_A quite often planned activities with her mother. Together, they watched a dance rehearsal, went to a film club and attended a film festival, in addition to some smaller outdoor times when she went with her mother during two weeks, saying that she “felt it’s important to take my mum out for a little while most days”.

Carers took many issues into consideration when planning and conducting these activities, for example, assessing the adequacy or wheelchair-friendly facilities of the venue or destination (UK_A) and being aware of the needs of the care-receivers, such as visiting toilets or taking medication (HK_E). Although the carer and care-receiver enjoyed the activities together, the carer had to make additional effort to ensure the needs of the care-receiver were met when organising or engaging in these activities.

How carers appraise their care and situations

The second research question aimed to investigate how carers appraised their experiences. The findings revealed differences in how study participants appraised providing eldercare and related events.

One participant perceived it positively, referring to it as a type of "mutual support" (UK_E) with her father; this involved social and emotional support for her at work, as well as instrumental support, when her father helped her out at work to cover her toilet break. The mutuality between carer and care-receiver was also echoed by HK_E, who said: "Mum was happy, so I was happy too."

Some participants expressed more neutral feelings about providing eldercare, for example, referring to it as "the responsibility of children!" that should not be viewed as a burden (HK_E), or as a stage in life: "We needed to study hard when we were little, we worked hard when we were young, then had children and cared for children. When children are grown up, we then need to care for the elderly. When the elderlies die, I am old already" (HK_J). There were no set patterns in the participants' daily interactions with care-receivers regarding how they appraised their experiences. It is unsurprising that participants wrote that they spent enjoyable and relaxing moments with care-receivers, while other interactions were appraised quite differently by different carers. UK_C, speaking about checking the boiler for her mother, reported feeling "emotionally burdened", as she had "so many other things to deal with alone, job, bills, disabled son, etc., and I often feel stressed when I have to deal with things like this situation, as it often feels like 'learned incompetence' on her part". Other participants did not appraise similar activities negatively, however.

Participants also perceived differently potentially stressful moments, such as conflicts related to care provision. HK_H interpreted her mother shouting at her on the phone as an indicator that her mother was healthy, and she felt relaxed and happy about it. However, HK_J mentioned growing angry when her grandmother made multiple requests when she really wanted to watch the news. How carers appraise and react to their situations or experiences seems to be affected by personal factors (for example, optimism) and contextual factors (for example, the carer's priority at that moment). This leads us to the next research question regarding what may explain different reactions in similar situations.

Factors affecting appraisals

The third research question asked what factors may contribute to carers' appraisal of their situation. The following example illustrates how carers' care-related knowledge influenced how they appraised their situation and thus changed their response. When interacting with her aunt with dementia, HK_L reported frustrations but often managed to control her emotions, remaining patient towards her aunt, in addition to addressing and easing any tensions between her aunt and other family members because she knew that this was how someone with memory issues would behave. Her family members, on the other hand, seemed to have inadequate understanding and argued with her aunt over matters, as if she could follow conversations. Her ability to remain compassionate and patient was not sustainable every day, however. In one diary entry, she reported being bad-tempered and less compassionate towards her aunt, and attributed this to a lack of sleep. She described the situation as "insane" (negative appraisal) because she had to repeatedly do and say the same thing to her aunt, while the day before, when she had had plenty of sleep, in a similar situation, she had managed to make light of it. Here, the well-being of the carer affected both her appraisal of, and her response to, the situation.

The circumstances of carers and care-receivers affected how the former appraised their care experiences. For example, UK_C cared for both her son with disabilities and her mother, with limited financial resources, even though her mother was "financially comfortable": "Mum refuses to buy in ready meals … as they are 'too expensive' – she gets her meals free from me instead, which also places financial pressure on me." This also suggests that the carer felt burdened (negative appraisal) when facing requests from her mother because of her own limited resources to provide care, in terms of both finances and personal capacity.

Participants tended to appraise their care experiences as less negative (for example, less as a burden or less worrisome) when other support was available. In some cases, neighbours performed certain IADLs, such as ironing or shopping, and SESAs (UK_G and HK_C), as they lived near the care-receiver. In other cases, friends of care-receivers living at a distance were able to perform SESAs by telephone to keep the care-receiver socially connected (UK_A). UK_A also found that her son's dog helped by providing company for her mother while she was at work, enabling her to worry less about her. The presence of others was not always experienced as a support, and working with others to provide care was not always experienced as pleasant. HK_H, for example, reported a minor conflict over a Mother's Day celebration when her brother arrived much earlier than expected and made her rush to the place of the celebration with her mother.

Paid help relieved some carers from performing hands-on tasks and allowed them to focus on the SESAs, LAAs and LEAs, affecting how they appraised the remaining hands-on tasks they performed. HK_F, whose father had paid help, took his father out for exercise (LEA), had a chat (SESA), anticipated or promptly responded to other health and safety needs (LAAs), and was able to enjoy (positive appraisal) helping his father with personal hygiene (ADL). HK_H also mentioned that her brother had hired a full-time paid carer for their mother, and she seemed to do food shopping and cooking (IADLs) for her mother's happiness, rather than out of necessity (saying that although she did not enjoy visiting the wet market, the resulting happiness of her mother justified the inconvenience).

Participants in the UK mentioned a lack of reliable paid care providers and the limitations of care services (UK_A and UK_G); participants in Hong Kong were more likely to have full-time paid help at home, as the policy there allowed people to obtain low-cost foreign paid help. HK_K, for example, said that she did not need to assist with ADLs and IADLs during workdays because her relative had assistance from paid carers.

Discussion

This study aimed to enhance understanding of the caring experiences of working carers of older people. First, we explored the care activities they performed. Our findings demonstrate the variety of activities working carers undertake to support care-receivers and to ensure their lives function well, with well-being maintained and enhanced life experiences. The study has highlighted and illuminated care activities beyond assisting with ADLs and IADLs, and provides further understanding of the wide range of activities working carers perform, including SESAs, LAAs and LEAs, which were categorised (and echoed with) those identified in previous studies (James, 1992; Hoff et al, 2014; Bramble et al, 2020). Folbre and Wright (2012) found that care activities could be interactive, supportive or supervisory; our findings support that and provide further categorisations for such activities.

Carers performed activities that required particular mental and cognitive effort due to their personal ties with the care-receivers. Our analysis reveals that carers paid careful attention to the preferences and needs of those they supported, and shows that identifying and meeting these needs required cognitive effort. SESAs, LAAs and LEAs (in particular) represent the mental and cognitive side of care, which includes comforting, researching, using management skills, identifying needs and planning for the future. Importantly, carers also engaged in emotional labour by controlling their own emotions and providing emotional support (James, 1992). Some of these activities are easily observed (for example, negotiating with different parties); others occurred in the background (for example, future-focused monitoring and anticipating needs). Such attentive, sometimes round-the-clock, monitoring shows the role played by personal relationships in caring. These findings highlight the need for recognition of the mental work involved in family care (Robertson et al, 2019) and contribute to better understanding of the emotional complexity of eldercare. This ongoing observable and background mental and cognitive load on carers in performing care activities needs to be acknowledged by practitioners, policymakers and researchers.

Often, past studies have not taken into account the established relationships (often as family members) that carers have with care-receivers. These ties are likely to affect the personalisation of the care that carers invest in; how they perform their caring activities also reflects the level of concern they feel for the well-being of the care-receiver (Folbre and Wright, 2012) and the expectations of care-receivers and other family members. Carers are also likely to have long-term and in-depth knowledge of care-receivers' preferences, which paid carer workers may lack the opportunity to acquire. These close personal ties may create a sense of obligation or reasons to provide good care, and lead to additional investment in activities designed to meet the socio-emotional needs of care-receivers (SESAs) and provide richness and enjoyment in their lives (LEAs). In most situations, family members are the only carers able to perform LAAs, such as legally representing the care-receiver and maintaining communication among their network of carers, potentially stressful tasks linked to the vulnerabilities inherent in care (Whitmore et al, 2015).

Given the variety and depth of care that carers provide, knowing how they appraise their care experiences is important, as what one appraises as negative may be viewed differently by others. Our data suggest that study participants appraised their care experiences differently. These findings are in line with previous research which suggested that carers have positive and negative care experiences (Bourke et al, 2010; Hoff et al, 2014), and with Zarit et al's (1980) work, which found that the extent to which carers feel burdened depends on their feelings about aspects of care, such as their health, psychological well-being, finances, social life and relationship with the care-receiver. In this study, we chose not only to explore care as a burden, but also to consider carers' positive experiences in providing care, hoping to offer a holistic picture of the support carers provide. Future studies should also consider both the positive and negative aspects of eldercare experience as antecedents to various outcomes.

Cognitive appraisal theory suggests that carers' appraisals of their experience vary and may be influenced by individual and contextual factors. Our findings suggest that caring circumstances (for example, being a 'sandwich carer'), financial situations, the availability of other help, caregiving knowledge and the carer's situation and well-being can influence how they appraise their caring experiences. We have contributed to the literature by bringing a focus on carers' appraisals of their experiences into the research realm, extending our analysis beyond a focus on caring burden/stress. While we do not propose a new model in this article, we hope to contribute to further development of theories and models, such as the caregivers' stress process model proposed by Pearlin et al (1990), by adding a focus on how carers appraise their experiences and considering what may influence this and how it affects carers' well-being. We also suggest that resources may buffer the relationship between care and well-being by affecting appraisals in ways that previous models may not have considered.

Our data offer perspectives from the UK and Hong Kong. Participants in Hong Kong were more likely to hire paid help than those in the UK due to the availability of low-cost migrant labour in Hong Kong. This illustrates how, under such a labour policy, carers with financial resources may cope with caring responsibilities. When 'hands-on' activities were mainly outsourced and carried out as an option or performed less frequently by carers, they may be viewed less as a burden and more as an enjoyable activity. This also allowed them to focus more on LAAs, SESAs and LEAs, which are not easily performed by paid care workers. This finding highlights the variety of the profile of activities that carers engage in, depending on their financial status, government policy or service availability, and further highlights the importance of a comprehensive view of care activities.

Practical implications

We demonstrate that the range of activities required for eldercare is broader than previously acknowledged and provide a categorisation of these activities according to their function. The categorisation may help to produce policy and direct support towards carers by more accurately identifying who is providing care and by helping carers to identify as carers, enabling them to reach out for support before their responsibilities negatively affect their paid work, care quality or personal well-being. Future policy and interventions should consider supporting carers with different aspects (for example, availability of help, financial support, caregiving knowledge and training, and supporting their well-being) to make care more likely to be appraised positively and thus to improve carers' well-being, as well as potentially the experience of care-receivers.

Strengths and limitations

Our study unveils aspects of the everyday lives of working carers of older people and their thoughts about caring by obtaining detailed qualitative data from the participants. To the best of our knowledge, this is the first study to adopt a qualitative diary method to gather insights into the daily care activities carers engage in. The diary study design provided in-depth and invaluable insights into carers' care activities in their daily lives. Our findings contribute to understanding of what it is to provide care by highlighting activities performed in the context of informal care. While the care outlined by our participants displays some overlaps with previous classifications of care, using the diary method, we were able to tease out important additions and nuances in the delivery of care provided by working carers.

For each type of care activity, we provide a definition and examples, moving the comprehensiveness of the definition of eldercare activities forward beyond current operative definitions and measurement. To date, research studies have focused on identifying carers by asking if they provide personal and household care to older people (Griggs et al, 2020), despite the recent movement to measure eldercare in a more multidimensional way (Burch et al, 2019). We collected data from two countries, capturing care activities not limited to one cultural context. This provides a better foundation for developing criteria to identify carers and for measuring eldercare demand in future studies. We also apply cognitive appraisal theory, which is grounded in psychology, to explain our data, provide explanations relevant to current knowledge and make suggestions for future research.

This study is not without limitations. First, the small sample means that our findings should not be interpreted as an attempt to develop an exhaustive list of activities performed by working carers of older people. However, it enables the development of a broader understanding of the types of activities carers engage in, which have been under-researched in the literature, and deepens understanding of the experience of working carers. We acknowledge that our participants reported few examples of physically demanding care (such as lifting someone unable to move). Moreover, there could be a self-selection bias in the study, in that the working carers providing the most intensive care may have lacked time to participate. Carers caring for older people with very low independence, and who had no one else sharing their responsibilities, may have left the labour market to meet their care demands, and were thus not part of the target sample for this study, even though they had to manage both paid work and eldercare at some point in their lives. Other aspects of care, such as conflict resolution, making judgements and the power relations between carers and care-receivers (for example, how to prioritise and resolve multiple conflicting needs of the care-receiver, and changes in the caring role at different stages of life that change power relations) (Tronto, 1998), may also induce stress and consume emotional and cognitive resources. These were beyond the scope of this article, but we encourage future research in these areas.

Future directions

To offer the most appropriate support to working carers, society first has to be more inclusive in its definition of care by acknowledging the multidimensional work that carers perform. Further work is required to reconsider current ways of identifying carers and to be more inclusive and comprehensive in identifying and measuring eldercare. Future research should also consider how appraisals of caring experience vary among individuals, depending on various personal and contextual factors. Thus, subjective measurements of eldercare provision, alongside objective ones, may be needed to capture eldercare demands effectively.

Conclusions

This study provides detailed information on the multidimensional nature of observable and non-observable care activities that working carers of older people undertake daily. Their experience of caring was also analysed using the cognitive appraisal framework. The study's contributions are threefold. First, we provide categorisations, definitions and examples of care activities that may have been overlooked in previous studies. Second, our findings highlight the mental and cognitive load of care activities, some of which may be implicit and difficult to observe, laying a foundation for further work and the reconsideration of the inclusivity of the current measurement and definition of care activities. Finally, we provide evidence that individual and contextual factors can change how carers appraise their care experiences, and propose possible aspects for theoretical and intervention developments.

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Chapter 4

Eldercare demands and health and well-being of working informal caregivers of older people: the role of unhealthy cognitive emotion regulation and workplace resources

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Abstract

Individuals' cognitive process and their workplace environment influence informal caregivers' experience. We considered the role of unhealthy cognitive emotion regulation (CER) in Conservation of Resources (COR) theory in the context of eldercare. Data were collected once a week for three weeks from a sample of 395 informal caregivers in the UK to examine the relationships between eldercare demands, unhealthy CER, family-supportive supervisor behaviours (FSSB), work flexibility and various health and well-being outcomes. Results from testing our hypothesised moderated mediation models found that unhealthy CER mediated the relationship between eldercare demands and various health and well-being outcomes. When FSSB and work flexibility were included in the model as moderators of the unhealthy CER to outcome paths, the indirect effects between eldercare demands and anxiety, depressive symptoms, sleep difficulties, and well-being respectively via unhealthy CER were not significantly moderated. This is one of the first studies to examine unhealthy CER with COR theory and the potential interplay between individual cognitive and workplace resources on informal caregivers' health and well-being. These findings enhance understanding in the field of the COR theory and open a new avenue for research to explore the complex and nuanced interplay between individual and contextual factors.

Introduction

An increasing proportion of working population care for their older loved ones. In the years to come it is anticipated that more individuals will face the dual responsibilities of eldercare and paid work because of the delay in retirement age, the increase in women's participation in the labour force, and increasing longevity (OECD/European Commission, 2013; The World Bank, 2017; Yeandle & Buckner, 2017). In the UK, close to 1 in 7 workers have caring responsibilities and 2.6 million stop working to care for someone (Carers UK, 2019). Eldercare is different to childcare due to its complexity, which depends on the health condition of the care-receivers (Burch et al., 2019), and the unpredictability of the onset and intensity of care required (Calvano, 2013). When informal caregivers struggle to manage these dual responsibilities, there may be greater organisational and societal costs involved, such as high turnover intention and lower labour force participation (Moussa, 2018; Schneider et al., 2013). Therefore, the needs of working informal caregivers of older people require further research attention. It is important to understand the circumstances and resources that may help or support informal caregivers in managing the dual responsibilities of eldercare and paid work before it takes a toll on their health and well-being or affects their participation in the labour market. In the present paper, we explore the factors that contribute to the decrease in health and well-being of informal caregivers.

Conservation of Resources (COR) theory suggests that resources play an important role in stress development and adverse health and well-being consequences (Hobfoll, 2002), while individual factors also play a part in the process (Hobfoll, 2002). Both individuals' perception of their experience and their workplace environment are contributing factors that influence informal caregivers' experience (Folkman et al., 1986). Rather than looking at perception and workplace environment separately, this study investigates how workplace resources and the cognitive process within the individual may contribute to the relationship between eldercare responsibilities and the health and well-being of informal caregivers over a period of 3 weeks.

Cognitions have received limited attention in COR theory, despite the fact that Hobfoll (2001) suggested that "COR theory does not ignore appraisals" (pp. 359), probably because the cognitive-oriented appraisal model and the resources-oriented COR theory were more often viewed as alternative theories rather than theories that worked together (Hobfoll, 2011). Providing eldercare involves experiencing a range of emotions (Lam et al., 2023), and in this study, we focus on a cognitive process that relates to emotion. Specifically, we investigate the impact of workplace support (family-supportive supervisor behaviour and work flexibility) considering unhealthy cognitive emotion regulation (CER) using a time separated design survey. This study addresses two limitations identified by Lam et al. (2022), specifically the paucity of studies exploring individual-level factors in terms of cognitive process and the reliance on cross-sectional data. By doing so, we explore the links between eldercare responsibilities, the cognitive process, workplace resources and health and well-being and expand theoretical understanding of the process in COR theory. The few previous studies in this area are heterogeneous, varying in both the variables collected and the roles of these variables (Lam et al., 2022). Despite this, an important potential interaction between individuals' cognitive process and workplace resources has so far been overlooked: this study aims to contribute to understanding in this field and shed light on the complexity and nuances of the influence of individuals' cognitive processing and workplace factors on the health and well-being of informal caregivers.

Theoretical Background and Development of Hypotheses

Emotions are affective states related to situations, incidences and experiences, and when there is an emotion-inducing situation, emotions are created via an automatic or elaborative cognitive process (Clore & Ortony, 2000). Such cognitive processing may influence individuals in terms of their preparedness and flexibility (Clore & Ortony, 2000). Cognitive emotion regulation (CER) is the cognitive process undertaken by individuals when they handle emotionally arousing information, such as unpleasant events, (e.g., a day of intensive care provision) or threatening life events (e.g., experiencing a natural disaster) (Garnefski et al., 2002). CER has been conceptualised as the thinking pattern in relation to a specific life event (Garnefski et al., 2008), linked to emotional problems (Garnefski et al., 2002) or certain traits and personality disorder (Kyranides & Neofytou, 2021; vanWijk-Herbrink et al., 2011). CER has also been referred to as cognitive coping strategies (Garnefski et al., 2001)., while in this study, we consider CER as a thinking pattern in response to unpleasant events that may be the factor that links such events to poorer health and well-being.

In the literature on coping, there are trait-oriented and process-oriented approaches. The trait-oriented approach assumes that coping is primarily a characteristic of the person, while the process-oriented approach assumes that the context is critical, meaning coping is influenced by the person's demands and resources (Folkman et al., 1986). We focus on the process-oriented approach as suggested by Folkman et al. (1986), considering that cognitive thoughts as a response to the environment should be included when studying the relationship between potential stressors - in this case, eldercare - and health and well-being.

Individuals and their cognitive thoughts are not distinct from the environment, culture, and society in which they develop and operate (Hobfoll, 2001). As context and cognitive thoughts are intertwined, it is important to examine cognitive process and workplace resources together to develop our understanding of the influence process of eldercare demands on health and well-being. The cognitive processing involved when individuals are facing emotion-inducing situations may be one of the explanation of how stressful situations influenced health and well-being as described in COR theory.

The process of Conservation of Resources (COR) Theory

According to COR theory, the loss - or the threat of loss - of resources is the key reason for stress, and this causes individuals to seek to obtain, retain, protect and foster the material, social, personal, or physical aspects of the resources that they value (Bakker & Demerouti, 2007; Hobfoll, 2001). COR theory suggests that stress develops when coping is unsuccessful, or when many resources must be invested (Hobfoll, 2002). When individuals invest resources to cope with demands, their reserve of resources drops. Those already lacking in resources will be most vulnerable to new resource losses (Hobfoll, 2001).

Based on COR theory, stressors deplete resources (tenBrummelhuis & Bakker, 2012), and eldercare provision under this definition can be seen as a stressor which requires the use of many resources (e.g., time, cognitive effort, and emotions), although there are also positive aspects to eldercare provision (Lam et al., 2023). Informal eldercare may lead to the loss - or the threat - of loss of resources, such as health, well-being, time, energy, and career progression (Lam et al., 2022). Research has indicated that having eldercare responsibilities is associated with various negative outcomes for working informal caregivers. Caregiver health and well-being were particularly affected, with care responsibilities found to be accompanied by poorer physical health, increased levels of stress, and lower levels of well-being (Lam et al., 2022).

From a theoretical point of view, researching the multiple factors in relation to COR theory is important to advance our insights on what factors play a part in COR process and how. This study makes a theoretical contribution in exploring this under-explained part of COR theory. According to COR theory, the individual component (e.g., appraisal) of stress is influenced by objective, cultural, social, and personal factors, and may be automatically generated (Hobfoll, 2001). Further, in Hobfoll (2001), the cognitive processing of a situation has not been included in the COR model and does not belong to either the resources or action pathways. The role of cognitive processing in contributing to how individuals respond to situations in COR remains unclear.

Cognitive emotion regulations and attributions

In this study, we analyse unhealthy CER, which is fast, preconscious and difficult-to-control (Castellano et al., 2019), characterised by other-blame, self-blame, rumination, and catastrophising, and it is an automatic process that enables individuals to deal with situations posing an immediate threat. We focus on unhealthy CER, the spontaneous cognitive process when individuals are faced with demands, due to the fact that previous studies in the area focused little on the link between individual and contextual factors on health and wellbeing outcomes. It would be useful to find a potential point to break the link between the decrease in resources with deteriorating health and well-being. Previous studies have found that unhealthy CER is associated with negative affect and burnout (Castellano et al., 2019), depressive and anxiety symptoms (Garnefski & Kraaij, 2006; Schroevers et al., 2007), as well as personality disorders (vanWijk-Herbrink et al., 2011). Consequently, unhealthy CER may be the link between eldercare responsibilities and the poorer health and well-being identified amongst informal caregivers.

We examine unhealthy CER as the preconscious handling of emotionally arousing information that impairs the health and well-being of informal caregivers. It may be assumed that those facing a high level of demand in eldercare or daily life may view their experience as negative (Lam et al., 2023). They may therefore anticipate or experience a higher level of resource depletion, thus pre-consciously employing unhealthy CER strategies to help them stay focused on and be prepared for stressful situations (Castellano et al., 2019; Clore & Ortony, 2000). Based on our analysis of the existing literature and theoretical concepts, it is apparent that individuals with higher eldercare demands may potentially employ more unhealthy CER as a response to the demands they face. Therefore, this led to the formulation of the first hypothesis.

Hypothesis 1:

Eldercare demand is positively linked to subsequent unhealthy CER.

Unhealthy CER and well-being

The process of unhealthy CER, despite initially serving the function of enabling threats to be dealt with, may lead informal caregivers to anticipate resource loss (e.g. things not going well) and experience resource loss (e.g. investing too much effort in eldercare activities) and consequently experience decreased health and well-being. Unhealthy CER is associated with poorer health and well-being (Bassal et al., 2016). In particular, those with unhealthy CER strategies (focussing on thought/rumination, catastrophising, self-blame and other-blame) were more likely to report poorer physical and mental health and higher levels of exhaustion (Bassal et al., 2016). Self-blame, rumination, and catastrophising have consistently been associated with emotional problems (Garnefski & Kraaij, 2006), while the latter two sub-strategies were also negatively associated with physical health (Extremera & Rey, 2014). Unhealthy CER is associated with being preoccupied with emotions and is considered a less functional strategy than healthy CER (Extremera & Rey, 2014), which may make it harder for individuals to tolerate or master negative experiences. We propose that informal caregivers are not immune from experiencing higher levels of health and well-being issues resulting from unhealthy CER, as unhealthy CER consumes resources that help individuals stay focused and prepared. The link between unhealthy CER and poorer health and well-being is well established in the literature (Bassal et al., 2016; Extremera & Rey, 2014; Garnefski & Kraaij, 2006).

Eldercare, unhealthy CER, and well-being

The association between eldercare demands and lower well-being among individuals may be explained by their unhealthy CER. Research has shown that informal caregivers can experience a deterioration in health and well-being, such as increased physical strain, poorer physical health, depressive symptoms, and decreased work engagement, emotional strain, and life satisfaction (Lam et al., 2022). Health and well-being are some of the key resources concerned under COR theory (Hobfoll, 2001; tenBrummelhuis & Bakker, 2012). We argue that one of the factors leading to such depletion is unhealthy CER. Informal caregivers may occupy themselves with their negative emotions (Schroevers et al., 2007) or even regulate their emotions in an attempt to focus their attention on the stressors, thus enabling immediate threats to be dealt with (Castellano et al., 2019). For example, rumination enhances the ability to ignore distracting negative information in non-depressed individuals (Whitmer & Gotlib, 2013). In addition, catastrophising, if used verbally, may help to elicit social support (Turner & Aaron, 2001). However, this may prevent individuals from handling situations effectively, such as by being flexible in their thinking and actions (Clore & Ortony, 2000), hence losing resources further. Therefore, according to COR theory, unhealthy CER may explain the link between eldercare demands and health and well-being among informal caregivers. We measure various aspects of health and well-being that were found to be related to informal caregivers - namely anxiety, depressive symptoms, sleep difficulties and well-being (Burch et al., 2019) - thus enabling the examination of the impact of unhealthy CER on a variety of health and well-being outcomes within a population of informal caregivers. Work-family research has previously examined the impact of balancing work and family in terms of a variety of health and well-being outcomes including level of anxiety, depressive symptoms, sleep quality and well-being (Mullen et al., 2008), and the current study incorporates multi-faceted measurements of health and well-being to obtain a comprehensive understanding of whether unhealthy CER can explain the multiple deteriorating health and well-being outcomes of informal caregivers. This led to the formulation of the second hypothesis:

Hypothesis 2:

Unhealthy CER mediates the positive relationship between earlier eldercare demand and subsequent levels of a) anxiety, b) depressive symptoms, c) sleep difficulties; and

d) unhealthy CER mediates the negative relationship between earlier eldercare demand and subsequent level of well-being.

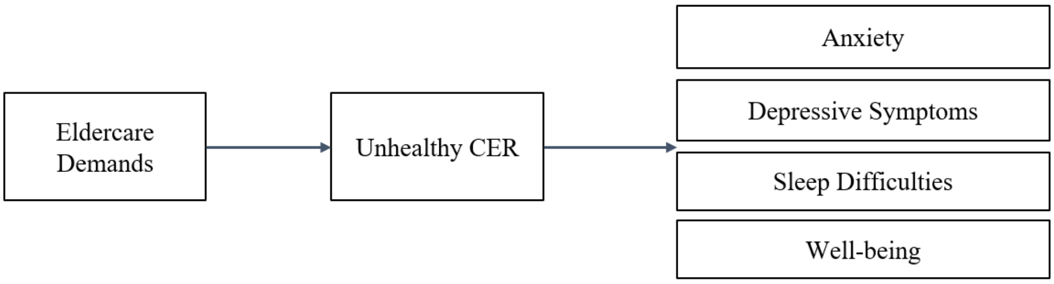


Figure 1. Mediation model. Unhealthy CER = Unhealthy cognitive emotion regulation.

Workplace Resources

Workplace resources affect individuals' capability to cope with dual responsibilities (Lam et al., 2022), including support in their social environment (e.g., supportive supervisors) and organisational policy. Previous studies have investigated how workplace resources influence the work, family, and health and well-being outcomes of working informal caregivers of older people (Lam et al, 2022). The benefits of leader- and organisational-level resources to the health and well-being of informal caregivers may depend on the levels of eldercare demands and the personal characteristics of informal caregivers (Lam et al., 2022). The nuance of the influence of workplace resources leaves considerable space to explore when and how workplace resources influence the health and well-being of informal caregivers.

Workplace resources can potentially reduce the strength of the negative relationship between eldercare demands via unhealthy CER and health and well-being. This is because, while unhealthy CER may be the automatic response to stressors, workplace resources can help individuals to better cope with demands while they are focused on and prepared to deal with such stressors. Based on COR theory which states that individuals strive to gain and protect resources (Hobfoll, 2001), we hypothesise that informal caregivers will make use of workplace resources, such that these may mitigate the negative impact of eldercare demands via unhealthy CER on their health and well-being. We suggest that workplace resources play a moderating role between unhealthy CER and health and well-being outcomes because unhealthy CER is the automatic process (Castellano et al., 2019) resulting from the encounter of situations. However, the use of workplace resources is more likely to follow this automatic process since it is a conscious and effortful process that enables informal caregivers to change their perception of the situation (Lazarus & Folkman, 2006). Consequently, we hypothesise that workplace resources will be more beneficial for informal caregivers with higher levels of unhealthy CER as workplace resources will be more meaningful to individuals facing higher levels of eldercare demands and who are trying to preserve their resources.

Previous studies have examined the role of workplace resources, such as FSSB and work flexibility, in various health and well-being outcomes for people with both work and family commitments (e.g., Brown & Pitt-Catsouphes, 2016; Crain et al., 2014; Gull et al., 2023). Although FSSB research has increased in recent years, the mixed findings in work-family research suggest that further work is required to examine which aspects of health and well-being FSSB affect among informal caregivers (Crain & Stevens, 2018; Gull et al., 2023). Flexible arrangements were identified as beneficial to informal caregivers in managing their work and care roles (Burch et al., 2019; Clancy et al., 2020), whereas work schedule inflexibility increased their depressive symptoms (Wang et al., 2011). We hope to expand such work to examine the impact of work flexibility on various aspects of the health and well-being of informal caregivers.

Hence, we propose that FSSB and work flexibility moderate the indirect relationship between eldercare demands and health and well-being outcomes via unhealthy CER, which led to the formulation of the third and fourth hypotheses.

Hypothesis 3:

FSSB serves as a moderating factor between Unhealthy CER and various outcomes. As family supportive supervisor behaviour (FSSB) increases, it will reduce the strength of the positive indirect relationship between earlier eldercare demands and subsequent a) anxiety, b) depressive symptoms and c) sleep difficulties via unhealthy CER; and

d) as FSSB increases, it will reduce the strength of the negative indirect relationship between earlier eldercare demands and subsequent level of well-being via unhealthy CER.

Hypothesis 4:

Work flexibility serves as a moderating factor between Unhealthy CER and various outcomes. As work flexibility increases, it will weaken the positive indirect relationship between earlier eldercare demands and subsequent a) anxiety, b) depressive symptoms and c) sleep difficulties via unhealthy CER; and

d) as work flexibility increases, it will weaken the negative indirect relationship between earlier eldercare demands and subsequent well-being via unhealthy CER.

Few studies of informal caregivers have explored the interaction between individual and workplace factors and the influence pathways of eldercare demands on health and well-being. We fill this research gap by using a time separated survey design study to examine the effect of workplace resources after taking into account the pathway of influence of eldercare demands on their health and well-being via unhealthy CER.

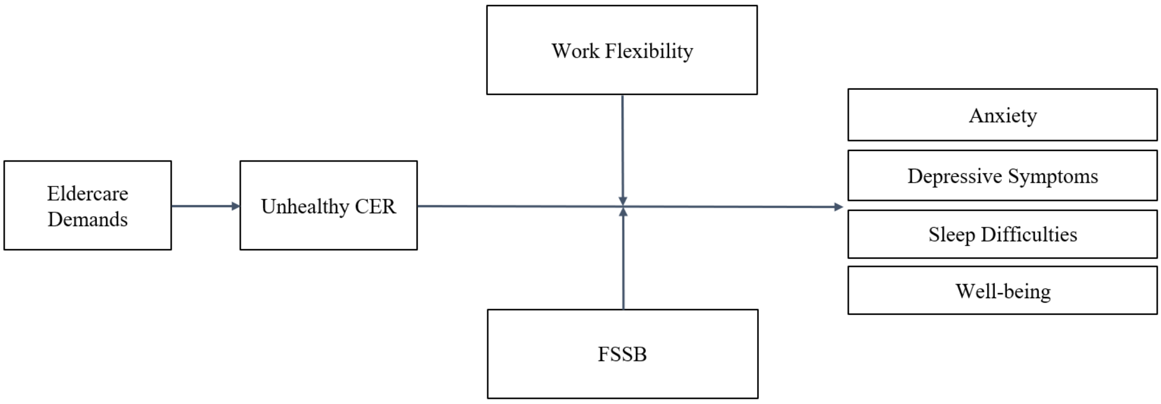


Figure 2. Theoretical model. Unhealthy CER = Unhealthy cognitive emotion regulation, FSSB = family supportive supervisor behaviour.

Methods

Procedure

Data were collected using the Prolific platform from June to July 2022. The criteria for participants to be eligible to take part were adults living in the UK who were both in employment and informally caring for someone aged 65 or above, and were fluent in English. The age limit of 65 matches that used by the Office of National Statistics for people in older age groups. Screening questionnaires were distributed to a target population to confirm their eldercare responsibilities and employment status by using Prolific pre-screeners, which means only eligible participants can view and access the screening questionnaire. The Prolific pre-screeners used included these characteristics: aged 18-70, in employment, having informal care responsibilities, living in the UK, and having fluent English. The eligible participants were invited to complete three online questionnaires, each one week apart. The participants were paid for completing the screening survey and the three main surveys: the payment level approximated the minimum wage in the UK and the recommendation from the Prolific platform. A survey study with shorter gaps (Dormann & Griffin, 2015) seemed appropriate as eldercare demands affect important well-being, work-family, and work outcomes within short time horizons (Peng, Jex, et al., 2020; Peng, Xu, et al., 2020). As eldercare demands can be quite unpredictable due to sudden illness or accident (Calvano, 2013), a shorter time gap between data collections was considered more appropriate in capturing the effect of eldercare demands on health and well-being outcomes while allowing time for the effect to take place.

Each survey included two attention check questions (Prolific 2021, see Appendix I) to monitor if the participants were paying attention. None of the participants who were included in the final analysis failed more than one attention check question in each survey while the percentage of failing one attention check question was 1-2.8% for each survey. Open questions were also included to allow the participants to provide additional information. Both of the above indicated that the responses were from humans, not robots and that the participants had taken adequate care in responding.

Participants

There were 395 participants who completed all three surveys, of whom 250 were female. The mean age of the participants was 44, SD = 11.66. Most participants were working full-time (67.1%), 25.8% were working part-time and 7.1% were self-employed. Most participants (87.6%) identified their ethnicity as English/Welsh/Scottish/Northern Irish/British. Over sixty-five percent of the participants were married or cohabiting. The participants were employed in a variety of industries, including health care or social assistance (22%), educational services (16.5%), professional, scientific or technical services (8.9%), retail trade (8.4%), finance or insurance (6.8%) and others. As regards occupation, 42.3% of the participants worked in management and professional roles, 14.2% in services, 11.9% in sales and office, 11.6% in government, 3.6% in construction, extraction, maintenance, production, transportation and material moving, and 16.5% in other occupations. The attrition was low for this study, there were 429 who completed only the survey only at time 1, and 409 participants who completed the surveys only at time 1 and 2.

Measures

Eldercare demands (Measured at time 1). Eldercare demands were measured by the number of different care activities that the participants had undertaken over the past week, similar to the measurement of eldercare involvement (Rofcanin et al, 2019). The participants were asked to tick from a list of 27 common care activities (Lam et al, 2022) - and to list other care activities performed in the space provided. An overall score was created by summing the number of care activities carried out.

Unhealthy CER (Measured at time 2). An 8-item scale measuring unhealthy CER was taken from Garnefski and Kraaij (2006)'s CER short questionnaire and focused on the CER notion of thought/rumination, catastrophizing, self-blame and other-blame. The items were measured on a 5-point Likert scale ranging from 1 - (almost) never to 5 - (almost) always. The participants were asked to indicate their thoughts over the last week when they had experienced negative or unpleasant events. A sample item is: 'I was preoccupied with what I thought and felt about what I experienced'.

Work flexibility (Measured at time 2). A three-item scale designed by Brown and Pitt-Catsouphes (2016) was used to measure the level of flexibility the participants had had at work over the previous week. One sample item is: 'Last week, how much control would you say you have in scheduling your work hours?', from complete control (5) to none (1).

Family supportive supervisor behaviour (FSSB) (Measured at time 2). We used the FSSB-SF scale developed by Hammer et al. (2013), which consists of four items measuring emotional support, role modelling, instrumental support and creative work-family management. A sample item is: "Last week, your supervisor made you feel comfortable talking to him/her about your conflicts between work and non-work." The participants were instructed to report the extent to which they agreed with the item statements using a 5-point Likert scale ranging from 1 - strongly disagree to 5 - strongly agree.

Depressive symptoms (Measured at time 3). The nine-item PHQ-9 scale was used to measure the occurrence and regularity of distinct depressive symptoms (Kroenke et al., 2001). A sample item is: 'Over the last week, how often have you been bothered by any of the following problems? Little interest or pleasure in doing things' The participants were instructed to report the frequency of symptoms they had experienced over the past week, with the response coding for each item ranging from 0 - Not at all to 3 - Nearly everyday.

Anxiety symptoms (Measured at time 3). The seven-items GAD-7 scale was used to measure the occurrence and regularity of distinct symptoms of anxiety (Spitzer et al., 2006). A sample item is: 'Over the last week, how often have you been bothered by the following problems? Feeling nervous, anxious or on edge' The participants were instructed to report the frequency of symptoms they had experienced over the past week, with the response coding for each item ranging from 0 - Not at all to 3 - Nearly everyday.

Well-being (Measured at time 3). The five-items World Health Organisation-Five Well-Being Index (WHO-5) was used to measure mental well-being (Psychiatric Research Unit, WHO Collaborating Center for Mental Health, 1998). A sample item is 'I have felt cheerful and in good spirits'. The item response coding ranged from 0 - At no time to 5 - All the time.

Sleep difficulty (Measured at time 3). The 8-item modified Karolinska Sleep Questionnaire (KSQ), was used (Filosa et al., 2021). The participants were instructed to report the extent of insomnia symptoms they had experienced in the past week, specifically, sleep complaints, daytime tiredness, too little sleep, restricted daytime activities, and the need for sleep medication. The response coding for each item ranged from 0 - Never to 3 - Mostly/ At least 3 times a week.

Analysis

To test hypotheses 1 and 2, separate mediation models (as outlined in figure 1) were fitted for each outcome (anxiety, depressive symptoms, well-being and sleep difficulties), using eldercare demand as the predictor variable and unhealthy CER as the mediator variable in each model. As we were testing four outcome variables that may co-variate with each other, the significance level was $p = .0125$.

Separate moderated-mediation models (as outlined in Figure 2) were then estimated for each of the four combinations of outcome (anxiety, depressive symptoms, well-being and sleep difficulties), to test hypotheses 3 and 4. In each model, eldercare demand was the predictor variable, with unhealthy CER as the mediator and Work flexibility and FSSB as the moderators.

We fitted each of these models via a sequence of linear regression analyses and applied accompanying estimates and tests for indirect effects, via the PROCESS macro for SPSS (Hayes, 2022). Indirect and conditional indirect effects were tested using 98.75% bootstrapped confidence intervals as we were testing four related dependent variables, with the bootstrapped estimates taken from 50,000 resamples.

When probing the extent of moderation, the low, medium and high values of our moderators were taken from the 16th, 50th and 84th percentiles. For each conditional indirect effect, the index of moderated mediation (Hayes, 2022) was used to test whether the indirect effect differed significantly according to the moderators.

Results

Table 1 provides the means, standard deviations, and correlations among all the study variables and Cronbach’s alpha of each measurement scale. Table 2 below presents the regression coefficients and indirect effects from simple mediation models for each outcome. In support of Hypothesis 1, eldercare demand was positively related to unhealthy CER [B = .025, B(SE) = .007, t = 3.47, p <.01). In support of Hypotheses 2a, 2b, 2c, and 2d (see Table 2), unhealthy CER mediated the relationship between eldercare demand and anxiety, depressive symptoms, sleep difficulty, and well-being – that is, the indirect effects on each outcome from eldercare demand were statistically significant, as assessed by their bootstrapped confidence intervals not containing zero. Specifically, the findings indicate that eldercare demands had significant positive indirect effects on anxiety, depressive symptoms, sleep difficulties and well-being via unhealthy CER.

Table 1

Descriptive Statistics, Correlations, and Cronbach's Alpha on Diagonal

Variable	*M*	*SD*	1	2	3	4	5	6	7	8
1. Eldercare demand	12.87	5.34	–							
2. Work flexibility	2.71	.91	-.07	(.81)						
3. FSSB	3.29	1.01	-.09	.45	(93.)					
4. Unhealthy CER	2.40	.77	.17	-.14	-.06	(.85)				
5. Anxiety symptoms	1.07	.86	.18	-.23	-.22	.41	(.93)			
6. Depressive symptoms	0.94	.71	.21	-.26	-.26	.36	.85	(.90)		
7. Sleep difficulties	1.44	.81	.25	-.23	-.25	.32	.66	.74	(.89)	
8. Well-being	2.39	1.23	-.12	.27	.39	-.23	-.70	-.75	-.61	(.93)

As reported in Table 3 (below), there was not a significant interaction at p <.0125 level between unhealthy CER and FSSB when predicting anxiety, while the bootstrapped confidence intervals of the index of partial moderated mediation for FSSB contained zero, hence not significant. When adding the interaction term unhealthy CER X FSSB, $\Delta R^2 = .0096$ (p = .028). The positive effect of eldercare demands via unhealthy CER on each anxiety became stronger as FSSB increased, although such changes were not statistically significant at 98.75% confidence interval. These effects are displayed in Figure 1, with the relationships plotted at low, medium, and high values of FSSB, defined as the 16th, 50th and 84th percentiles of FSSB. These findings were the opposite of what was anticipated in Hypothesis 3a. Work flexibility did not significantly moderate the relationship between unhealthy CER and anxiety, the index of partial moderated mediation for work flexibility was not significant, and the ΔR^2 of adding unhealthy CER X Work flexibility was not significant, hence Hypothesis 4a was not supported. Further, the indirect effect of eldercare demands on anxiety via unhealthy CER is significant at all levels of FSSB and work flexibility apart from in the low FSSB and high work flexibility condition.

Similarly, as reported in Table 3, there was not a significant interaction between unhealthy CER and FSSB when predicting depressive symptoms, and the bootstrapped confidence intervals of the index of partial moderated mediation for FSSB contained zero, hence were not significant. When adding the interaction term unhealthy CER X FSSB, $\Delta R^2 = .0087$ ($p = .037$), the positive effect of eldercare demands via unhealthy CER on depressive symptoms became stronger as FSSB increased (See Figure 1), although such changes were not statistically significant at the 98.75% confidence interval. These findings were the opposite of what was anticipated in Hypothesis 3b. Work flexibility did not significantly moderate the relationship between unhealthy CER and depressive symptoms, the index of partial moderated mediation for work flexibility was not significant, and the ΔR^2 of adding unhealthy CER X work flexibility was not significant, hence Hypothesis 4b was not supported. Further, the indirect effect of eldercare demands on depressive symptoms via unhealthy CER was significant at all levels of FSSB and work flexibility apart from in the condition of low FSSB and high work flexibility.

As shown in Table 3, FSSB did not significantly moderate the relationship between unhealthy CER and sleep difficulties, and the bootstrapped confidence intervals of the index of partial moderated mediation for FSSB contained zero, hence was not significant. Further, the ΔR^2 for adding unhealthy CER X FSSB to the model was not significant. Hence, there was no support found for Hypothesis 3c. Work flexibility did not significantly moderate the relationship between unhealthy CER and sleep difficulties, the index of partial moderated mediation for work flexibility was not significant, and the ΔR^2 of adding Unhealthy CER X Work flexibility was not significant, hence Hypothesis 4c was not supported. Further, the indirect effect of eldercare demands on sleep difficulties via unhealthy CER was significant at medium and high levels of work flexibility conditions.

Similarly, FSSB did not significantly moderate the relationship between unhealthy CER and well-being, and the bootstrapped confidence intervals of the index of partial moderated mediation for FSSB contained zero, hence was not significant. Further, the ΔR^2 for adding Unhealthy CER X FSSB to the model was not significant. Hence, there was no support found for Hypothesis 3d. Work flexibility did not significantly moderate the relationship between unhealthy CER and well-being, and the index of partial moderated mediation for work flexibility was not significant, and the ΔR^2 of adding unhealthy CER X work flexibility was not significant, hence Hypothesis 4d was not supported. Further, the indirect effect of eldercare demands on well-being via unhealthy CER was significant at medium and high levels of FSSB.

Table 2

Results for simple mediation analyses

		Unhealthy CER				Anxiety				Depressive symptoms				Sleep difficulties				Well-being			
Predictors	Type of effect	B	SE(B)	98.75%CI	p	B	SE(B)	98.75%CI	p	B	SE(B)	98.75%CI	p	B	SE(B)	98.75%CI	p	B	SE(B)	98.75%CI	p
Eldercare demand	Total effect	.025	.007	[.007, .043]	<.001	.030	.008	[.009, .050]	<.001	.028	.007	[.011, .044]	<.001	.038	.007	[.019, .056]	<.001	-.027	.012	[-.060, -.002]	.019
	Indirect effect					.011	.004	[.003, .021]		.008	.003	[.002, .015]		.008	.003	[.002, .015]		-.008	.003	[-.018, -.002]	
	Direct effect					.019	.008	[-<.001, .038]	.013	.020	.006	[.004, .036]	.002	.030	.007	[.012, .048]	<.001	-.019	.011	[-.047, .010]	.103
Unhealthy CER						.433	.052	[.302, .564]	<.001	.313	.044	[.203, .423]	<.001	.306	.050	[.180, .433]	<.001	-.337	.080	[-.536, -.137]	<.001

Note. N = 395. CI = confidence interval. Unstandardised regression coefficients are reported. Bootstrap sample size = 50,000. Boostrapped CIs for indirect effect.

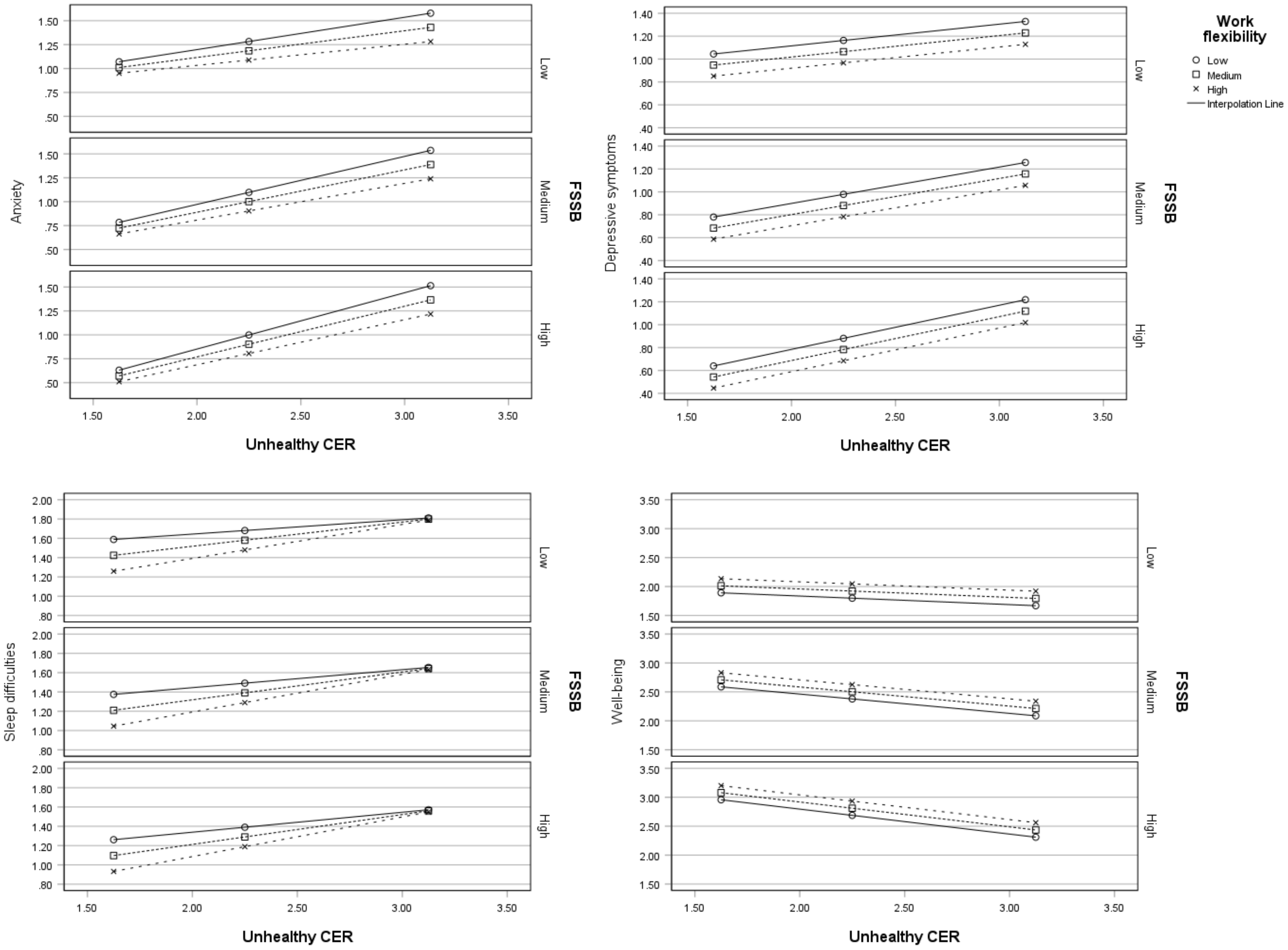
Table 3

Results of the Moderated Mediation Analyses

		Unhealthy CER				Anxiety				Depressive symptoms				Sleep difficulties				Well-being			
Predictors	Type of effect	B	SE(B)	98.75%CI	p	B	SE(B)	98.75%CI	p	B	SE(B)	98.75%CI	p	B	SE(B)	98.75%CI	p	B	SE(B)	98.75%CI	p
Eldercare demand	Direct effect	.025	.007	[.007, .043]	.001	.017	.007	[-.002, .035]	.025	.018	.006	[.003, .033]	.004	.028	.007	[.010, .046]	<.001	-.012	.011	[-.039, .015]	.254
Unhealthy CER						.414	.051	[286, .543]	<.001	.296	.042	[.188, .401]	<.001	.286	.049	[.162, .409]	<.001	-.300	.074	[-.486, -.115]	<.001
Work flexibility						.032	.145	[-.331, .394]	.826	-.084	.120	[-.385, .215]	.482	-.298	.139	[-.646, .050]	.032	.106	.209	[-.417, .629]	.610
FSSB						-.396	.132	[-.738, -.065]	.003	-.339	.109	[-.613, -.065]	.002	-.197	.127	[-.515, .121]	.120	.714	.191	[.236, 1.19]	<.001
Unhealthy CER X Work flexibility						-.053	.059	[-.201, .095]	.368	-.002	.049	[-.124, 120]	.969	.092	.056	[-.049, .234]	.103	.002	.085	[-.211, .215]	.980
Unhealthy CER X FSSB						.117	.053	[-.016, .251]	.028	.092	.044	[-.018, .202]	.037	.027	.051	[-.101, .155]	.595	-.133	.077	[-.325, .060]	.085
Conditional indirect effect of eldercare demands on outcomes via unhealthy CER, at low, medium, high levels of work flexibility and FSSB																					
Work Flexibility	FSSB					B	SE(B)	98.75%CI		B	SE(B)	98.75%CI		B	SE(B)	98.75%CI		B	SE(B)	98.75%CI	
Low	Low					.008	.003	[.002, .018]		.005	.002	[<.001, .011]		.004	.002	[-.001, .011]		-.004	.003	[-.013, .003]	
	Medium					.012	.004	[.003, .025]		.008	.003	[.002, .017]		.005	.003	[-.001, .013]		-.008	.004	[-.021, -<.001]	
	High					.015	.005	[.003, .030]		.010	.004	[.002, .021]		.005	.003	[-.002, .015]		-.011	.005	[-.027, -<.001]	
Medium	Low					.007	.003	[.001, .016]		.005	.002	[<.001, .011]		.006	.003	[.001, .014]		-.004	.003	[-.013, .004]	
	Medium					.011	.004	[.003, .021]		.008	.003	[.002, .015]		.007	.003	[.002, .015]		-.008	.003	[-.018, -.002]	
	High					.013	.004	[.003, .026]		.010	.003	[.002, .019]		.008	.003	[.002, .017]		-.011	.004	[-.023, -.002]	
High	Low					.006	.004	[-.002, .018]		.005	.003	[-.002, .014]		.009	.004	[.001, .020]		-.004	.005	[-.018, .009]	
	Medium					.010	.004	[.002, .021]		.008	.003	[.002, .016]		.010	.004	[.002, .020]		-.008	.004	[-.021, -<.001]	
	High					.012	.004	[.003, .024]		.010	.003	[.002, .019]		.010	.004	[.002, .021]		-.011	.005	[-.024, -.002]	
Indices of partial moderated mediation																					
Work Flexibility						-.001	.002	[-.006, .003]		<.001	.001	[-.004, .004]		.002	.002	[-.001, .007]		<.001	.002	[-.006, .007]	
FSSB						.003	.002	[-<.001, .008]		.002	.001	[-.001, .007]		.001	.001	[-.003, .005]		-.003	.002	[-.010, .001]	

Note. N = 395. CI = confidence interval. Unstandardised regression coefficients are reported. Bootstrap sample size = 50,000. Standardised work flexibility and FSSB values were used in analysis.

Figure 1. The interaction of Unhealthy CER with FSSB and Work flexibilities on various outcomes.



Discussion

This study contributes to our knowledge of the interaction between the cognitive process and workplace resources and the health and wellbeing of informal caregivers. The findings indicated that FSSB strengthened the positive indirect relationship between eldercare demands and anxiety, and depressive symptoms via unhealthy CER. By applying the COR theory in the context of balancing eldercare and work, we expanded knowledge in this field by examining the impact of eldercare demands on the health and well-being of informal caregivers. Our findings suggested that eldercare demands are linked to poorer health and well-being outcomes and demonstrated the role of cognition in the relationship between these factors.

Theoretical implications

This study has several theoretical implications. First, it has explored one potential factor within COR theory that led to lower health and well-being, specifically, higher levels of eldercare demand (the stressor) are linked to higher unhealthy CER which in turn is linked to lower health and well-being. By doing so, this study suggests when considering the role cognitive process within COR theory, the cognitive automatic reaction to demands may also explain the lowered health and well-being. There are a few possible explanations as to why eldercare may lead to poor health and well-being via unhealthy CER. One possible explanation may be that unhealthy CER causes a misallocation of cognitive resources by leading individuals to focus too much on what has happened and hindering them from identifying and the most effective action to cope with the situation. For example, informal caregivers lose time and mental capacity when ruminating, blaming themselves or others regarding the situation they face instead of being flexible in looking for ways to manage their demands. Also, unhealthy CER may prevent informal caregivers from identifying other resources that could help them to cope, as unhealthy CER may block them not only from distracting negative information (Whitmer & Gotlib, 2013) but also block them from needed positive information. The existence of "unhealthy" CER may serve to prepare individuals for coping (Clore & Ortony, 2000), however, under different contexts, they can be unhealthy to individuals, such as in the context of eldercare and work. We enriched the literature on COR theory by considering unhealthy CER as a potential link and thereby advancing the knowledge of COR theory.

Regarding the role of workplace resources when considering unhealthy CER as the mediator, the results were not significant and not in the direction anticipated. While in our hypothesis, we predicted informal caregivers with higher unhealthy CER would make better use of workplace resources to protect their health and well-being, our findings suggested otherwise. We found that workplace resources were more effective for informal caregivers with lower levels of unhealthy CER. For example, despite not being statistically significant at our adjusted level of significance, we noticed there was a trend that as FSSB increased, the relationship between unhealthy CER and levels of anxiety and depressive symptoms were strengthened, which is in the opposite direction from that anticipated. Therefore, FSSB appears to have strengthened the link between eldercare demands via unhealthy CER and the levels of anxiety and depressive symptoms.

The unhealthy CER of informal caregivers may lead them to view support as an unbalancing of their relationship with their line manager, as a result of which they put themselves under pressure to rebalance it, which in turn worsens their health and well-being. A related study by Tröster and VanQuaquebeke (2021) found that for high levels of Leader-Members Exchange (LMX) (i.e., leader and member having a good, trusting and effective relationship, the leader understands the member's job and covers them at personal cost), there is a positive relationship between abusive supervision and self-blame, which is related to guilt. High LMX employees may feel a higher level of stress than those with moderate LMX due to the extra pressure and obligations required to meet the expectations of line managers (Harris et al., 2007). Such psychological impact is especially complex when it comes to the interaction of "good" supervisor behaviour in negative situations. The direction of the moderation was a surprising result, hence opening a new avenue to investigate the complex dynamics among various individuals and workplace factors. Informal caregivers with good supervisors and who receive a lot of support from supervisors may feel extra pressure and obligations to pay them back or to work above and beyond the usual expectations. This may also explain how FSSB may add pressure to very focused informal caregivers (due to using higher levels of unhealthy CERs), who do not have sufficient cognitive resources to make the best use of the supervisor's support or to cope with the guilt of having to be supported by their supervisor, thus leading to higher levels of depressive symptoms and anxiety. This links back to COR which states that stress is a result of unsuccessful coping (Hobfoll, 2001), and in this case, it may potentially indicate that there is an unbalanced relationship between informal caregivers and their line managers.

The evidence of the benefits of work flexibility to informal caregivers has been inconsistent in previous research. The use of flexible work options was significantly and negatively associated with perceived stress (Brown & Pitt-Catsouphes, 2016); work inflexibility predicted depressive symptoms among working informal caregivers of older people with dementia (Wang et al., 2011); and increased control over work time was associated with decreased stress and psychological distress (Kossek et al., 2019). One study, however, found that work flexibility was not related to work-to–family conflicts (Barrah et al., 2004). Another study found that access to work flexibility was not linked to lower psychological distress, whereas flexibility culture was (Yucel & Fan, 2023). Such inconsistency may be due to the different ways of measuring work flexibility across studies and the way work flexibility was examined in the process. It is important to learn more about the aspects that work flexibility be most beneficial to. It is not necessarily the case that having higher work flexibility is not beneficial to informal caregivers, rather, it may still be essential for informal caregivers to successfully meet their care and work demands. However, we need to pay attention to both how it is measured in research and how it is offered in organisations.

The results suggest that FSSB could benefit informal caregivers who have low or moderate levels of unhealthy CER perhaps because they did not perceive eldercare (i.e., the stressor) as something negative or the eldercare burden they faced was not sufficiently large to trigger a high level of unhealthy CER. Hence, they might be able to make better use of resources or have the mindset to look for help, leading to better mental health and well-being. Further research should investigate if health and well-being can be attributed to the interaction between individual and workplace factors. Mérida-López et al. (2019) found that employees with poorer emotion regulation ability (both intra- and interpersonal aspects were measured) benefited more from having supportive supervisors than those with high emotion regulation ability in terms of the level of job satisfaction and subjective happiness. This shows that emotion regulation ability and unhealthy CER might be quite different in the role of emotion processing, highlighting the importance of studying the role of specific processes in psychological research.

Generally speaking, another part of COR theory may also explain the trend we observed in the results. According to the caravan of resources, some resources typically occur together, for example, it is likely that having self-efficacy is linked with optimism, and the presence of social support (Hobfoll, 2001). The lack of certain resources may hinder the acquisition of another, and there might be a prerequisite for some resources to be useful (Halbesleben et al., 2014), in this case, perhaps having a low level of unhealthy CER is the prerequisite of FSSB to be most helpful. Perhaps lacking a low level of counter-productive resources or factors should be considered in the concept of resource caravans. Instead of dismissing the trend that we observed, we can view the findings of the marginally insignificant moderated mediation as a potential investigation opportunity, to investigate whether the absence of a low level of unhealthy CER may lead to further resource loss, thus creating a spiral in the loss of resources (Hobfoll, 2002).

Practical implications

Although workplace resources strengthened the relationship between unhealthy CER and various health and well-being outcomes, workplace resources still improved the various health and well-being outcomes of informal caregivers. FSSB in general is seen to be beneficial for informal caregivers. Work flexibility increased the capability for informal caregivers to fulfil all the demands coming from work and care, however it may not be directly beneficial to health and well-being. Hence, we are not claiming that managers and employers should not aim to increase FSSB and work flexibility. Instead, they need to be mindful of the potential for support which may have a different impact depending on the receivers' circumstances. When supporting informal caregivers to balance their work and family responsibilities, it is also important to check whether they feel the pressure of overcompensating which may impair their health and well-being. Work flexibility will continue to be essential for many informal caregivers to achieve such a balance, however having to constantly balance their tasks and meticulously make arrangements and plans may still add strain to their daily lives.

As unhealthy CER may be a factor that links stressors and various health and well-being outcomes, training could potentially be developed to increase awareness of unhealthy CER as a response to stressors and thereby reduce such responses. More research will be needed to support the development of such interventions.

Limitations and future directions

Although this study advances knowledge on COR theory, the findings should be interpreted in the light of some limitations. First, this study does not have a large sample size and relies on self-reported measures. Despite the fact that one of the strengths of this study is the use of time separated data gathered from the general public (not specific to one or two organisations) which helps reduce common method bias, panel conditioning bias may potentially play a part in this study. The participation in one wave of time separated surveys may change the participants' attitudes and behaviours and their subsequent reports of these (Warren & Halpern-Manners, 2012), for instance, asking about their health and well-being may change their subsequent behaviour in relation to these factors.

Secondly, this study has limited ability to draw inferences about causality since it did not control for the previous levels of unhealthy CER and various health and wellbeing outcomes. By utilising more sophisticated statistical analyses such as growth modelling and time-lagged analysis on rich datasets, this could provide more robust evidence of the possibility of lagged influences from antecedent factors.

We adopted a non-psychological measurement for eldercare demand, which is easily interpretable and open to direct intervention design that aims at reducing the number of tasks informal caregivers need to perform. Future studies can use these findings as a reference and as a measurement of eldercare demand, or as an intervention target. However, there is no consensus on the best way of measuring eldercare demands. Due to concerns about the length of our surveys, this study did not use some measurements that previous studies had adopted, for example, the health and independence of care-receivers (e.g., Kim et al., 2011; Zacher et al., 2012), and whether or not informal caregivers live together with their care-receivers (e.g., Kossek et al., 2001; Michaud et al., 2010; Robison et al., 2009). Moreover, the current study did not take into consideration the duration of eldercare that our participants provided. This means that, on the one hand, the duration exposure to such demands may impact their health and wellbeing accumulatively (Ikeda, 2016), and on the other hand, such accumulative experience may help them to manage their demands more effectively. Future studies can further explore the most effective way to measure eldercare demands and the impact these have has on informal caregivers.

Further, the unknown factors stemming from the non-anticipated findings of this study can only be explained by further research. More research needs to be conducted to understand whether there are nuanced factors that influence employees' use of supervisor support. This echoes the findings from Greaves et al. (2015) which found that FSSB more greatly benefitted informal caregivers with high core self-evaluation. Future studies may also include team-member factors to explore if workplace relational dynamics influence how individuals respond both to the care demands they face and the workplace support they receive. As our research focus and findings are novel in the field, there needs to be further similar or replication studies to strengthen or enrich knowledge in this area.

Conclusion

This study contributes to the literature by showing for the first time how unhealthy CER may play a role in the health and wellbeing of informal caregivers under COR theory. Our findings contribute to understanding in the field of eldercare demands, health and well-being among informal caregivers, as well as opening a new avenue to consider the interplay of unhealthy CER and workplace resources. Organisations and managers should recognise how the impact of workplace resources may vary in different individuals and identify any potential unanticipated effects in order to provide the most effective support to their employees.

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Appendix I - Attention check questions

Attention questions were adapted based on suggestions from Prolific (2021).

Attention Question 1: It is important to pay attention to this study. Please select 5 - (Almost) always

Attention Question 2: It is important that you pay attention to the survey. The colour test is simple, when asked for your favourite colour you must select 'Blue'*.

Based on the text you read above, what colour have you been asked to select as your favourite colour?

○ Red

○ Green

○ Violet

○ Pink

○ Blue

*The requested answer changed for every survey.

Chapter 5

General Discussion

Managing eldercare on top of paid work is an increasingly pressing issue for employees and organisations alike. As the population is ageing and the delay in retirement age is continuing to rise, more individuals will face eldercare responsibilities while they are still working. This phenomenon could lead to increased costs for individuals, organisations and society. Individuals face reduced health and well-being, while organisations face higher presenteeism, absenteeism and turnover rates (Clancy et al., 2020). In wider society, labour force participation may decrease, which may also lead to other economic costs such as reduced tax revenue and increased costs to the social care system (Yeandle & Buckner, 2017).

As mentioned in previous chapters, eldercare has unique characteristics that distinguish it from other forms of care, and the experience and challenges this group of informal caregivers face may be very different to those who engage in other types of care, especially when we take into consideration the nuances and complexities in relation to eldercare (e.g., coordinating with other family member and service providers, socio-economic-cultural context). Therefore, research studies into the situation of working informal caregivers of older people are needed. Despite the increasing interest in this topic, important research gaps remain, which need to be addressed to understand informal caregivers in more depth and provide effective support for them. This PhD thesis aimed to address some of these issues, namely, to consolidate existing knowledge and to increase understanding of this matter within the field of work psychology. By conducting multiple studies that used novel methods, combining existing models and investigating unexplored areas in current theory, this thesis has contributed to understanding the experience of informal caregivers and their immediate environment.

This thesis adopted a multi-method approach and conducted three studies. These studies examined the experiences of working informal caregivers of older people (hereafter: informal caregivers), the demands and resources informal caregivers have, the impact of demands and resources on their work-related outcomes and health and well-being, and the relationship between individual and workplace factors in contributing to informal caregivers' health and well-being. In Chapter 2, the systematic review used the JD-R and IGLO models to provide an overview of the demands and resources of informal caregivers, to synthesise existing knowledge, and propose a future research agenda, which contributed insights from a work psychology perspective. In Chapter 3, the qualitative diary study explored the experience of informal caregivers by applying Cognitive Appraisal Theory (Folkman et al., 1986) and suggested the importance of recognising the multi-dimensional care activities that informal eldercare involves. By employing a novel research method in this field, Chapter 3 found in-depth data to identify overlooked demands and resources while providing further contextual insights. Finally, in Chapter 4, we put the process of the Conservative of Resource (COR) theory (Hobfoll, 2001) to the test by examining the role of unhealthy CER and workplace resources in the health and well-being of informal caregivers, which addressed a gap in COR theory research. This thesis has contributed further knowledge relating to this issue by answering eight research questions. The findings are summarised in the follwoing section.

Summary of findings

The thesis contained three studies and a total of eight research questions. A summary of the overall aims, content of the chapters and main findings and/or implications is outlined in the Table 1 below.

Table 1: Overall aim thesis, content of chapters and main findings and/or implications of each chapter:

Overall aim of PhD thesis: This PhD thesis aims to provide knowledge and unveil knowledge gaps for further research in order to increase understanding of knowledge around the life of informal caregivers, thereby building a foundation for advancement in research and intervention development.	Content of thesis: Begins with a general introduction of the reasons for conducting research in this area, followed by a systematic literature review, a qualitative study, a quantitative study and a general discussion of the findings.	Key findings/Implications (Research questions addressed)
Chapter 2 aims to integrate knowledge to provide a holistic picture of current knowledge, which will allow a clear view of the consistencies, contractions and absence in this area of research to guide future research.	Examining knowledge gaps based on a synthesis of earlier published work examining the health and wellbeing outcomes of working informal caregivers and presenting a research agenda for future research.	Certain demands or resources are more researched than the others. Lacking multi-level research and longitudinal research that look into the complexities and nuances of the experience of working informal caregivers. (RQ1, RQ2, RQ3)
Chapter 3 aims to establish the direction and potential insights into the sequence of how various individuals and contextual factors stand related to each other.	Increase our understanding of knowledge around the life of informal caregivers by qualitatively examining the nature of reported caregiving activities, the experiences of informal caregivers, and the factor that impact their experience, and challenge existing assumptions and understanding of informal care.	Informal caregivers perform a variety of care activities, involving physical, emotion and cognitive labour. They also make sense of their experience based on various individual and contextual factors. (RQ2, RQ3, RQ4, RQ5, RQ6)
Chapter 4 aims to fill the knowledge gap based on the lack of multi-level study and emotion regulation of informal caregivers on their health and wellbeing	Examining the role of emotion regulation and workplace resources on the health and wellbeing of informal caregivers, and discussing the implications of the relationships on research and practice	Unhealthy CER may explain a small part of the link between eldercare demands and health and wellbeing. Further investigation is needed to explore the interactions between workplace and individual factors. (RQ7, RQ8)
Chapter 5 aims to discuss the findings from Chapter 2-4 and provide future research direction	Discussing the complexity and nuances in this research area and suggesting future research considerations.	

This PhD thesis aims to provide knowledge and unveil knowledge gaps for further research in order to increase understanding of knowledge around the life of informal caregivers, thereby building a foundation for advancement in research and intervention development. The response to the eight research questions were examined to build knowledge towards achieving the aims of this PhD thesis.

Research Question 1 asked what the impact of managing paid work and eldercare provision has on the health, well-being and work-related outcomes of informal caregivers. This research question was examined by the systematic review in Chapter 2, where I examined the impact of managing paid work and eldercare by synthesising the knowledge from existing research studies. This included an analysis of the "what" of the work-related outcomes and the health and well-being of informal caregivers when facing these responsibilities, and the findings demonstrate the importance of devoting further research attention to the situation of informal caregivers.

The findings of the systematic review in Chapter 2 showed that the provision of eldercare creates conflicts between family and work for working informal caregivers. Providing eldercare and work both involve the use of resources, such as time and effort, on the part of informal caregivers, who face two causes of resource depletion, and are more likely to experience a negative impact on their work and health-related outcomes. The findings in Chapter 2 supported the notion that eldercare negatively impacts the health and well-being of informal caregivers. It was found that there is a negative relationship between eldercare and work performance, with informal caregivers experiencing reduced focus and commitment to work. The negative impact of eldercare identified in Chapter 2 reiterates the findings of previous review papers (Calvano, 2013; Clancy et al., 2020) and highlights the challenges informal caregivers face and why researchers should be concerned about them. The negative effects of balancing work and eldercare are context-specific and may vary based on factors such as work hours, eldercare hours, care trajectory, finance and work performance. Therefore, the experience of individual informal caregivers may differ depending on their particular care and work situation. Unlike other review studies, Chapter 2 specifically focused on the impact of balancing work and eldercare on informal caregivers in terms of individual and work-related outcomes, which paved the way for analysing the support most relevant to those individuals striving for such balance.

Research Questions 2 and 3 asked: What demands and resources do informal caregivers receive at each IGLO level and how are these demands/resources related to their health and well-being outcomes and work-related outcomes? Research questions 2 and 3 followed up on the findings from Research Question 1 and aimed to examine the factors that influence the experiences of informal caregivers. These two research questions were addressed by the findings in Chapter 2 and 3 respectively.

In Chapter 2, the IGLO model was used to identify the demands and resources that influence informal caregivers' health and well-being and work-related outcomes. This question contributed to the understanding of the factors that shape the environment and subsequently the work, health and well-being of informal caregivers. Chapter 2 offered new insights concerning which level of demands and resources influenced various work-related and health and well-being outcomes, separating various levels of organisational factors, and providing a clear distinction amongst various factors that stem from the workplace.

By applying the JD-R and IGLO models, the findings in Chapter 2 showed that the demands of working informal caregivers included occupation, employment mode, health, care trajectory, gender and work climate, whereas no recent study had investigated the group and organisational-level demands. Moreover, Chapter 2 found that there were more studies which investigated resources compared to demands. This is also reflected in the review by Burch et al. (2019) who included organisational resources in their conceptual model, but not demands. The findings in Chapter 2 outlined a variety of resources, from individual resources such as personality traits, socio-economic background, health and coping strategies, to workplace resources such as co-worker support, leader support, flexible work arrangements, organisation support programmes and work climate. The resources identified by Chapter 2 reiterate what has been identified in other reviews (Burch et al., 2019; Calvano, 2013; Clancy et al., 2020). However, Chapter 2 identified few studies investigating group-level resources, thus highlighting current gaps in the research into the demands and resources of informal caregivers beyond the existing reviews.

Additionally, in Chapter 3, from the in-depth qualitative data, we identified demands and resources outside of the workplace from participants' diary entries. For example, Chapter 3 identified resources including knowledge of care and paid care at the individual level, and pets and social support at the group level. The identified demands include other care responsibilities, finance, and other personal circumstances at the time of caring at the individual level and interpersonal conflicts at the group level. Despite the fact that recent reviews also identified demands and resources outside of the workplace, such as community resources, family composition and social support (Burch et al., 2019; Clancy et al., 2020), by using the novel qualitative diary method, not only was Chapter 3 able to capture various resources mentioned in previous studies along with the context, but also to capture new resources not identified in previous studies.

In summary, the thesis identified various demands and resources that may influence the health and well-being of informal caregivers as well as various organisational outcomes in the workplace using the IGLO model, which was used to categorise the demands and resources clearly and systematically. The thesis also identified specific demands and resources outside of the workplace which may be difficult for other research methods (e.g., interviews, questionnaires) to capture, but which add richness and context to the factors that support or hinder informal caregivers. Together, the chapters mentioned above contributed to the identification of the demands and resources that influence the work and well-being and work-related outcomes of informal caregivers as well as identifying research gaps for researchers to carry out further research and possible directions for practitioners and employers to explore in order to support informal caregivers more effectively.

Research Questions 4 – 6 focused on the objective and subjective experiences of informal caregivers. Informal eldercare is an understudied area and not much was previously known about the experience of informal caregivers as well as the demands-resources reported by informal caregivers that influenced their perceived experience. These factors emerged from the findings in Chapter 3.

Research Question 4 asked what eldercare activities informal caregivers perform, to investigate the “what” of eldercare responsibilities. While there are existing studies investigating the variety of eldercare activities (e.g., Bramble et al., 2020), I felt that those studies adopted a relatively restrictive approach to studying eldercare activities, leading to limited consideration of the breadth of such activities and did not provide sufficient context to understand the activities in relation to their meaning for informal caregivers. Thus, in Chapter 3, I decided to use the innovative qualitative diary method to examine the lives and experiences of informal caregivers, giving voice to informal caregivers to speak about their subjective feelings when providing eldercare.

In Chapter 3, we first outlined the five types of care activities, adding three more types based on our findings, namely social and emotional support activities, life administrative activities, and life enrichment activities, in addition to the commonly mentioned assisting with ADLs and IADLs. They were defined, described and proposed as being important in understanding the multi-dimensional nature of eldercare activities. By doing so, we also challenged the existing practice of limiting the criteria of eldercare provision to assisting with ADLs and IADLs (e.g., Arora &Wolf, 2014; Tement &Korunka, 2015). Through the entries in the qualitative diaries, a greater breadth of multi-dimensional, easily observable and not-so-easily observable care activities provided by informal caregivers were captured. This is in line with the call from recent research to examine the complexity of cognitive and emotional work in family care (Daminger, 2019; Robertson et al., 2019) and this thesis recognises the nature of cognitive and emotional work inherent in informal eldercare.

Research Question 5 asked how informal caregivers appraise their experiences of eldercare provision, while Research Question 6 followed up on the reasons that contributed to such appraisals by asking what factors may have contributed to informal caregivers' appraisals of their care experience. In Chapter 3, using a qualitative diary method, this thesis investigated the relationships between the constructs in the theory (the "how"), namely how demands and resources contributed to the appraisal of eldercare by informal caregivers and provided insights into the "why", namely why there are a variety of types of appraisals. Thus, this part of the study provided the context to help understand how factors contributed to the various appraisals of the experience of informal caregivers.

We applied the Cognitive Appraisal Theory (Folkman et al., 1986) to study the experience of informal caregivers, their thoughts and feelings about the care experience, and the factors that influence their thoughts and feelings in relation to eldercare provision. The investigation found that there are a variety of ways to appraise eldercare. The way informal caregivers appraise their care experience may also be affected by their demands and resources; including personality, knowledge about care, the level of other family demands, help from others, and personal circumstances at the time of caregiving. Chapter 3 provides insights into how demands and resources affect the thoughts and feelings of informal caregivers. Generally speaking, when there are conflicts at the time of eldercare and other concerns, or when resources are under strain, informal caregivers are more likely to view eldercare demands negatively and react to them in a similar way. Thus, the findings shed light on the complex cognitive nature of caregiving and highlight that there is no set way of how informal caregivers perceive their care responsibilities due to the variety of factors at individual, group and workplace levels that can influence the appraisal of caregivers. In other words, the care experience varies depending on the context, and consequently, the appraisals and factors that affect informal caregivers' appraisals offer a possible explanation of the difference in their experience. This provided the context and the reasons why previous studies found that providing eldercare can be both positive and negative (Bourke et al., 2010; Hoff et al., 2014).

Research Question 7 asked "why" informal caregivers had poorer health and well-being and whether unhealthy CER could be a factor of interest. Subsequently, Research Question 8 asked a further question as to "how" unhealthy CER interacts with workplace resources in this process.

As illustrated in the above section, the differences in individual experiences in eldercare provision may be partly explained by their cognitions in relation to their own care experiences. Many demands and resources affect the health and well-being of informal caregivers. To examine such knowledge holistically, Chapter 4 focused on the role of individual cognitive processes and workplace resources together. Chapter 4 investigated the role of cognitive processes and contextual factors (i.e., support from the workplace) in the health and well-being of informal caregivers, by using a time separated quantitative survey study.

First, the findings from Chapter 4 provided insights into why informal caregivers lost health and well-being when facing eldercare demands. The chapter proposed unhealthy CER as one of the contributors, as it may use up the cognitive resources (e.g., mental capacity, attention) of informal caregivers and hinder them from finding the appropriate resources and identifying the most effective way to deal with the work and care demands they face. This initiated a new area of research into informal caregivers that focused on their cognitive process.

COR theory has become one of the most influential theories in the area of work psychology. Meta-analyses summarise specific predictions of COR theory (e.g., Alarcon, 2011; Halbesleben, 2006; Liao et al., 2019) and advancing knowledge, especially around the conceptualisation, categorisation and nature of resources (e.g., Halbesleben et al., 2014; tenBrummelhuis & Bakker, 2012). To the best of my knowledge, this is the first study to investigate individual factors through the lens of COR theory in terms of cognitive processes and explore the role of CER in informal caregivers health and well-being. Suggestions were made for advancing COR theory, including exploring the concept of resource passageways, which is the idea that environmental conditions and/or self-regulations may accelerate the change in resources (Halbesleben et al., 2014). This study responded to the call by proposing a mediated moderation model that incorporates both personal and environmental factors when examining the relationship between eldercare responsibilities and the health and well-being of informal caregivers and subsequently enriched the body of COR theory.

In Chapter 4, the interaction between unhealthy CER and workplace resources was examined. Both Cognitive Appraisal Theory (Folkman et al., 1986) and COR theory (Hobfoll, 2001) suggest that personal and environmental factors play a part in the stress appraisal process. Few previous studies have examined the interaction between personal and workplace factors in informal caregivers (e.g., Greaves et al., 2015). This thesis contributes by exploring the role of unhealthy CER and workplace resources in the health and well-being of informal caregivers, moving one step forward by testing models with resources at different levels to advance understanding of the links among eldercare responsibilities, the workplace, and health and well-being. The unanticipated findings, which suggested that FSSB could be more beneficial to informal caregivers with low unhealthy CER, highlight the complexity when individual cognitions and environment interact and suggest that future research to consider the nuanced knowledge in this area. One example is the notion in COR theory that individuals obtain, retain, protect and foster resources (Bakker & Demerouti, 2007; Hobfoll, 2001) and that there is a prerequisite for some resources to be beneficial (Halbesleben et al., 2014).

By addressing the eight research questions, this PhD thesis unveiled knowledge gaps for further research. It has increased the knowledge around the lives of informal caregivers, ranging from what they do, their appraisal of their experience and the demands they face as well as the resources they have, thereby building a foundation for advancement in research and intervention development. This thesis did not engage directly in intervention development, yet it has explored the "what", "how" and "why" to contribute theoretically to the area of balancing work and informal eldercare (Whetten, 1989) on what research and intervention could be developed in the future, thus contributing to the field both theoretically and practically.

Theoretical Implications

This thesis contributes to the knowledge of balancing paid work and eldercare by consolidating, challenging, and providing explanations of current knowledge and by proposing directions for expanding current research. The thesis has generated new knowledge by applying existing models and theories to the topic of informal eldercare, introducing novel methods in data collection and exploring current gaps in informal eldercare research. Further, this thesis examined the COR theory in regard to how coping with demands that take up resources may lead to lower health and well-being. In this way, the thesis bridges the knowledge between informal eldercare research and various constructs, models and theories in psychology that were not previously been examined, despite their important research value in explaining and expanding current knowledge. There are still many things to learn about informal caregivers and by identifying and filling in certain research gaps, this thesis highlights the path which future research might take on this topic. The specific theoretical contributions of this thesis are discussed in more detail below.

Conceptualising informal eldercare as a process of the interplay of demands and resources

This thesis makes a significant contribution by investigating eldercare as a continuous interaction between demands and resources. The dynamic relationship between the changing environment and the subjective interpretation of informal caregivers continuously influence each other, impacting the delicate balance between eldercare and work. To consider eldercare in the context of the interplay between demands and resources, this thesis studied eldercare as a dynamic experience that is influenced by various factors stemming from within both the individual and their environment. The environment experienced by informal caregivers varies based on the demands they face and the resources available to them. This thesis identified and categorised those factors, which can positively or negatively shape the experience of balancing paid work and eldercare. By applying the JD-R and IGLO model, Chapter 2 identified and analysed the demands and resources of working informal caregivers of older people. Re-examining past studies through common conceptual frameworks enabled the identification of overarching themes for otherwise disconnected knowledge, which were subsequently linked to a well-researched framework, such as the COR theory and the Cognitive Appraisal Theory to facilitate the further development of such framework in the context of eldercare. Chapter 3 unveiled more demands and resources that shape the environment and subsequently influence the experience of informal caregivers, and the context of how such factors influence their experience was also provided through the participants' narratives.

The synchronisation of knowledge achieved by this qualitative integration of quantitative studies together with the application of the IGLO model and JD-R model allowed specific suggestions to be made for future research directions. While existing studies have suggested how employers, communities, and policies may help informal caregivers manage paid work and eldercare (Burch et al., 2019; Spann et al., 2019) the systematic review in the present thesis provides a more comprehensive and applied lens. Past reviews applied various conceptual models or frameworks guided by Bronfenbrenner's (2009) Bioecological Systems Theory (Clancy et al., 2020), COR Theory (Burch et al., 2019) and the primary and secondary challenges and solutions framework (Spann et al., 2019) to integrate the body of knowledge. By applying current demand and resource focused models to study balancing eldercare and work, Chapter 2 of this thesis found that there are still many understudied areas regarding the situation of informal caregivers, despite a rise in the number of studies concerning informal caregivers, including three review papers on the topic published within 2019 - 2020 (Burch et al., 2019; Clancy et al., 2020; Spann et al., 2019). The thesis exposed the blind spots of current studies, made suggestions for the potential directions of further investigations and followed them up in Chapter 4.

In summary, by conceptualising informal eldercare as a process of interplay of demands and resources, this perspective acknowledges the complexity of balancing informal eldercare and work, and the importance of understanding the support available and hindrance in the immediate environment and the social circle of informal caregivers.

Understanding eldercare experience through stress theories

The contribution of the thesis extends from the study of demands and resources to widen the application and understanding of existing theories. Building upon the knowledge generated regarding eldercare responsibilities and the demands and resources of informal caregivers, this thesis enriched the knowledge of eldercare experience by analysing it through the lens of Cognitive Appraisal Theory. Eldercare has been studied as a stressor to informal caregivers, however, this is potentially the first study to look at the cognitive appraisal process in eldercare provision. Such an application explained the subjective experience of informal caregivers. Chapter 3 suggested to the researchers that both subjective and objective aspects may need to be considered regarding eldercare provision research, depending on the focus of the study, or the intervention or policy to be developed. The individual differences in the appraisals of informal caregivers’ eldercare experience may not always be accounted for in research studies as numerous factors may play a part in how they feel about their eldercare responsibilities. Chapter 3 posed a question for researchers to consider when exploring the subjective aspect of eldercare when they conduct research in this area.

Last but not least, this thesis examined one of the potential explanations why informal caregivers experience lower health and well-being, by examining the process of COR theory. In Chapter 3, we learnt that informal caregivers' views of their eldercare experience are affected by numerous individual and contextual factors, and such findings led to the examination of individual cognitive processes in Chapter 4. In doing so, the findings in Chapter 4 provided a new direction to research COR theory by integrating the cognitive process, explaining how stressors link to the loss of health and well-being, and by examining the role of unhealthy CER. Future research may consider CER or other factors in the examination of COR theory. Interventions may be developed to break one of the links between demands and lowered health and well-being. This study addressed some of the gaps that were identified in Chapter 2 (e.g., the lack of multi-level study and the lack of consideration in the individual cognitive process) and opened a new avenue in COR theory research and intervention design.

In summary, by studying eldercare through the lenses of two important theories in the field of work psychology in relation to stress and resources, namely Cognitive Appraisal Theory and COR theory, we emphasise the role of individual informal caregivers and their appraisal and the interaction of such a role with other resources and demands. The findings in the thesis aim to emphasise the importance of the processes that impact informal caregivers' experience, in addition to the study of context (e.g., workplace demands and resources, intensity of eldercare demands).

Novel application of research methods in informal care

This study unveiled knowledge about informal care by applying a qualitative diary method to this area of study. This is, as far as we are aware the first study in the area of working informal caregivers to use this method. Most qualitative studies in the past used interviews to collect data (e.g., Airey et al., 2007; McGowan, 2009). In Chapter 3, by using the qualitative diary method, the rich information reported by informal caregivers allowed us to report the demands and resources that may not be retrospectively reported. For example, in our and other reviews (e.g., Calvano., 2013; Burch et al., 2019), there is no mention of the role of pets in easing the worry of informal caregivers, or of how the loss of sleep on a previous day affects the appraisal and response of the informal caregivers on the following day. With the novel qualitative diary method unveiling factors that influence the eldercare experience of informal caregivers, this created opportunities for new research ideas. For examples, examining the role of pets in informal eldercare, extending existing work on how animal companions may benefit older people (Koppel, 2011) as well as to informal caregivers, and extending the study of sleep as a consequence of eldercare (Rice et al., 2008) and chronic issue (McCurry et al., 2015) to examine the daily dynamic between sleep quality and eldercare provision.

Further, the thesis has unveiled the multi-dimensional, observable and non-observable aspects of eldercare activities, which provides an additional angle to existing ways of identifying informal caregivers and measuring eldercare demands. Research into eldercare relies on a number of diverse definitions of informal caregivers and researchers have employed a range of measurement instruments to measure eldercare demands. There was call to expand upon the dichotomous measure of eldercare (Tennstedt & Gonyea, 1994). To respond to such call, the operationalisation of measuring eldercare, in the past two decades has expanded to include various aspects of eldercare demands, such as the health and independence of care-receivers (e.g., Kim et al., 2011; Zacher et al., 2012), whether or not informal caregivers lives together with their care-receivers (e.g., Kossek et al., 2001; Michaud et al., 2010; Robison et al., 2009), the types of caregiving tasks being performed (e.g., Dugan et al., 2016) and measuring eldercare hours per week (e.g., Barrah et al., 2004; Hammer et al., 2005). Some studies used more than one factor to measure eldercare, for example, Bramble et al (2020) suggested four eldercare profiles, which considered aspects of assisting with ADLs, IADLs, and some aspects of medical and administrative support, care duration and providing care at home/outside of the home. However, using various combinations of measures does not mean the full range of care activities that informal caregivers perform have been reflected. Consequently, this still affects the fundamental question of who is providing care.

This study can also serve as one of the bases for future research in methodological development in terms of measuring eldercare demand regarding its complexity and variety.

The use of the qualitative diary design produced data that can be used to make the measurement of informal care more accurate in future studies by capturing a fuller picture of the diversity of activities involved. Future research could consider informal caregivers' multi-dimensional eldercare activities when considering their study design, especially during participant recruitment. For example, a more inclusive definition of informal caregivers covering all five dimensions of care activities may be needed if the research concerns informal caregivers in general, while the narrow definition of informal caregivers focusing on assisting with ADLs and IADLs can be used when researchers focus on informal caregivers' physical labour. When setting the inclusion criteria for studies analysing the life of informal caregivers, researchers, policymakers, practitioners and employers may want to consider defining various types of informal caregivers based on the range and the combinations of care activities they perform, depending on the research need.

In summary, the qualitative diary research method was able to unveil certain the under-explored dimensions of care activities, offering a new angle to study an existing topic and providing the context and data relevant to the lived experience of what has been found in existing research. Future studies can consider the use of a similar research approach and increase methodological diversity without relying on retrospective memory in gathering rich information to advance knowledge in this area.

Practical implications

This thesis has practical implications for employers, managers, and individuals. By applying the IGLO model to the topic of eldercare and work, this thesis offers guidance for Human Resources (HR) approaches within organisations which may bring broad benefits beyond those identified in existing reviews. For instance, organisations can use the IGLO model to assess resources and demands in informal eldercare cases and integrate these findings with existing HR approaches when supporting employees with other needs (DeAngelis et al., 2020; Nielsen et al., 2018). For example, prioritising organisational support that may benefit a range of employees with various family needs, including those with eldercare needs. This would enable organisations to streamline interventions that support a wide range of issues affecting employees, thus reducing the need for separate interventions for each type of problem.

Employers and managers who want to support their employees with eldercare responsibilities may need to consider the broad range of care activities that informal caregivers perform and they may identify more individuals who are providing care than they originally thought. By taking a more inclusive approach to identifying informal caregivers, employers can support their employees earlier and more effectively, before their care responsibilities and deteriorated health force them to leave their jobs. Moreover, care activities are not only performed by the stereotypical caring population, such as middle-aged employees who live close to their older parents, but also by those who live remotely and organise care from afar, by younger employees who are grandchildren, neighbours, or relatives of an older person. Further, support offered at the workplace may also have different levels of impact depending on the individual circumstances of informal caregivers. There is probably no single workplace policy and resource that will work for everyone but multiple policies may be adopted, for example, in combinations of work flexibility, supervisors’ family supportive behaviour and resources signposting.

For friends and family of informal caregivers, the findings in Chapter 3 suggested that their support matters. Despite there being some resemblances among the experiences of informal caregivers, the challenges each informal caregiver faces will be different depending on their individual circumstances. The support and understanding that informal caregivers need may be beyond the typical impressions of what eldercare involves, especially with regard to the unobservable emotional and cognitive aspects. Friends and family can support by sharing eldercare responsibilities (e.g., shopping) and accompanying the care-receivers so the main informal caregiver will have some extra time or simply peace of mind.

For informal caregivers, this thesis offers insights into what may help or hinder their juggling of dual responsibilities, for example, they may look for new ways to perform their duties or craft their duties to fit their needs (e.g., keeping a supporting pet, sharing some life administrative activities with relatives who live far away from the care-receivers). By investigating the cognitive process that links to eldercare, workplace resources and health and wellbeing, effective intervention may also be developed to improve the health and well-being of informal caregivers and to help them cope with their dual responsibilities more generally.

Further, the findings of this study provide information that can be used to develop unhealthy CER awareness training to support informal caregivers to protect their well-being and help them maintain their careers. This can be potentially beneficial regardless of the level of support their employer provides and to precarious workers. The unveiling of the range of resources and the accurate identification of individuals who could benefit from these resources, may help facilitate the development of interventions and explore the conditions for a given intervention to work most effectively.

In summary, this thesis provides knowledge that can be made use of by employers, practitioners and policymakers to support the lives of informal caregivers. With a better understanding of the experience of informal caregivers and how their this is influenced by multiple factors, various parties can come up with insights and ideas to develop interventions and support them more effectively and appropriately.

Strengths of the thesis

This PhD thesis addressed its research questions using diverse methods: a systematic review, a qualitative diary study, and a quantitative survey study. The robust grounding of both the qualitative and quantitative studies in the systematic review underscores their relevance, contributing significantly to advancing the field and enhancing our understanding of the lives of informal caregivers. In-depth knowledge was generated in the qualitative study, while the quantitative study provided an examination of the links between eldercare demands, cognitive process, workplace resources and the health and well-being of informal caregivers. The diversity in research methods also allowed the use of the most suitable method to address each research question. In this way, different types of knowledge were generated that challenged current definitions, added explanations to phenomena and advanced the development of existing theories.

This thesis addressed the call to conduct more cross-cultural research in the area (Clancy et al, 2020). In the qualitative study, I included participants from the UK and Hong

Kong, so the care activities identified in the study were supported by different cultures. The appraisal process described in the study may also have good generalisability to informal caregivers from different cultures under similar economic and welfare systems. Some knowledge generated in this thesis has validation beyond the Western context, which enriches the understanding of the care activities and appraisal process beyond one cultural context. This study also prompts further exploration into the cross-cultural and societal nuances that shape the understanding of informal care.

The thesis concentrated on advancing the understanding of informal caregivers by applying and developing psychological theories and models. This effort aimed not only to assess the impact of eldercare provision in organisational and employment contexts but also to uncover valuable insights into the experiences of informal caregivers, as well as their health and well-being. This contributes to the field of informal care research as it emphasises the individuals beyond the concern for macro-economic issues (e.g., GDP, welfare payout). As a thesis that has its sole focus on the life of informal caregivers, it provides a series of studies that have directly generated further knowledge of informal caregivers within the field of work psychology. This thesis may be seen as a mini-book with concentrated knowledge and is less scattered than individual papers which individually contribute to this area of research.

Limitations of the thesis

This PhD thesis inevitably has some limitations. First, it focused on informal caregivers and their immediate social environment, such as the influence of their workplace, friends and family, which limits the generalisability of the findings to informal caregivers in other situations, such as those without paid work or those undertaking intensive care alone. Second, the systematic review mainly focused on the impact of resources stemming from the workplace, without considering other available resources. Third, despite the qualitative study mentioning some resources for working informal caregivers outside the workplace, to understand the influences of other elements in the ecological system, such as social policy, or technology on informal caregivers, readers will need to refer to other studies, such as Spann et al. (2019) or Burch et al., (2019) as other important aspects were beyond the scope of the current review and were not the main focus of the qualitative study in this thesis.

Clancy et al, (2020) called for more cross-cultural research in this area. Despite there being such an effort in this thesis, the results of the PhD project may have limited generalisability and may inevitably be more applicable to the context of Western or developed economies. For example, articles in the systematic review included studies with data collected from non-western countries (e.g., China and Korea). Most studies included in the systematic review were from Western countries and the quantitative dataset was entirely from the UK, which limits the generalisability of the findings in this thesis as a whole. Despite the effort to respond to the call to conduct more cross-cultural research in the qualitative study, both Hong Kong and the UK are developed economies. Thus, the findings from the qualitative study may remain limited to developed economies. Countries with different socioeconomic contexts to the studied countries may have different social norms, life expectancies, demographics and levels of public support, which the results and suggestions of this thesis were unable to address.

Another factor that contributed to the limited generalisability of the findings is that in the quantitative study, the participants were recruited from a paid platform. Despite paying a fair amount for their participation time and using various screening methods, this may still raise questions about the level of genuine commitment and concentration from the participants as they were incentivised to complete the survey without being linked to participating organisations, such as partner businesses and NGOs. Any findings may be more convincing if the results can be replicated in an organisation sample as the participants may not be motivated as much by financial incentives. With the time limitation of a PhD, it is hard to fit in not only the extra data collection but also the time required to build relationships with organisations. By using data from a reputable paid platform with higher data quality compared to its counterparts (Douglas et al., 2023) to conduct its research, this study at least provides a direction for future studies to replicate the findings or further develop research to examine an aspect of COR theory. However, it also means that this thesis has not directly developed interventions, but rather contributes to the knowledge as to what interventions could be developed in the future.

With hindsight, certain parts of the study could have been conducted differently. For the qualitative diary study, it would have been interesting to conduct a follow-up interview to gather more reflections from the caregivers when appraising their care provision. This would have allowed the researcher to discuss whether the participants shared the same thoughts on how factors that helped with their balancing of work and care affected their appraisal and reactions. However, this would be too time-consuming to fit into an already very packed PhD, not only due to the extra research work involved but also the time required to search for participants who may be willing to commit so much time to a research project. Thus, this thesis is not able to provide in-depth observations from multiple facets, which limits its direct contribution to the development of interventions targeting informal caregivers and their immediate social circle.

Future directions

Future studies could address the limitations of this thesis and build on the knowledge it has generated. Although this thesis makes some contributions to the definition of what informal eldercare is, future studies could advance the knowledge of eldercare provision. Further research studies could quantitatively verify the categorisation of care activities outlined in Chapter 3, such as by using a cluster analysis of the types of care activities to understand further the nature of the various types of care activities in a quantitative manner. Future studies could also develop a measurement for eldercare demands based on the type of eldercare activities performed.

Future studies could also be based on the analysis of care activities performed by informal caregivers to define who are caregivers and who are not. As discussed in Chapter 3, a narrow definition of a caregiver may mean that individuals who are performing care activities may not self-identifying as such. Moreover, using a loose definition of a caregiver in research studies may raise doubts as to whether some of the participants who self-identified as caregivers are in fact the population we aim to support and understand. Is an individual who only visit their partner's grandparent once a week the type of caregiver whose experience and challenges we aim to investigate? Should caregivers be identified through multiple criteria, such as minimum frequency of care, minimum duration and number of care activities performed? That not only requires further research to explore, but also careful consideration by researchers as to whom they are interested in researching.

The systematic review evidenced a lack of longitudinal research and both the qualitative and quantitative studies in this thesis only short timescales (two weeks and three weeks respectively). As informal eldercare often involves caring for an older family member or relative, the duration of eldercare is likely to exceed 2-3 weeks. It may even be composed of discontinued shorter periods over a longer period of time, due to sudden unforeseen situations such as accidents or falls, shared responsibilities with a team of family members, and juggling between various responsibilities (e.g., being unable to visit older parents due to caring for a sick child). The challenges which informal caregivers face over a longer period of time need to be further examined to fully uncover the complexities of individuals' care trajectories.

Further, with regard to the broader theories on which the thesis is based (e.g., COR theory; JD-R theory), although they incorporate a time element for changes to take place (Bakker & Demerouti, 2024; Sonnentag & Meier, 2024), they have not yet specified timeframes for researchers to examine the impact of changes in demands and resources, or of how time as an ongoing context in this process. Due to the heterogeneity of research in the field of work psychology and in particularly studies of working informal caregivers, the lack of reference to effect size among the examined variables and uncertainty around the stability of examined variables made the calculation of optimal time lags in the panel studies unreliable. Despite efforts in the field to establish optimal time lags (Dormann & Griffin, 2015) and a variety of studies incorporated time (Sonnentag & Meier, 2024), decisions concerning time lags in such studies warrant further investigation and contemplation.

The complexity of care arising from factors such as gender, family situation, cultural and wider socio-economic context also warrant further studies. Informal caregivers may face different challenges depending on their gender (Navaie-Waliser et al., 2002; Wayne & Cordeiro, 2003), while cultural expectations and family dynamics may influence the work-care experience (Liu et al., 2010). Different levels of factors can often intertwine when affecting decision-making in the engagement of care and work, and subsequently the experience in balancing care and work (Cook & Dong, 2011). As the individual's situation, family composition, cultural, economic, and social policy may all influence the experience of working caregivers, there may not be many commonalities in the trajectory of care of informal caregivers across contexts, and it is important for future research to identify such nuances and complexities to support informal caregivers in difference care contexts.

Despite the focus on work psychology in this thesis, informal care is a multi-disciplinary topic, and informal caregivers will need support not only from the workplace and their immediate social circle but also from social policy, labour law and technological developments. Further multi-disciplinary collaborations in the research of informal care will make valuable contributions to the lives of informal caregivers, their care-receivers, their employed organisations and the aggregate well-being of society and the wider economy.

Conclusion

This thesis has provided insights into the experience of informal caregivers and the factors that may affect their experience. A range of demands and resources both at the workplace and in the personal lives of informal caregivers may influence their lives as they attempt to balance work and eldercare. These factors may interact with each other and affect informal caregivers in different ways and to varying extents. Informal caregivers carry out a wide range of care activities and have different appraisals of their experience depending on their personal circumstances and the wider context.

Taken together, these findings contribute to the existing literature by identifying the gaps in current studies and the need to apply holistic approaches to investigate the relationship between demands, resources and outcomes leading to a further understanding of the life of informal caregivers. The thesis also demonstrates one of the possible ways to integrate individual cognitive processes, workplace resources, eldercare demands and health and well-being in a cohesive model, by synthesising and generating knowledge of informal caregivers within the area of psychology. While suggesting future research direction, this thesis also contributes to filling the gaps in this area of study and serves as an example of the type of research that can be accomplished.

This thesis focuses on the psychological processes involving the cognitive and immediate contextual factors of informal caregivers through the lens of Cognitive Appraisal Theory. As the old saying goes “It takes a village to raise a child”. Similarly, the need for collective effort in supporting older people is not to be underestimated, while this is also true for their informal caregivers. Future collaborative multidisciplinary research and interventions at multiple levels of society are still required as part of the collective effort to support informal caregivers and address the impact of the changing demographics in ageing societies around the world.

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