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Parental Perfectionism, Well-being and Child Health

By:

Catherine Lilley

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Clinical Psychology Unit, Department of Psychology

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Declaration

I declare that this work has not been submitted for any other degree at the University of Sheffield or any other institution.

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Lay Summary

The desire to strive for the ideal and improve is an innately human characteristic. However, this desire can become unrelenting, whereby people strive for unrealistic goals and criticise themselves when these goals are not obtained. This is termed as 'perfectionism'. Research has now found that there are two overall dimensions to perfectionism: perfectionistic striving, which has generally been linked to positive psychological and physical outcomes for the individual, and perfectionistic concerns, which are often linked to negative outcomes. Theoretically, there are also reasons to believe that perfectionism can affect outcomes for other people, including children. What is not known is whether research supports this theory, and if so, what this effect looks like (e.g. whether it improves well-being in children or increases distress). This is important to consider, in terms of how to best maintain child well-being. It is also necessary to support the parent to maintain their own well-being, in the context of looking after a child.

This work includes a literature review to assess for an association between the aforementioned forms of parental perfectionism and children's distress/well-being. This found that parental perfectionistic concerns are associated with higher child distress and lower child well-being. However, this effect was to a small degree, and in the case of child distress was influenced by the way that studies measured parental perfectionism. In light of this, interventions to support parents in reducing self-criticism are suggested, to help them to reduce their own distress (and perhaps improve child well-being by-proxy).

An example of interventions suggested to increase peoples' kindness towards themselves are self-compassion interventions. This work includes a study that tested the effectiveness of an online self-compassion intervention, aiming to help parents respond

to themselves in a kinder and more accepting way. In particular, the intervention was tested with parents of children with type 1 diabetes, epilepsy or asthma. This is because there is very little research on what works to effectively support parents of children with chronic health conditions, despite evidence suggesting that they are susceptible to increased distress, including shame in the context of completing parenting tasks.

Shame is defined as a self-conscious feeling about oneself, and can be extremely unpleasant. It has also been linked to perfectionistic thoughts (e.g. “why can’t I be perfect”). Therefore, given what evidence suggested about the detrimental effects of perfectionism, it was important not only to test the effectiveness of the intervention, but to consider whether having regular perfectionistic thoughts reduced the effectiveness of the intervention. This study found that the self-compassion intervention improved parents’ self-compassion and reduced shame associated with parenting events. However this effect was not influenced by perfectionistic thoughts.

Taken together, the literature review and study have implications for clinical practice, because it suggests that self-compassion interventions (including those that are online and easily accessible) could help parents be more self-accepting and experience less shame. It is also hypothesised that this could have a positive effect on outcomes for children, however this would need to be further tested.

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Section I: Literature Review

A Meta-Analysis to Explore the Relationship Between Parental Multidimensional Perfectionism and Child Psychological Outcomes

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Abstract

Objectives. Research suggests a relationship between parental perfectionism and child psychological outcomes (CPOs). This meta-analysis aimed to test the nature and magnitude of the association between dimensions of parental perfectionism (perfectionistic concerns; PC, or perfectionistic strivings; PS) and child psychological distress or well-being. Moderation analyses were also conducted, including the perfectionism measure used, sample type, parent age, parent gender and child gender.

Methods. Four electronic databases were systematically searched for quantitative studies, reporting on a relationship between multidimensional perfectionism in parents and either distress or well-being in children. A random-effects meta-analysis and quality appraisal was conducted on eligible papers.

Results. Fourteen studies met inclusion criteria, featuring N = 2,845 participants. The meta-analysis revealed a small, significant, and positive effect between parental PC and child distress (r = .154, *CI* [.079, .228]), and a small, significant and negative effect size between parental PC and child well-being (r = -.11, *CI* [-18, -.038, .228]). Moderation analyses found that the perfectionism measure used in studies significantly moderated the relationship between parental PC and child distress. The quality appraisal found that in general, papers clearly introduced the research, but could improve the way results were reported.

Conclusions. Findings indicated that parental PC are positively associated with child distress, and negatively associated with child well-being. Although the effects found were small, findings have implications regarding how interventions for parents could positively affect child well-being.

Limitations:

- Sample type, parent age, parent gender and child gender did not significantly moderate associations between dimensions of parental perfectionism and child distress. It was also not possible to assess for a moderating effect of perfectionism measure in the association between PPS and child distress.
- Correlational findings mean that causality cannot be inferred.
- Eligible papers were predominantly conducted in the West (which could introduce bias within the findings).

Practitioner Points:

- Parental PCs could increase child distress and decrease child well-being – however this might be moderated by factors not measured in this review (e.g. parental overcontrol, or type of distress).
- Services may benefit from considering interventions to reduce parental PCs and thus improve child well-being by-proxy.

Key words: Perfectionism, parents, children, distress, well-being

Introduction

The desire to improve and pursue ideal standards is innately human, and has driven great accomplishments throughout history. Yet this pursuit can be unrelenting, whereby some people set unrealistically high standards and criticise themselves for not achieving or making mistakes (see Frost, Marten, Lahart, & Rosenblate, 1990). This concept is referred to as 'perfectionism', which is often understood as a trait that remains stable over time (Sirois & Molnar, 2016). Although perfectionism has previously been understood as a unidimensional concept, theorists have now diverged from this to consider it as multidimensional. In other words, perfectionism is now understood to feature different dimensions that have distinguishable effects on one's outlook and behaviour.

To date, three main conceptualisations of multidimensional perfectionism (featuring interpersonal and intrapersonal aspects) have attracted the most interest. The first, proposed by Frost, Marten, Lahart, and Rosenblate (1990), suggests that perfectionists exhibit elevated levels across six dimensions: high standards, organisation, concern over mistakes, doubts about actions, parental criticism and high parental expectations. Meanwhile, Hewitt, Flett, Turnbull-Donovan, and Mikail (1991) argued in favour of a three-dimensional structure of perfectionism, featuring self-orientated perfectionism (setting excessively high standards and strict personal guidelines), socially-prescribed perfectionism (the need to live to high standards imposed or perceived from other people) and other-orientated perfectionism (holding excessively high standards to other people). Finally, Slaney, Rice, Mobley, Trippi, and Ashby (2001) proposed three dimensions, including high standards, order (i.e. organisation) and discrepancy (whereby individuals criticise themselves in relation to their perceived failure to meet an expectation).

Although each of these conceptualisations of perfectionism have informed the way that it is measured in research (Enns & Cox, 2002, as cited in Sirois & Molnar, 2016), confirmatory factor analyses have found two higher-order factors of perfectionism that are common across conceptualisations (e.g. Bieling, Israeli, & Anthony, 2004). These include perfectionistic strivings (PS), which refer to the tendency to set extremely high personal standards that demand nothing short of perfection from the individual. Frost, Heimberg, Holt, Mattia, and Neubauer (1993) have conceptualised PS as an 'adaptive' form of perfectionism, as it can modify behaviour to achieve goals (see Slade & Owens, 1998). The other higher-order factor is perfectionistic concerns (PC), which involve obsessive self-scrutiny, critical self-evaluations, preoccupation with others' evaluations, and a lack of satisfaction even when a goal is achieved. As seen, some aspects of perfectionism common to PC are more interpersonal in nature (Sirois & Molnar). In contrast to PS, PC are often seen as 'maladaptive' because associated behaviours are directed towards avoiding negative consequences (Slade & Owens). The way in which proposed dimensions of perfectionism cluster within PS or PC are shown in Table 1.

Table 1.
Dimensions from different constructs of perfectionism and how they cluster within higher-order dimensions Perfectionistic Concerns or Perfectionistic Strivings

Higher-order dimension	Frost, Marten, Lahart, and Rosenblate (1990)	Hewitt, Flett, Turnbull-Donovan, and Mikail (1991)	Slaney, Rice, Mobley, Trippi, and Ashby (2001)
PS	• Personal standards	• Self-orientated perfectionism	• Standards
PC	• Concern over mistakes • Parental expectations • Parental criticism • Doubt about actions	• Socially-prescribed perfectionism	• Discrepancy

The effect of personality traits, such as perfectionism, on physical and psychological health are increasingly being recognised (Sirois & Molnar, 2016). Yet given that PS and PC are reported as both 'adaptive' and/or 'maladaptive', it is necessary to delineate how each individually impact on physical and psychological functioning.

Perfectionism and Physical Health

A growing body of research currently suggests that PC are generally associated with negative physical health outcomes. For example, they have been linked to lower health functioning in individuals with existing chronic-health conditions (Molnar, Sadava, Flett, & Colautti, 2012) and poor self-rated health in samples of people with and without chronic health conditions (Sirois & Molnar, 2017). However, what is less clear is how PS are associated with physical health. Although there is evidence that PS are related to positive health outcomes (e.g. Kempke et al., 2011; Molnar, Reker, Culp, Sadava, & DeCourville, 2006), Sirois et al. (2019) assessed the implications of multidimensional perfectionism for physical health with samples of people, either with

or without fibromyalgia. They found an association between high PC and PS combinations and poorer physical health (which was more robust and mediated by stress in individuals with fibromyalgia). Furthermore, Fry and Debats (2011) present evidence suggesting that PS risk poorer physical health. Therefore, questions remain about how exactly dimensions of perfectionism affect physical health.

Perfectionism and Psychological Health

In terms of psychological health, research has generally focussed on the negative effects of perfectionism. For example, a number of reviews have found that perfectionism can increase stress and reduce coping, by increasing vulnerability or maintaining the symptoms of mental health difficulties (e.g. in obsessive-compulsive disorder, depression, anxiety and eating disorders; see Bardone-Cone et al., 2007; Egan, Wade, & Shafran, 2011). According to a review by Morris and Lomax (2014), associations between perfectionism and mental health problems are also evident in children and adolescents.

Yet again, it is important to distinguish between PS and PC in terms of their impact on psychological outcomes. In terms of PS, self-orientated perfectionism has been associated with higher motivation, self-efficacy and the development of learning strategies for academic success (Mills & Blankenstein, 2000). PS have also been associated with greater levels of positive affect (Bieling, Israeli, Smith, & Anthony, 2003), lower levels of negative affect (Gadreau & Thompson, 2010), and higher life satisfaction (Bergman, Nyland, & Burns, 2007).

Conversely, Shafran and Mansell (2001) suggest that PC are related to greater psychopathology, whilst Hill, Huelsman, and Araujo (2010) found that PC suppress an association between PS and positive psychological outcomes (e.g. well-being, life satisfaction and positive affect). Research also suggests an association between PC and

poorer well-being (Chang, 2000; Chang, Watkins, & Banks, 2004; Dunkley, Zuroff, & Blankenstein, 2003), as well as higher levels of negative affect (Gadreau & Thompson, 2010). Furthermore, socially-prescribed and self-orientated perfection have been implicated in worry and rumination (see Flett, Nepon, & Hewitt, 2016 for a review, cited in Sirois & Molnar, 2016). Yet as these dimensions relate to both PC and PS, the picture of how these higher-order structures affect psychological health remains unclear.

Perfectionism in Parents and Child Health Outcomes

Given that factors clustering within PC particularly involve an interpersonal aspect (see Table 1), it would follow that PC have implications for those in a person's life, including children. Indeed, the idea that parental perfectionism can affect outcomes for children was first observed by Bruch and Hewlett in 1947, after children were diagnosed with diabetes. They stated that the family response is rooted in their tendency to have a "perfectionistic attitude toward the child" (p. 205). Since this observation, Bruch has published work on the nature and aetiology of anorexia nervosa, and describes girls experiencing this condition to be driven to achieve perfect standards that was underpinned by the perfectionistic demands of their parents (Bruch, 1962). Perfectionistic parents are also proposed to have a controlling parenting style, which negatively influences the parent-child relationship (e.g. Flett, Hewitt, Oliver, & McDonald, 2002). Furthermore, Greblo and Bratko (2014) found that parental 'negative' perfectionism (i.e. PC) was positively associated with parental criticism and controlling behaviours, which again could lower the child's self-esteem or increase anxiety. These studies therefore provide support for the idea that PC in parents has implications for their child's physical or psychological health, through an effect on their behaviours. However, less is known about whether PS could also affect child health outcomes. It may be that personal strivings place increased pressure on parents, which

impacts their behaviour with children. Alternatively, perhaps research suggesting that PS are related to positive psychological health extends to mean that parental PS lead to greater well-being in children. Overall, it would be useful to clarify these links.

In terms of child physical health, there is a paucity of empirical research on how parental perfectionism may play a role. However, given what we know about the effect that PS and PC have on outcomes for the individual, one may make inferences about this relationship. For example, PC feature dimensions that may be particularly pertinent to a parent (e.g. concern over mistakes, doubt about actions, living to high standards imposed by others and feeling a discrepancy between the parent they are and would like to be). Therefore, if parents are high in PC, the child's physical health might be negatively affected because they are dependent on parental care resources, which could be depleted in cases where parents' PC have left them feeling inadequate.

Meanwhile, research suggests that parental personality traits and cognitions are associated with child psychological outcomes (CPOs, defined here as forms of child distress or well-being). For example, decreased parental acceptance, increased parental control, and modelling of anxious behaviours have all been associated with child anxiety (see Degnan, Almas, & Fox, 2010; Drake & Ginsberg, 2011; McLeod, Wood, & Weisz, 2007; and Wood, McLeod, Sigman, Hwang, & Chu, 2003 for reviews). By extension, parental perfectionism may be another trait that has an effect on CPOs. Indeed, maternal acceptance has been found to be negatively correlated with child depressive symptoms (Garber, Robinson, & Valentiner, 1997), whilst PC could reduce acceptance because they features high parental criticism and expectations. In addition, Flett, Hewitt, Oliver, and McDonald (2002) suggest a parenting model, whereby perfectionistic parents are anxious about being imperfect, and so attempt to reduce error through overcontrolling behaviours. The theory suggests that this places their children

at higher risk of negative mental health outcomes, by conveying that mistakes represent threats. Considering that children often internalise messages received from caregivers to inform self-beliefs (e.g. Ryle & Kerr, 2002), it appears likely that if those messages contain high unrealistic expectations and criticism (as per PC), children may be predisposed to feelings of low self-esteem or failure. Furthermore, they may be at higher risk of anxiety about the potential for failure or negative evaluation, and depression when excessively high standards are not met.

Conversely, there is emerging evidence suggesting that parental PS have a positive effect on CPOs. For instance, Lee, Schoppe-Sullivan, and Kamp Dush (2012) found that self-orientated perfectionism was associated with higher levels of parenting satisfaction in mothers, and greater self-efficacy, higher parental satisfaction and lower parenting stress in fathers. Such factors could help parents to attend and engage with their child, which (given the literature already presented) could improve CPOs.

Moderators of the Parental Perfectionism – CPOs Association

Evidence also suggests some factors that could moderate an association between parental perfectionism and CPOs. One such example is the perfectionism measure used in research. Specifically, the Almost Perfect Scale – Revised (Slaney, Rice, Mobley, Trippi, & Ashby, 2001) contains items that tap into negative affect (Sirois, Molnar, & Hirsch, 2017). Therefore, any reported relationship between parental PS/PC and child distress could be conflated if using this scale. A study by Stoeber and Stoeber (2009) also found gender differences in perfectionism in areas of life (e.g. way of speaking and relationships), and a negative correlation between age and dimensions of perfectionism. As such, parent gender and age may affect ratings of perfectionism (although it is unclear how this would influence an association with CPOs). Furthermore, gender has been found to be a determinant of mental health issues (World Health Organisation,

n.d.), meaning that child gender could act as a moderator. Finally, the sample type used in research (e.g. parent-child dyads, non-dyads) could introduce a source of bias. Yet in the absence of empirical evidence to enable hypotheses, this is not predicted to significantly moderate any associations.

Outline of the Current Issue, Aims and Hypotheses

Given the issues outlined above, it is important to clarify the nature of any relationship between parental multidimensional perfectionism and CPOs. Specifically, research regarding an association between PS and psychological health is inconsistent. Questions also remain regarding whether the association between PC and negative psychological outcomes in the individual can be extended to a relationship between parental PC and increased child distress/lower well-being.

The aim of this meta-analysis was therefore to objectively test the nature and magnitude of the association between dimensions of parental perfectionism (PC or PS) and CPOs (child distress or child well-being). A further aim was to provide a brief narrative synthesis to summarise between-study similarities and differences.

The following hypotheses were tested:

1. Parental PC (PPC) will be positively related to child distress.
2. PPC will be negatively related to child well-being.
3. Parental PS (PPS) will be negatively related to child distress.
4. PPS will be positively related to child well-being.
5. Effect sizes will be larger if using the APS-R. Parent gender, parent age and child gender will also moderate all associations (although there is insufficient evidence to inform a directional hypothesis). Sample type will not moderate associations.

In terms of clinical relevance, findings could inform support for parents and children with psychological concerns. For example, if findings suggest that PPC are positively related to child distress, interventions may focus on reducing PPC, by targeting critical evaluations or self-scrutiny.

Method

Search Strategy

Four electronic databases (Scopus, Medline, Web of Science and PsycInfo) were systematically searched for empirical research into parental perfectionism and CPOs. These electronic databases were selected because they each cover literature regarding allied health fields.

The PICO framework (population of interest, intervention, condition and outcome) informed the search strategy. Search terms were informed by those used in the available literature and by mapping terms to subject headings on electronic databases whilst scoping for titles. Variations on terms regarding parents/carers, children/adolescents, and psychological outcomes in children were included. Variations of "perfectionism" (including "parental satisfaction", "overcontrol", "criticism", "pressure", "achievement goals" and "perceived parenting") were also included during initial scoping, however using these terms did not yield any further papers that met the eligibility criteria than simply using the term "perfect*". Rather, they generated a large number of irrelevant titles, and literature consistently distinguished these constructs from perfectionism. Therefore, these terms were not included in the final search. See Table 2 for the final search terms.

Table 2.
Search terms used within systematic literature search (within title, abstract or topic)

Population and Intervention/Condition	Intervention/condition	Outcome	Outcome
"parent*" OR "caregiver" OR "mother" OR "father"	"perfect*"	child* OR adolescen* OR son OR daughter	"well-being$" OR distress OR anxiety OR depression OR "mental health" OR "negative affect" OR "positive affect" OR stress

Note: * indicates term can be a composite of a word, $ represents a search whereby studies including variations of this spelling are displayed.

Reference lists within eligible papers were also checked, along with unpublished literature (i.e. 'grey literature'; Quintana, 2015). Grey literature was searched using the New York Academy of Medicine grey literature search engine. Electronic databases used also found grey literature, as searches were not filtered by paper source. The decision to include grey literature was made because the concept of a relationship between parental perfectionism and outcomes for children is relatively new; therefore, some papers may yet to be published. It also reduces the risk of publication bias affecting findings.

Eligibility Criteria

A broad eligibility criteria was set, as the relationship between parental multidimensional perfectionism and CPOs has not been reviewed before. There were no exclusion criteria set in terms of date of publication, country, population or study design. Also, if associations between parental perfectionism and CPOs were assessed in the context of wider study aims, the paper was eligible but only findings related to the aims of this review were included.

In terms of exclusion, only papers reporting empirical studies featuring usable effects were included, to enable a meta-analysis. Furthermore, there was not the facility to translate papers not written in English.

Parental Perfectionism. Studies were included if they assessed an aspect of PPC or PPS as an independent variable, and parents were defined as any person with parental responsibility (as defined under the Children's Act, 1989). Studies measuring unidimensional constructs of perfectionism were excluded. Similarly, studies measuring other-orientated perfectionism were not eligible, as there is limited research regarding how this relates to PC or PS (Sirois & Molnar, 2016). Furthermore, papers that reported aspects of perfectionism (e.g. perfectionistic parenting) as an independent variable were included, provided that it was possible to identify whether it corresponded to PPC or PPS.

CPOs. Studies were eligible if they measured child distress or well-being as a dependent variable (using any outcome measure completed by a parent or child). Child distress was defined as a child's feeling of emotional ill-being, and could be characterised through symptoms of anxiety and depression (Veit & Ware, 1983; Tanaka & Huba, 1984); stress and strain (Ridner, 2004), emotional suffering (Drapeau et al., 2010), irritability and obsessive-compulsions (Tanaka & Huba, 1984). Child well-being was conceptualised as a child's positive emotionality, happiness, high self-esteem or life satisfaction (see Diener, Suh, Lucas, & Smith, 1999). The child could be any age, as long as they were conceptualised as a 'child' in relation to a parent.

Data Management and Selection Process

The search of electronic databases took place 7th January 2019. All of the non-duplicated papers were screened by the title and abstract. There were no papers found via grey literature searches and all papers screened were published. Of the 78 full-texts

that remained after screening, 64 did not meet inclusion criteria. Therefore, 14 studies were included in the final review. See Figure 1 for a summary.

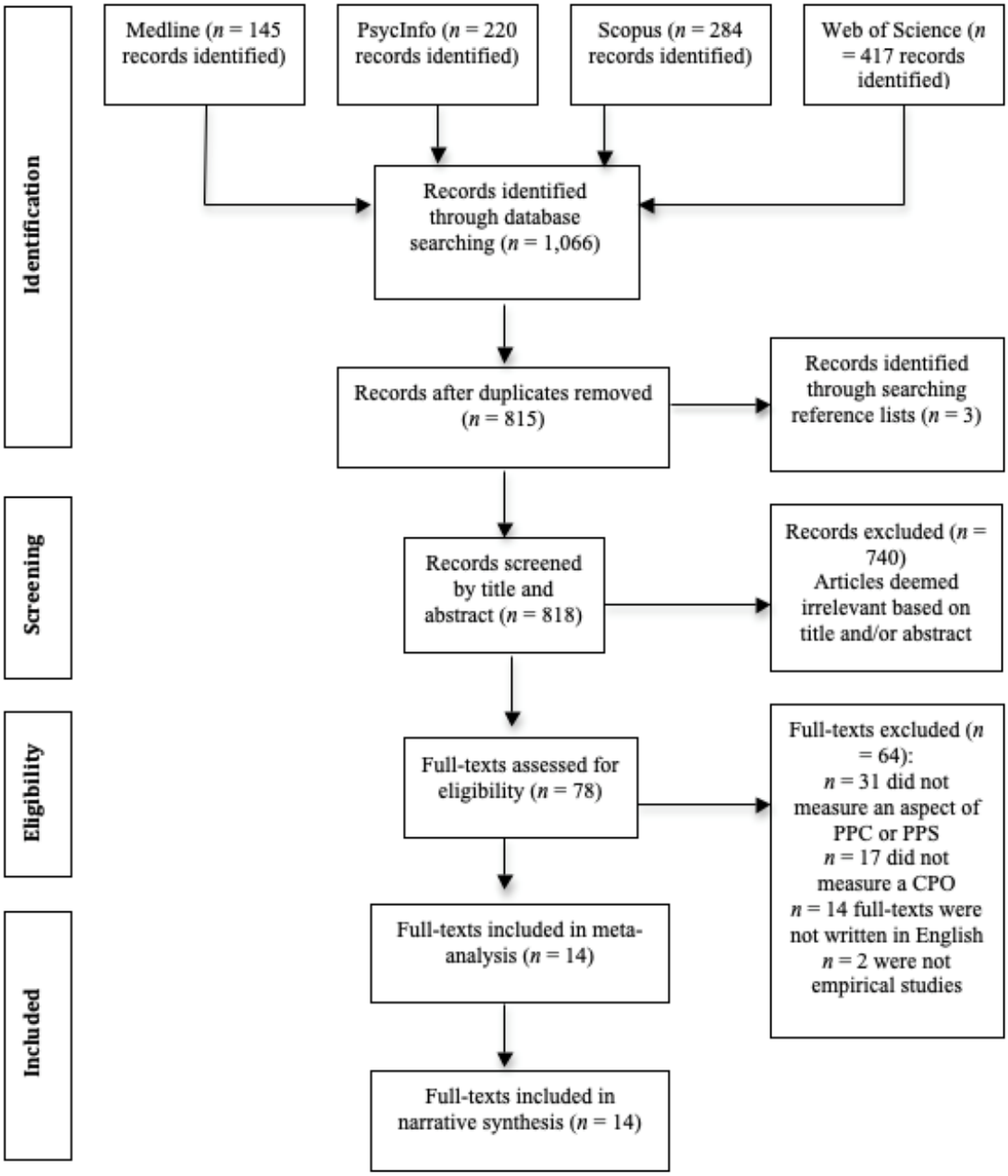

Figure 1: PRISMA (2009) Flow diagram. Adapted from Moher, Liberati, Tetzlaff, and Altman, D.G. (2009).

Data Extraction

Study characteristics were extracted, including the authors, year of publication, country of origin, study design, sample type, parent age, parent gender, child gender, measures used to assess PPC or PPS, type of CPO measured, measures used to assess CPO, and main effects regarding the relationship between parental perfectionism and CPOs/data that enabled the calculation/checking of effect sizes (see below). As seen in Table 3, all eligible studies were types of observational study.

Further information regarding effect sizes was requested from authors of four studies. The requested information was provided for two papers, one author did not respond, and the other was unable to provide requested data. The paper written by the author that did not respond (Woodside et al., 2002) did not report effect sizes, but did provide *F*-values, which could be used to calculate effect sizes. Regarding the paper where the author was unable to provide requested information (Lloyd, Schmidt, Simic, & Tchanturia, 2015), results regarding some subscales from the perfectionism measure used were reported and some were not (see Table 3). Therefore, results were generated using available information only.

Meta-analytic Strategy

This meta-analysis was conducted with Comprehensive Meta Analysis, version 3 (CMA; Borenstein, Hedges, Higgins, & Rothstein, 2013). A random-effects model was selected to integrate effect sizes, to reduce the chance of a Type 1 error occurring (Borenstein, Hedges, Higgins, & Rothstein, 2010). CMA transforms all effect sizes into Fisher's *z* (Hedges & Olkin, 1985) to enable the calculation of an integrated effect size. Integrated effect sizes are presented as *r* in this meta-analysis to enable clear reporting. According to Cohen (1992), effect sizes $r = .10$ are considered small, $r = .30$ are medium and $r = .50$ are large. These guidelines are used to assess the strength of

relationships reported in this meta-analysis. The criteria for statistical significance was set at an alpha value of < .05 in line with convention (Borenstein, Hedges, Higgins, & Rothenstein, 2009), and data is presented regarding 95% confidence intervals of the effect size.

As aims were to differentiate how higher-order dimensions of parental perfectionism related to positive or negative forms of CPOs (i.e. child distress or well-being), meta-analytic methods were to be run separately for (1) PPS to child distress, (2) PPS to child well-being, (3) PPC to child distress, and (4) PPC to child well-being. However, only two studies measured aspects of child well-being (life satisfaction; Randall, Bohnert, & Travers, 2015; and self-esteem; Soenens, Vansteenkist, Duriez, & Goossens, 2006) and both of these studies measured PPC only. Therefore, it was not possible to run a meta-analysis on PPS and child well-being.

Statistical Approach to Integrating Effect Sizes

The majority of papers included in this meta-analysis (n = 12) reported Pearson's r between PPS/PPC and CPOs. Two studies (Lloyd, Schmidt, Simic, & Tchanturia, 2015, and Woodside et al., 2002) reported between-group differences in parental PPS/PPC (in mothers with children with anorexia, or without). Lloyd et al. conducted t-tests to compare groups and reported effect sizes as Cohen's d. Therefore, an independent-groups design was used to check Cohen's d (as per Morris & DeShon, 2002), by imputing means, standard deviations and the sample size into an online calculator (Lenhard & Lenhard, 2014). The t-test values were input to aggregate effects with r in CMA. Woodside et al. conducted analysis of variance – as the first degrees of freedom were equal to 1 and the mean squared error was not reported, methods described by Thalheimer and Cook (2002) were appropriate to follow, whereby Cohen's

d can be calculated based on *F*-values and sample sizes provided for each group. These calculations were carried out using the online calculator.

As recommended by Card (2012), weighted averages were calculated (using CMA) in cases where multiple effect sizes were reported in one paper (e.g. where papers reported relationships between PPC/PPS and multiple measurements of distress). This resulted in one overall effect size per paper, per meta-analysis (see Table 3).

Heterogeneity

Heterogeneity in meta-analyses refers to how much variation of studies can be attributed to a true effect in findings (Quintana, 2015). In the case of this meta-analysis it was tested for using the *Q*-test and the *I*-squared test statistic. As per Higgins, Thompson, Deeks, and Altman (2003), I^2 values of 25% variance were interpreted to represent low variance, 50% suggested moderate variance, and 75% indicated high variance. A forest plot to visualise effect sizes and confidence intervals was also produced.

Moderator variables. Moderation analyses were run where tests of heterogeneity yielded significant results. Moderators were identified *a priori*, comprising the perfectionism measure used, parent age, parent gender, child gender and sample type. Sub-group moderation analyses were conducted where variables were categorical (i.e. perfectionism measure used and sample type), and were only run if there were ≤ 3 studies per group (in line with Card, 2012). Meta-regression was used with continuous moderators (i.e. parent age, parent gender and child gender, represented as the proportion of females in the study).

The type of distress measured was also considered as a potential moderator. However, only two studies measured the same type of distress (anxiety; Affrunti, Geronimi, & Woodruff-Borden, 2015; and Affrunti & Woodruff-Borden, 2014), leaving

k = 1 in all other sub-groups. Therefore, distress could not be meaningfully grouped to enable an accurate moderator analysis.

Publication Bias

According to Quintana (2015) studies with large effect sizes are more likely to be published, meaning that there is potential for bias in studies included in meta-analyses. In line with Quintana, publication bias was assessed for using a funnel plot (to visualise standard errors vs. effect sizes, with the trim-and-fill method used where the funnel plot was asymmetrical), Egger's regression test, and the fail-safe *N*.

Quality Appraisal

Consistent with the recommendations of Higgins and Green (2011), a quality appraisal of the final 14 papers was completed, using the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE; von Elm et al., 2007; see Appendix A). The STROBE consists of 22 questions (comprising a possible 35-items), requiring the reader to critically evaluate the clarity of reporting and risk of bias contained in the paper; therefore it enables the reader to consider paper quality. For each item, papers were categorised as having complied with criteria ('yes'), not complied ('no'), or not applicable. Ratings of compliance were then converted into percentages to allow for quality comparisons between papers. Questions that were scored as 'not applicable' were not included in this calculation. This process replicates that by Sorensen, Wojahn, Manske, and Calfee (2013).

The STROBE was selected for quality appraisal because all papers were observational, and it provides clear reporting criteria for the main types of observational study (cross-sectional, cohort and case-control). A random sample of papers (*n* = 4) was also reviewed by a trainee clinical psychologist, to test reliability and validity. Disagreements regarding ratings were discussed until a consensus was agreed. As the

STROBE is intended to guide readers to consider quality of reporting and bias, the statement does not suggest a minimum score for exclusion. As such, no papers were excluded on the basis of their STROBE score.

Results

Fourteen studies were included in this meta-analysis. Table 3 presents extracted data and Appendix B contains a summary of study findings and raw effect sizes extracted per study.

Table 3.
Characteristics of studies assessing a relationship between PS/PC and CPOs

			Pre-defined moderators							Combined ES (Pearson's *r*)			
	Author, (year), country	Study design	Sample type (*N*)	Parent age	Parent gender (% female)	Child gender (% female)	Perfectionism measure (PPS)	Perfectionism measure (PPC)	CPO (measure)	ES: PPS to child distress (*p*-value)	ES: PPC to child distress (*p*-value)	ES: PPC to child well-	STROBE Compliance
1	Affrunti, Geronimi, & Woodruff-Borden (2015) United States	Cross-sectional	Mother-child dyads (*N* = 71)	*M*age = 35.39 (*SD* = 6.14)	100%	57.7%	Personal standards (MPS-F)	Concern over mistakes, parental expectations, parental criticism, doubt about actions (MPS-F)	Anxiety disorders (ADIS-IV – P/C)	*r* = .086 (*p* = .48)	*r* = .107 (*p* = .38)	N/A	70.37%
2	Affrunti & Woodruff-Borden (2014) United States	Cross-sectional	Parent-child dyads (*N* = 77)	*M*age = 36.30 (*SD* = 6.56)	94.8%	57.1%	Personal standards (MPS-F)	Concern over mistakes, parental expectations, parental criticism, doubt about actions (MPS-F)	Anxiety disorders (ADIS-IV – P/C)	*r* = -.096 (*p* = .41)	*r* = .143 (*p* = .22)	N/A	70.37%

	Author, (year), country	Study design	Pre-defined moderators: Sample type (*N*)	Parent age	Parent gender (% female)	Child gender (% female)	Perfectionism measure (PPS)	Perfectionism measure (PPC)	CPO (measure)	Combined ES (Pearson's *r*): ES: PPS to child distress (*p*-value)	ES: PPC to child distress (*p*-value)	ES: PPC to child well-	STROBE Compliance
3	Besharat (2003) Iran	Cross-sectional	Parent-child non-dyads: Parents (*N* = 157, with *N* = 90 children)	Not reported	51.59%	53.3%	Positive perfectionism (PNPS)	Negative perfectionism (PNPS)	Test anxiety (State anxiety subscale of the STAI)	*r* = -.345 (*p*< .01)	*r* = .453 (*p* = .11)	N/A	48.28%
4	Cook & Kearney (2009) United States	Cross-sectional	Parent-child non-dyads Parents (*N* = 152, with *N* = 97 children)	Not reported	58.6%	54.6%	Self-orientated perfectionism (MPS-HF self-orientated perfectionism subscale)	Socially-prescribed perfectionism (MPS-HF socially-prescribed perfectionism subscale)	Youth internalised psychopathology (YSR) covering: (1) anxiety/ depression, (2) withdrawal/ depression, (3) internalising symptoms	*r* = .046 (*p* = .39)	*r* = -.058 (*p* = .23)	N/A	63.33%
5	Enns, Cox, & Clara (2002) Canada	Cross-sectional	Undergraduates (*N* = 261)	N/A	N/A	43.7%	Perfectionistic parenting, partly conceptualised as parental personal standards (PPSS)	Perfectionistic parenting, partly conceptualised as socially prescribed perfectionism (MSPS)	Depression proneness (BDI, DPRS)	*r* = -.015 (*p* = .73)	*r* = .268 (*p* = .01)	N/A	67.86%

			Pre-defined moderators							Combined ES (Pearson's *r*)			
	Author, (year), country	Study design	Sample type (*N*)	Parent age	Parent gender (% female)	Child gender (% female)	Perfectionism measure (PPS)	Perfectionism measure (PPC)	CPO (measure)	ES: PPS to child distress (*p*-value)	ES: PPC to child distress (*p*-value)	ES: PPC to child well-	STROBE Compliance
6	Frost, Lahart, & Rosenblate (1991) United States	Cross-sectional	Parent-child non-dyads Parents (*N* = 93, with *N* = 72 undergraduate children)	Not reported	83%	100%	Personal standards (MPS-F)	Concern over mistakes, parental expectations, parental criticism, doubt about actions (MPS-F)	General psychological/ psychiatric symptoms (BSI): GSI i.e. general symptoms, positive symptom total i.e. number of psychiatric symptoms (PST) and positive symptoms distress i.e. symptom intensity (PSDI).	*r* = .047 (*p* = .45)	*r* = -.048 (*p* = .35)	N/A	57.14%

	Author, (year), country	Study design	Pre-defined moderators: Sample type (*N*)	Parent age	Parent gender (% female)	Child gender (% female)	Perfectionism measure (PPS)	Perfectionism measure (PPC)	CPO (measure)	Combined ES (Pearson's *r*): ES: PPS to child distress (*p*-value)	ES: PPC to child distress (*p*-value)	ES: PPC to child well-	STROBE Compliance
7	Lloyd, Schmidt, Simic, & Tchanturia (2015) United Kingdom	Pilot, case-control	Mothers of children with and AN (*N* = 21) and controls (*N* = 20)	Mothers of children with AN: *M*age = 49.21 (*SD* = 3.94) Mothers of children without AN: *M*age = 49.01 (*SD* = 4.12)	100%	Not reported	Personal standards (MPS-F)	Concern over mistakes, doubt about actions (MPS-F) - parental expectations and parental criticism was measured but was not reported.	Presence of anorexia nervosa (unknown, pre-diagnosed).	*r* = 0.22 (*p* = .14)	*r* = .09 (*p* = .43)	N/A	72.41%
8	Randall, Bohnert, & Travers (2015) United States	Cross-sectional	Parent-child dyads (*N* = 88)	Not reported	91%	60%	N/A	Socially prescribed perfectionism (MPS-HF socially prescribed perfectionism subscale)	Adolescent adjustment (YSR), covering: depression (YSR-D), anxiety (YSR-A), and life satisfaction (SWLS).	N/A	*r* = .115 (*p* = .13)	*r* = -.110 (*p* = .31)	82.14%

	Author, (year), country	Study design	Pre-defined moderators						CPO (measure)	Combined ES (Pearson's *r*)			STROBE Compliance
			Sample type (*N*)	Parent age	Parent gender (% female)	Child gender (% female)	Perfectionism measure (PPS)	Perfectionism measure (PPC)		ES: PPS to child distress (*p*-value)	ES: PPC to child distress (*p*-value)	ES: PPC to child well-	
9	Randall et al. (2018) United States	Cross-sectional	Parent-child dyads (*N* = 239)	Not reported	92%	82%	Self-Orientated Perfectionism (MPS-HF self-orientated perfectionism subscale)	Socially Prescribed Perfectionism (MPS-HF socially prescribed perfectionism subscale)	Pain-related distress and behaviour, covering: Pain-related fear (FPQC) and pain catastrophising (PSPC)	*r* = .040 (*p* = .38)	*r* = .175 (*p* < .01)	N/A	71.43%
10	Randolph & Dykman (1998) United States	Cross-sectional	Undergraduates (*N* = 246)	N/A	N/A	55.1%	N/A	Perfectionistic parenting, conceptualised as consisting of HF socially prescribed perfectionism (MSPS)	Depression (BDI), depression proneness (DPRS) and dysfunctional cognitions (i.e. dysfunctional attitudes; DAS and magical ideation (signifying risk of psychosis; MIS)	N/A	*r* = .279 (*p* < .01)	N/A	75%

			Pre-defined moderators							Combined ES (Pearson's *r*)			
	Author, (year), country	Study design	Sample type (*N*)	Parent age	Parent gender (% female)	Child gender (% female)	Perfectionism measure (PPS)	Perfectionism measure (PPC)	CPO (measure)	ES: PPS to child distress (*p*-value)	ES: PPC to child distress (*p*-value)	ES: PPC to child well-	STROBE Compliance
11	Rice, Tucker, & Desmond (2008) United States	Cross-sectional	Parent-child non-dyads: Parents (*N* = 86 with *N* = 94 children)	White parents: *M*age = 41.39 (*SD* = 7.43) AA parents: *M*age = 44 (*SD* = 9.53)	100%	64.1%	Standards (APS-R)	Discrepancy (APS-R)	Depression (CES-D)	*r* = -.282 (*p* = .17)	*r* = .267 (*p* = .02)	N/A	71.43%
12	Sarkhanlou & Kiamenesh (2015) Iran	Cross-sectional	Parent-child dyads (*N* = 200)	Not reported	100%	100%	Positive perfectionism (PNPS)	Negative perfectionism (PNPS)	Emotional problems, covering: Depression, anxiety and stress (DASS-21)	*r* = -.083 (*p* = .043)	*r* = .194 (*p* < .01)	N/A	28.57%
13	Soenens, Vansteenkist, Duriez, & Goossens (2006) Belgium	Cross-sectional	Parent-child dyads (*N* = 677)	Mothers: *M*age = 44 (*SD* = 3.73) Fathers: 46 (*SD* = 3.83)	80%	50.22%	N/A	Concern over mistakes and doubt about actions (MPS-F, concern over mistakes and doubt about actions subscales)	Depression (CES-D), self-esteem (child self-worth subscale of the SPP-AC) and loneliness (S-T-LS)	N/A	*r* = .065 (*p* = .02)	*r* = -.110 (*p* = .004)	68.97%

	Author, (year), country	Study design	Pre-defined moderators: Sample type (*N*)	Parent age	Parent gender (% female)	Child gender (% female)	Perfectionism measure (PPS)	Perfectionism measure (PPC)	CPO (measure)	Combined ES (Pearson's *r*): ES: PPS to child distress (*p*-value)	ES: PPC to child distress (*p*-value)	ES: PPC to child well-	STROBE Compliance
14	Woodside et al. (2002) Europe and the USA	Case-control	Parents of children with anorexia nervosa (*N* = 185) and controls, from wider study (*N* = 272)	Not reported	57.8%	Not reported	Personal standards (MPS-F)	Concern over mistakes, parental expectations, parental criticism, doubt about actions (MPS-F)	Presence of anorexia nervosa (unknown, pre-diagnosed)	*r* = .094 (*p* = .05)	*r* = .093 (*p* < .01)	N/A	58.62%

Note: ES=Effect size, *Mage* = mean age, *SD* = standard deviation, MPS-F = Frost Multidimensional Perfectionism Scale (Frost, Marten, Lahart, & Rosenblate, 1990), ADIS-IV – P/C = Anxiety Disorders Interview Schedule-Fourth Edition-Parent/Child (Silverman & Albano, 1996), PNPS = Positive and Negative Perfectionism Scale (Terry-Short, Owens, Slade, & Dewey, 1995), STAI = State Trait Anxiety Inventory (Speilberger, Gorsuch, & Lushene, 1970), MPS-HF = Hewitt and Flett Multidimensional Perfectionism Scale (Hewitt, Flett, Turnbull-Donovan, & Mikail, 1991), YSR = Youth Self Report (Achenbach & Rescorla, 2001), PPSS = Parental Personal Standards Scale (Enns, Cox, & Clara, 2002), MSPS = Modified Socially Prescribed Perfectionism Scale (Randolph & Dykman, 1998), BDI = Beck Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), DPRS = Depression Proneness Rating Scale (Zemore, Fischer, Garratt, & Miller, 1990), BSI= Brief Symptom Inventory (Derogatis & Melisaratos, 1983), PST=Positive Symptom Total, PSDI= Positive Symptom Distress Index, AN = anorexia nervosa, YSR-D = Youth Self Report – Depression (Achenbach & Rescorla), YSR-A = Youth Self Report – Anxiety (Achenbach & Rescorla), SWLS = Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985), FPQC = Fear of Pain Questionnaire for Children (Simons, Sieberg, Carpino, Logan, & Berde, 2011), PCSC = Pain Catastrophising Scale for Children (Sullivan, Bishop, & Pivik, 1995; Vervoort, Goubert, Eccleston, Bijttebier, Crombez, 2005), DAS = Dysfunctional Attitudes Scale (Weissman & Beck, 1978), MIS = Magical Ideation Scale (Eckblad & Chapman, 1983), AA = African-American, APS-R = Almost Perfect Scale – Revised (Slaney, Rice, Mobley, Trippi, & Ashby, 2001), CES-D = Center for Epidemiological Studies – Depression Scale (Radloff, 1977), DASS-21 = Depression, Anxiety and Stress Scale (Lovibond & Lovibond, 1995), SPPA = Self Perception Profile for Adolescents (Harter, 1988; Straathof & Treffers, 1988; Wichstrøm, 1995), STLS = State-trait Loneliness.

Meta-Analysis

Table 3 presents effect size data for the meta-analysis of parental perfectionism dimensions and CPOs. There were k = 11 papers in the analysis testing the association between PPS and child distress (including N = 1,834 participants), k = 14 in the analysis testing PPC and child distress (with N = 2,845 participants), and k = 2 in the analysis testing a relationship between PPC and child well-being (featuring N = 765 participants).

Figures 2 – 4 show the forest plots of the effect sizes between PPS – child distress, PPC – child distress, and PPC – child well-being. The meta-analysis revealed a non-significant negative association between PPS and child distress, suggesting no relationship (r = -.057 (*CI* -.149, .035), p = .224). For the association between PPC and child distress, a significant small effect size was found (r = .154, *CI* [.079, .228], p < .01). A significant small negative effect size was found between PPC and child well-being (r = -.110, *CI* [-.180, -.039], p = .002).

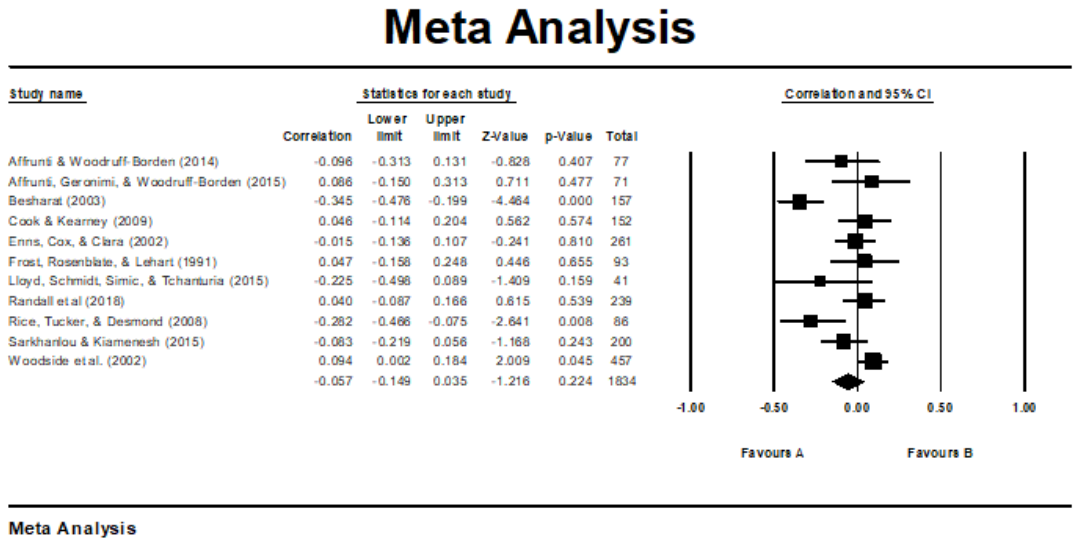

Figure 2: Forest plot of studies included in the meta-analysis between PPS and child distress.

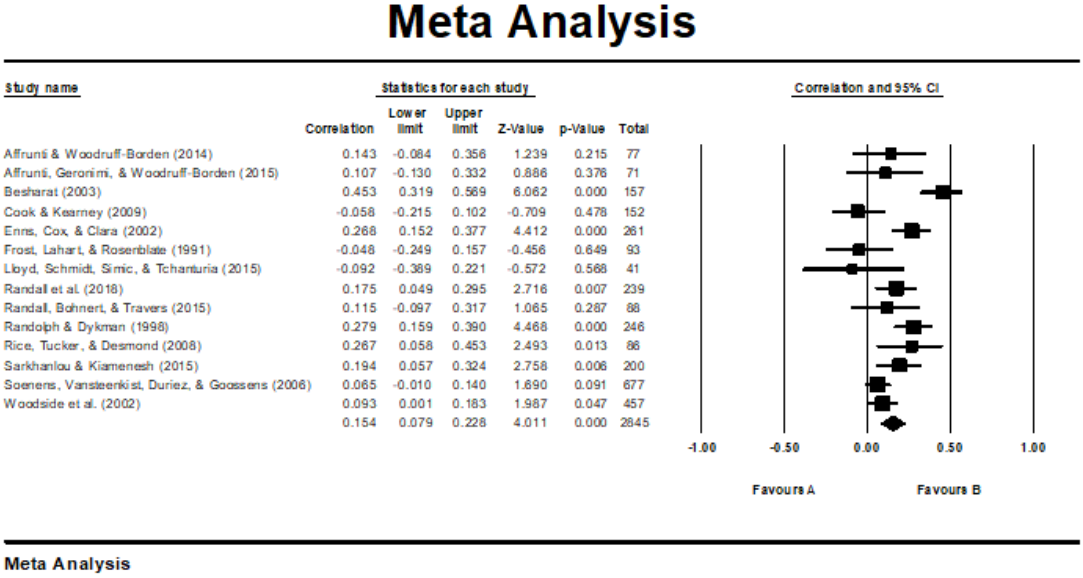

Figure 3: Forest plot of studies included in the meta-analysis between PPC and child distress.

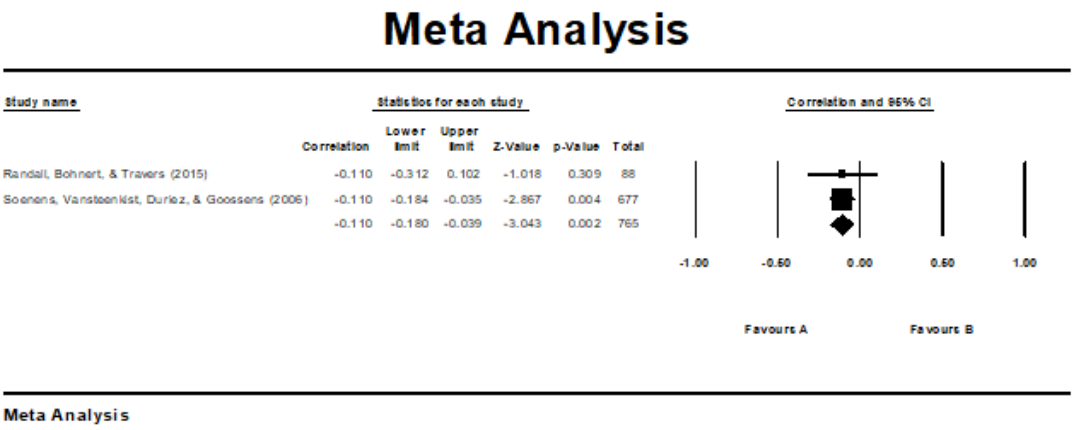

Figure 4: Forest plot of studies included in the meta-analysis between PPC and child well-being.

Tests of heterogeneity of the effect sizes were significant for both PPS – child distress ($Q_{total}(10) = 35.24$, $p < .001$; $I^2 = 71.623$) and PPC – child distress ($Q_{total}(13) = 46.814$, $p < .01$; $I^2 = 72.23$). The I^2 values for both dimensions of parental perfectionism to child distress were above 50%, suggesting moderate between-study heterogeneity. Therefore, moderator analyses were run to probe this heterogeneity. For the analysis between PPC and child well-being, only two studies were included (and each reported the same raw effect size). Tests of heterogeneity were thus not meaningful and not conducted.

Moderator analyses of PPS and Child Distress

Papers were grouped according to the perfectionism measure used. However, there were $k < 3$ papers in groups using the APS-R, PNPS and MPS-HF. Consideration was given to grouping papers using these scales into an 'other' group, yet this was not deemed sufficient to provide a meaningful analysis, because it would only involve comparisons of the MPS-F versus all other measures. Therefore, the moderating role of perfectionism measure was not assessed.

Papers were also grouped by sample type (Table 4). The most meaningful way to group papers (to ensure $k \geq 3$ per group) was considered to be according to whether samples featured dyads, non-dyads (i.e. parents with more than one child/children with more than one parent), or an 'other' group (i.e. parents or children only). As presented in Table 4, sample type did not significantly explain between-study heterogeneity ($Q_{between}(3) = 1.927$, $p = .588$).

Table 4.
Sub-group analyses of the associations of PPS with child distress

Moderator	Groups	*N*	*k*	*r*	95% *CI*	*p*
Sample type	Parent-child dyads	587	4	-.014	[-.096, .067]	.732
	Parent-child non-dyads	488	3	-.196	[-.433, .066]	.141
	Other (undergraduates and parents with children with anorexia nervosa v controls)	759	4	.024	[-.074, .121]	.298

*$p < .05$, **$p < .01$, *N* = number of participants, *k* = number of papers, *r* = effect size, *df* = degrees of freedom, *p* = p-value

Table 5 shows the results of the meta-regression testing for a moderating effect of parent age, parent gender and child gender. Hypotheses regarding the moderating effect of these variables were not supported, as between-study variance was not explained by any of these variables (see Appendix C). However, as only four studies reported parent age, results should be treated with caution.

Table 5.
Meta-analyses of the associations of PPS with child distress

Moderator	*N*	*k*	r^2	*b* [95% *CI*]	Q_{model}	*df*	*p*
Parent age	275	4	.86	-.023 [-.049, .003]	3.02	1	.08
Parent gender	1,573	10	.00	-.0002 [-.006, 006]	.00	1	.95
Child gender	1,793	10	.00	.002 [-.002, .007]	.96	1	.33

r^2 = regression statistic, *b* = co-efficient, *CI* = confidence interval, Q_{model} = Q-test statistic regarding model

Moderator analyses of PPC and Child Distress

Table 6 summarises the sub-group moderator analyses of PPC and child distress. Papers were grouped by perfectionism measure used (see Table 6), and the analysis found significant between-group heterogeneity ($Q_{between}$ (2) = 7.827, p = .02). This suggests that the perfectionism measure contributed to a significant amount of variance in the pooled effect size. The largest effect size was also found in the 'other' group (which included the APS-R), and all grouped effect sizes were significant. There was no overlap in the confidence intervals for the MPS-F and 'other' groups analysis, suggesting significant heterogeneity between these groups. Sub-group analyses also found that sample type did not moderate the association between PPC and child distress ($Q_{between}$(3) = 1.778, p = .62).

Table 6.
Sub-group analyses of the associations of PPC with child distress

Moderator	Groups	*N*	*k*	*r*	95% *CI*	*p*
Perfectionism measure	Frost Multidimensional Perfectionism Scale (MPS-F)	1,416	6	.069	[.016, .121]	.01**
	Hewitt and Flett Multidimensional Perfectionism Scale (MPS-HF)	986	5	.167	[.049, .281]	.006**
	Other (Positive and Negative Perfectionism Scale; PNPS and Almost Perfect Scale – Revised; APS-R)	443	3	.309	[.1, .468]	.001**
Sample type	Parent-child dyads	1,352	6	.114	[.06, .166]	.000**
	Parent-child non-dyads	395	3	.23	[-.108, 521]	.181
	Other (undergraduates and parents with children with anorexia nervosa v controls)	1,098	5	.136	[.006, .261]	.041*

Meta-regressions found that tests of heterogeneity for parent age, parent gender and child gender were not significant (see Table 7; Appendix D). Yet results should be treated with caution, as only five studies reported parent age.

Table 7.
Meta-analyses of the associations of PPC with child distress

Moderator	*N*	*k*	r^2	*b* [95% *CI*]	Q_{model}	*df*	*p*
Parent age	952	5	.00	-.01 [-.033, .012]	.8	1	.37
Parent gender	2,338	12	.00	-.001 [-.006, .004]	.2	1	.65
Child gender	2,804	13	.00	-.002 {-.006, -.002]	.99	1	.32

Publication Bias

As only two studies measured the association between PPC to child well-being, it was not possible to assess publication bias in this relationship. For PPS to child distress, the fail-safe *N* analysis found that zero studies with null results would be needed to reduce the threshold value of *p* to < .05 (the threshold was calculated at 65, using methods described in Rosenthal, 1979). This suggests significant publication bias, meaning results should be treated with caution. In contrast, the funnel plot (Figure 5) was relatively symmetrical, and although there were three studies falling outside the area of the funnel (see Sterne et al., 2011), the trim-and-fill test resulted in zero studies being trimmed. Egger's test also found a non-significant result ($t(9) = 1.57$, $p = .151$).

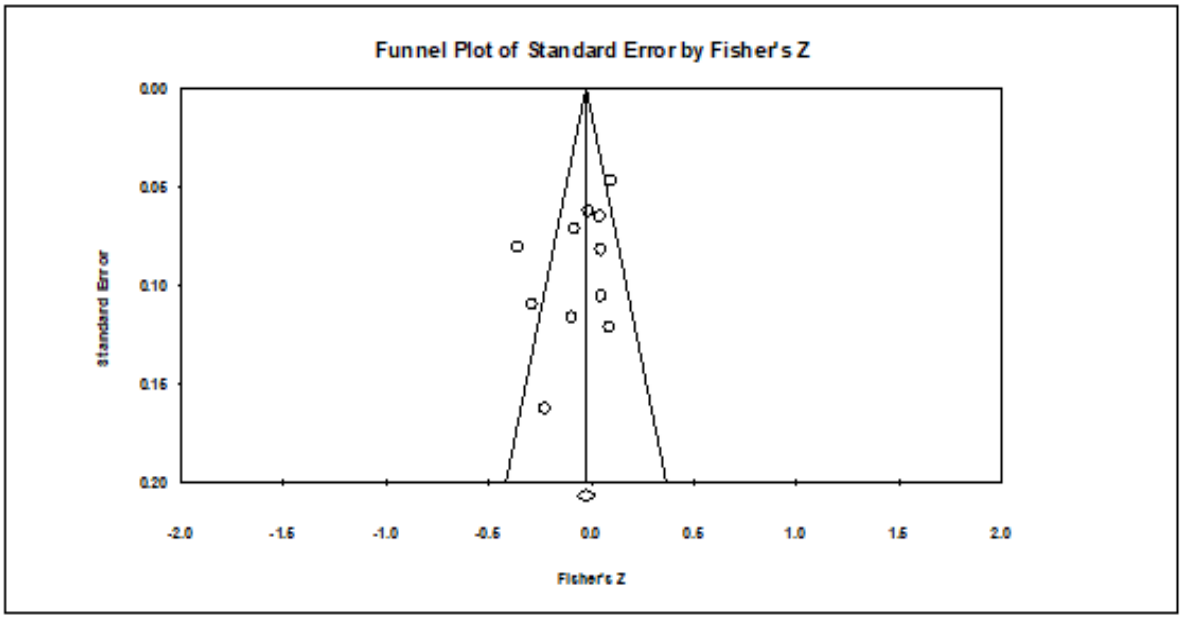

Figure 5: Funnel Plot to Assess Publication Bias – PPS to child distress.

For PPC and child distress, tests were unanimous in suggesting no evidence of publication bias. The fail-safe *N* statistic was 191, which exceeded the threshold value of 80. The funnel plot was also fairly symmetrical (although two studies fell outside of the funnel area; Figure 6). Furthermore, Egger's test showed a non-significant result ($t(12) = .27$, $p = .79$).

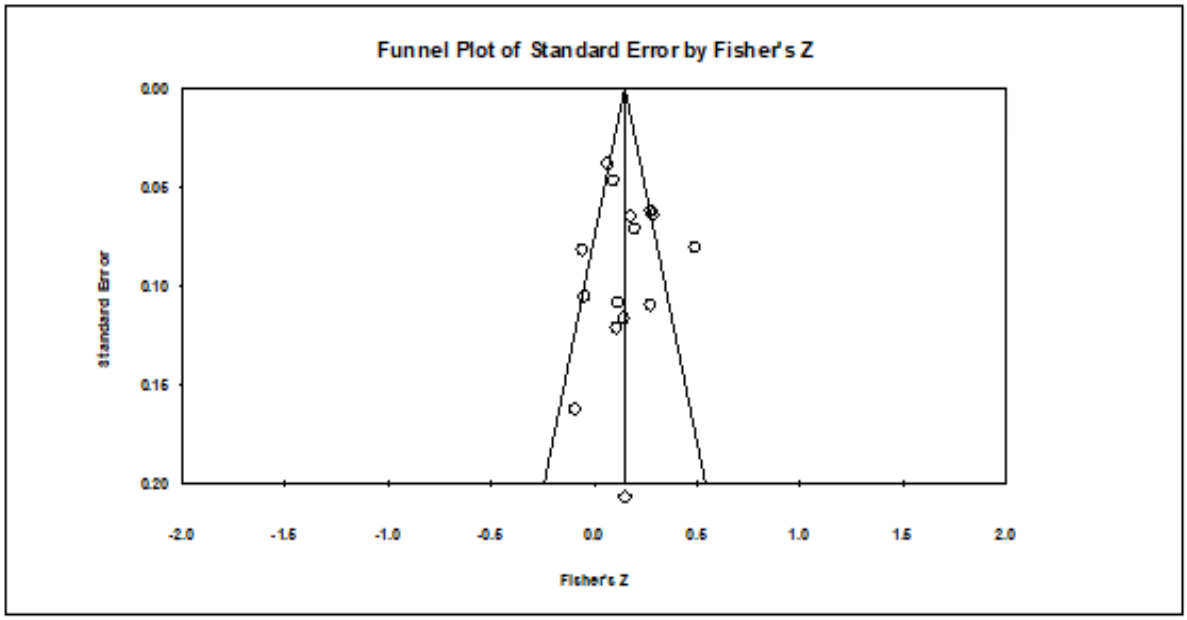

Figure 6: Funnel Plot to Assess Publication Bias – PPC to child distress.

Quality Appraisal

The quality appraisal ratings are presented in Appendix E. The intraclass correlation was calculated at $\kappa = .948$, 95% *CI* = .927, .963, ($p < .01$), indicating good inter-rater agreement.

The mean percentage regarding compliance with the STROBE was 64.7% (range 28.57% – 82.14%, *SD* = 13.37). Besharat (2003) and Sarkhanlou and Kiamenesh (2015) were both one *SD* under the mean, indicating poor quality in relation to other papers, whilst Randall, Bohnert, and Travers (2015) was one *SD* over, indicating high quality compared to other papers. A summary of compliance ratings across sections of the STROBE is presented in Appendix F.

Papers were generally compliant with providing a sufficiently clear and informative abstract, although only Lloyd, Schmidt, Simic, and Tchanturia (2015), and

Randall, Bohnert, and Travers (2015) used a commonly-used term to describe the study design. Papers were also generally compliant with STROBE items regarding the reporting of introductory information – all papers provided an adequate rationale and background for the study, and all studies aside from Sarkhanlou and Kiamenesh (2015) provided pre-specified hypotheses. Regarding methodology, only Frost, Lahart, and Rosenblate (1991), and Soenens, Vansteenkist, Duriez, and Goossens (2006) reported how they arrived at their sample size. Another issue was that not many papers reported how missing data were handled (only Randall et al., 2015 and Randall et al., 2018 reported this data). Yet the main section in which papers were not compliant with the STROBE was within the results section. Only four studies provided any data regarding participants' progression through the study (Lloyd et al.; Randall et al., 2015; Randall et al., 2018; and Rice, Tucker, & Desmond, 2008). Also, only Randall et al. (2015) and Randall et al. (2018) indicated the number of missing participants with missing data for variables of interest. However, studies generally described analytic methods adequately, and most reported summary statistics with precision. Within the final section of the STROBE, all papers reported on the main findings in relation to the study aims, and only two studies did not sufficiently report on study limitations (Besharat, 2003 and Sarkhanlou & Kiamenesh). Yet only Enns, Cox, and Clara (2002) reported the source of funding.

Narrative Synthesis

Study characteristics. Table 3 summarises data regarding study characteristics. Most studies took place in the United States, and all but two (Besharat, 2003, and Sarkhanlou & Kiamenesh, 2015) were carried out in the West. It is noteworthy that Besharat (2003) reported much larger effect sizes than other papers, regarding the magnitude of the relationships between PPC and child distress, and PPS and child

distress. They also reported differential relationships between PPC/PPS and test anxiety depending on the parent's gender (see Appendix B). In their discussion, they state that in Iran (where the study was based), mothers often do not work and so "might feel more responsible for children's school achievements than fathers" (p. 1053). Therefore, cultural differences in gender norms could have affected the reported difference in effect sizes between this study and other studies. Also, Rice, Tucker, and Desmond (2008) found a differential relationship between White and African-American parents in terms of how PPC or PPS related to child distress (there was only a significant relationship between discrepancy and child's depression for White parents, and a significant negative association was found between high standards and child's depression for African-American parents; see Appendix B). This suggests differential results in the relationship between parental perfectionism and child distress as a function of ethnicity. However, the study by Sarkhanlou and Kiamenesh (which took place in Iran) did not report effect sizes between PPC/PPS and child distress that were substantially different from those reported in studies conducted in the West.

Study design. Twelve studies utilised cross-sectional designs. Whilst this design adequately addressed study aims, it was not possible to ascertain the direction of any effect found (i.e. whether CPOs are dependent on parental perfectionism or vice versa). Also, cross-sectional designs do not provide information regarding the temporal validity of a relationship between PPC/PPS and CPOs. Meanwhile, Lloyd, Schmidt, Simic, and Tchanturia (2015) and Woodside et al. (2002) both used case-control designs, which is useful to compare PPC/PPS amongst parents with or without children with mental health difficulties. However, this design still did not determine the direction of any relationship between PPS/PPC and CPOs, or provide information about the temporal validity of the findings.

Participants. Overall, studies included a sample of *N* = 2,845 participants, taken from the general population (see Table 3). The majority of parents and children in the studies were female, with Affrunti, Geronimi, and Woodruff-Borden (2015), Lloyd, Schmidt, Simic, and Tchanturia (2015), Rice, Tucker, and Desmond (2008), and Sarkhanlou and Kiamenesh (2015) using a sample of 100% female parents. Frost, Lahart, and Rosenblate (1991) and Sarkhanlou and Kiamenesh also only used a sample of female children. Therefore, it should be noted that the sample included in this review might not be representative of males.

Measures. All studies used self-reports to measure PPS and/or PPC. However, self-reports can be subject to bias (Field & Hole, 2003), which increases the risk of measurement error. Findings from Enns, Cox, and Clara (2002) and Randolph and Dykman (1998) might be especially susceptible to bias and error, as they asked undergraduate students to complete retrospective ratings of their parents' attitude towards them growing up, which was used to assess parental perfectionism. Such methods are subject to memory error. Also, these two studies utilised measures of perfectionistic parenting that were not validated (MSPS and PPSS; see Table 3). This limits the internal validity of their findings.

As seen in Table 3, a range of CPOs were measured, necessitating the use of different outcome measures. All studies reported psychometric properties of the measures used, which generally reflected good internal validity and consistency. However, the measure to assess test anxiety in Besharat (2003) was a measure of state and trait anxiety, rather than test anxiety. This reduces the internal validity of their results.

Parental Perfectionism and CPOs. Overall, eight studies reported some significant relationships between PPC and types of child distress, two reported

significant relationships between PPS and types of child distress, and one reported a significant relationship between PPC and self-esteem (an aspect of child well-being; see Appendix B). However, the magnitude of the observed effect between PPC or PPS and CPOs were generally small. For example, only Besharat (2003) reported an effect size > .3 in the relationship between PPS and child distress, which reflected a negative moderate effect size. Similarly, on consideration of the effect sizes from studies assessing the relationship between PPC and child distress, only Besharat reports a moderate effect size. However, Enns, Cox, and Clara (2002), Randolph and Dykman (1998), and Rice, Tucker, and Desmond (2008) all report positive correlations nearing a moderate effect size.

In general, most of the significant relationships were found between aspects of PPC and child distress, and the direction of all such relationships were positive (aside from three correlations reported in Frost, Lahart, & Rosenblate, 1991; see Appendix B). Conversely, Soenens, Vansterkist, Duriez, and Goossens (2006) report a significant negative relationship between PPC and self-esteem (which is an indicator of child well-being).

Discussion

This meta-analysis is the first to explore the relationship between dimensions of parental perfectionism (PPC and PPS) and CPOs. Fourteen studies were included in the meta-analysis, including N = 2,845 participants. Overall, PPC was significantly and positively related to child distress, and significantly and negatively related to child well-being. These findings supported *a priori* hypotheses. However, findings also indicated that the magnitude of all such relationships are small. In contrast to the hypotheses, there was no significant relationship found between PPS and child distress. Also, no literature was found exploring an association between PPS and child well-being.

Moderation analyses could only be run to explore the relationships between PPC and child distress, and PPS and child distress, as only two papers measured a relationship between PPC and child well-being. In terms of perfectionism measure, there were also not enough papers to test hypotheses regarding its potentially moderating effect on the association between PPS to child distress (although this does not mean that perfectionism measure does not moderate the association, and further research could enable such analyses). Regarding moderator analyses of PPC to child distress, the perfectionism measure used significantly explained between-study heterogeneity as predicted, and specifically papers using measures included in the 'other' groups (e.g. APS-R) generated larger effects sizes. However, there remained a large amount of unexplained heterogeneity in the association between PPS and PPC to child distress, and sample type, parent age, parent gender and child gender did not significantly explain variance in the relationship.

On consulting the literature, it is unclear what other factors could moderate the relationship between parental perfectionism and child distress, although Besharat (2003) suggested that cultural factors influence the relationship between mothers' or fathers' perfectionism and test anxiety. Rice, Tucker, and Desmond (2008) also found differential relationships between parental perfectionism and child distress, depending on parents' ethnicity. Therefore, research exploring the potentially modifying effect that culture or ethnicity could have on the relationship between PPC and child distress is recommended. It was also noted that many eligible papers suggested a link between parental perfectionism and CPOs through the use of parental overcontrol. For example, Soenens, Vansteenkiste, Duriez, and Goossens (2006) used structural equation modelling to demonstrate that parental overcontrol was an intervening variable between parental perfectionism and adolescent depression, loneliness, and self-esteem. Affrunti

and Woodruff-Borden (2014) also found that parental overcontrol mediated the relationship between parental perfectionism and child anxiety. Overcontrol may therefore be an important moderator of the relationship between parental perfectionism and CPOs. Indeed, Barber and Harmon (2002) have discussed how psychologically controlling parenting can hinder the development of the child's autonomy, whilst autonomy has been positively associated with well-being (Reis, Sheldon, Gable, Roscoe, & Ryan, 2000). In addition, parental perfectionism has been consistently associated with the development of perfectionism in children (e.g. Frost, Lahart, & Rosenblate, 1991; Vieth & Trull, 1999). Therefore, child perfectionism may affect the link between parental perfectionism and CPOs.

Although the pooled effect size between PPC and child distress, and PPC and child well-being were small, they were still significant effects. According to Beck's causal theory of depression (1967), 'dysfunctional' parenting gives rise to 'dysfunctional' attitudes in children, putting them at higher risk of developing depression. Although 'dysfunctional parenting' is defined as consisting of low care and overprotection (Whisman & Kwon, 1992), Randolph and Dykman (1998) expanded upon this to include perfectionstic expectations and parental criticism, which align with definitions of PC (but not PS; Sirois & Molnar, 2016). Therefore, perhaps the finding that PPC (but not PPS) is associated with child distress is because only that dimension of perfectionism leads to dysfunctional attitudes in children. This would particularly make sense given that PC feature interpersonal dimensions of perfectionism (Sirois & Molnar). It is also noteworthy that according to Beck's theory, dysfunctional attitudes are suggested as the catalyst of how depression develops. This raises questions as to whether perfectionistic cognitions (thoughts about perfectionism; Flett, Madorsky, Hewitt, & Heisel, 2002) could influence the effect that perfectionism can have on

psychological health. There also remains the question as to whether perfectionistic cognitions or attitudes could predispose other types of psychological distress (e.g. anxiety, stress, or shame). Therefore, research into these issues seem necessary.

In terms of the narrative synthesis, it was found that although some studies reported a significant relationship between aspects of parental perfectionism and CPOs, they were generally consistent in their findings that the magnitude of this relationship is small (with the exception of only a few studies finding moderate effect sizes). This is despite some between-study differences in study characteristics, suggesting reliable findings. A quality appraisal of included studies was also carried out, finding that papers could generally improve the clarity of their reporting, particularly results sections.

Strengths and Limitations

The findings of this meta-analysis should be considered in the context of its strengths and limitations. A significant limitation was that the moderation analysis found that only one pre-defined moderator (perfectionism measure) significantly explained heterogeneity within the relationship between PPC and child distress. In addition, the effect of that moderator could not be assessed for in the association between PPS and child distress. It was also not possible to include type of distress as a moderator, as each study measured a different form of child distress. This is potentially an unquantified source of between-study heterogeneity.

Furthermore, this meta-analysis included mainly cross-sectional studies, which limits the findings because the effects of parental perfectionism (e.g. communicating threat, as per hypotheses from Flett, Hewitt, Oliver, & McDonald, 2002) could take time to be internalised by children. Therefore, longitudinal studies are recommended, to assess for a relationship between parental perfectionism and CPOs. It may also be useful to consider child age as a moderator if this meta-analysis were replicated.

Another limitation is that information regarding ethnic status was not extracted from papers. Given that some studies included in this meta-analysis cited culture and ethnicity as a potential moderator of the relationship between parental perfectionism and CPOs (e.g. Besharat, 2003), this could have been a moderator in heterogeneity analyses.

In terms of strengths, this meta-analysis is the first to quantify relationships between parental multidimensional perfectionism and CPOs. As it applied meta-analytic approaches separately between PPS or PPC and child distress or child well-being, positive and negative forms of CPOs were sufficiently similar to enable a meta-analysis (see Borenstein, Hedges, Higgins, & Rothstein, 2009). Furthermore, this meta-analysis involved a systematic search strategy, and terms used in existing literature informed the search. Therefore it is easily replicable.

The use of a quality appraisal tool was also advantageous, to identify potential sources of bias in the papers found. Furthermore, the STROBE was appropriate for use with the study designs found during the systematic search. However, the STROBE does not provide categories enabling qualitative interpretation of scores (e.g. as 'high' or 'low' quality), which makes accurate interpretation of the overall quality of reporting difficult. Also, as STROBE items focus on quality of reporting and bias, it is restricted in its ability to assess the methodological rigour of studies (da Costa, Cevallos, Altman, Rutjes, & Egger, 2011). This limited the ability to consider whether methodological quality of studies moderated the relationship between parental perfectionism and CPOs. Therefore, future reviews may benefit from the use of quality appraisal tools that address such issues.

Clinical Implications

As mentioned, although the effect sizes found in this review between PPC and child distress, and PPC and child well-being were small, they still represent a magnitude

of effect. As such, the findings of this review suggest that interventions to address child psychological difficulties could consider the systems around a child. Specifically, it may be beneficial to consider interventions for parents that have potential to reduce criticism, harsh self-scrutiny and self-evaluation, as per PPC. To this end, self-compassion interventions (which involve learning to respond towards oneself with kindness and common humanity; Neff, 2017) may be useful. Indeed, self-compassion has been found to negatively correlate with the discrepancy subscale of the APS-R, which aligns with PC, with a high effect size (Neff, 2003a). Similarly, mindfulness-based interventions could reduce self-criticism (see Kabat-Zinn, 2003), given that they include an element of self-compassion (Kabat-Zinn, 1994). Therefore, research into the effects of such interventions (in reducing behaviours related to PPC) could be beneficial.

As this review provides some support for the validity of theoretical models (e.g. Beck, 1967) interventions could also include education on how parenting has an influence on the development of attitudes or cognitions in children. At present, there exists some parenting courses that aim to reduce child psychological difficulties by-proxy (e.g. Cartwright-Hatton, Laskey, Rust and McNally, 2010). However, unless these interventions include discussion on allowing the child autonomy and adopting a less critical stance, they may not adequately address how parenting styles could affect child attitudes. There may also be a benefit to clinicians considering parental perfectionism within formulations when working with child distress.

Conclusion

To conclude, this meta-analysis found a small, positive and significant relationship between PPC and child distress, and a small, negative and significant relationship between PPC and child well-being. There was no significant relationship

found between PPS and child distress. There was a significant amount of heterogeneity between studies included in the meta-analysis of the relationship between PPC to child distress, and PPS to child distress. In the case of PPC to child distress, this was partially explained by the perfectionism measure used. However, some heterogeneity remained unexplained or unmeasured. Research regarding potential moderators of perfectionism would therefore be beneficial.

Given these findings, interventions focusing on reducing parental self-criticism/evaluation are recommended. As self-compassion involves responding to oneself with kindness and humanity, it may be effective in reducing PPC, which in turn, could improve CPOs. As such, research into the effectiveness of self-compassion or mindfulness-based interventions in improving well-being (as modified by aspects of perfectionism e.g. perfectionistic cognitions) is recommended.

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An asterix precedes studies that were included in the meta-analysis.

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Appendices

Appendix A: STROBE checklist

Note: Removed for copyright reasons.

Note: Removed for copyright reasons.

Appendix B: Findings of each study and raw effect sizes extracted

Table A1.
Summary of study findings

Study	Key findings in relation to PPC/PPS and CPOs	Raw effect sizes extracted in relation to PPS to child distress	Raw effect sizes extracted in relation to PPC to child distress	Raw effect sizes extracted in relation to PPC to child well-being
Affrunti, Geronimi, & Woodruff-Borden (2015)	Path analyses did not find a significant direct path between maternal PS or PC and anxiety was found (although there was a small positive correlation between concern over mistakes and child anxiety).	r = .086	r = .199 r = .013	N/A
Affrunti & Woodruff-Borden (2014)	Path analyses did not reveal a significant direct association between parental PS or PC and child anxiety. The correlations between concern over mistakes/doubts about actions and anxiety, and parental expectations/criticism and anxiety were both small and positive.	r = -.096	r = .15 r = .136	N/A
Besharat (2003)	There was a large, significant, positive correlation between mothers' negative perfectionism and child's test anxiety (r = .66, p < .01). There was also a small, significant negative relationship between mothers' scores on positive perfectionism and child test anxiety (r = -.27, p < .01), and a moderate, significant, negative relationship between fathers' scores on positive perfectionism and child test anxiety (r = -.42, p < .01).	r = -.27** r = -.42**	r = .66** r = .18	N/A

Study	Key findings in relation to PPC/PPS and CPOs	Raw effect sizes extracted in relation to PPS to child distress	Raw effect sizes extracted in relation to PPC to child distress	Raw effect sizes extracted in relation to PPC to child well-being
Cook & Kearney (2009)	There were no significant correlations between parents' self-orientated perfectionism or socially prescribed perfectionism and child internalising symptoms, although relationships between fathers' self-orientated perfectionism and child YSR anxious/depressed, withdrawn/depressed and internalising were all positive (all other correlations between parental self orientated/socially prescribed perfectionism and CPOs were negative). The were some small, positive effect sizes between fathers' self-orientated perfectionism and youth internalising, YSR withdrawn depressed and YSR anxious depressed. The relationship between fathers' socially-prescribed perfectionism and YSR withdrawn depressed also had a small, negative effect size. Regression analyses indicated that self-orientated perfectionism and socially prescribed perfectionism significantly predicted sons' internalising symptoms *T* scores only ($p = .047$). Socially prescribed perfectionism contributed significantly to this effect ($p < .01$). Mothers' socially prescribed perfectionism and self-orientated perfectionism did not significantly predict sons' anxiety/depression or withdrawal/depression T scores. Results regarding fathers and daughters were not significant.	$r = -.01$ $r = -.08$ $r = -.07$ $r = .13$ $r = .18$ $r = .22$	$r = -.02$ $r = -.05$ $r = -.05$ $r = -.13$ $r = -.05$ $r = -.07$	N/A

Study	Key findings in relation to PPC/PPS and CPOs	Raw effect sizes extracted in relation to PPS to child distress	Raw effect sizes extracted in relation to PPC to child distress	Raw effect sizes extracted in relation to PPC to child well-being
Enns, Cox, & Clara (2002)	Correlations indicated a significant relationship between both measures of perfectionistic parenting and depression (moderate effect size; $r = .36$, $p < .01$), and perfectionistic parenting and depression proneness (small effect size; $r = .17$, $p < .01$). There were no significant correlations between parental personal standards and child depression/depression proneness.	$r = .02$ $r = -.05$	$r = .36$** $r = .17$**	N/A
Frost, Lahart, & Rosenblate (1991)	In terms of PCs, there was a significant positive correlation between mothers' concern over mistakes and daughter's ratings of PDSI ($r = .32$, $p < .05$; moderate effect size), as well as mothers' parental concerns and daughters' GSI ($r = .295$, $p < .05$; small - moderate effect size) and PSDI scores ($r = .362$, $p < .01$; moderate effect size). Conversely, there was a negative significant relationship between fathers' parental expectations and daughters' GSI scores ($r = -.372$, $p < .05$; moderate effect size) and PDSI scores ($r = -.406$, $p < .01$; moderate effect size), as well as between fathers' parental criticism ratings and daughters' GSI scores ($r = -.333$, $p < .05$; moderate effect size) and PSDI scores ($r = -.397$, $p < .01$; moderate effect size). This suggests that higher mothers' PCs are associated with increased	$r = .136$ $r = .042$ $r = .274$ r=-.08 $r = -.018$ $r = -.118$	$r = .119$ $r = -.024$ $r = .32$* $r = .151$ $r = .042$ $r = .238$ $r = .295$* $r = .213$ $r = .362$** $r = .007$ r=-.077 r=.01 $r = -.116$ $r = -.049$ $r = -.183$ $r = -.372$*	N/A

Study	Key findings in relation to PPC/PPS and CPOs	Raw effect sizes extracted in relation to PPS to child distress	Raw effect sizes extracted in relation to PPC to child distress	Raw effect sizes extracted in relation to PPC to child well-being
	symptomology in daughters, whilst higher PCs in fathers is related to lower symptomology in daughters. No other significant relationships were found between mothers' or fathers' scores on subscales pertaining to PCs and daughters' symptomology. In relation to PS, there were no significant correlations between mothers' or fathers' PS scores and daughters' GSI, PST or PSDI, although generally the correlation between maternal PS scores and daughters' symptomology were positive, whilst for fathers this relationship was negative.		*r* = -.274 *r* = -.406** *r* = -.333* *r* = -.271 *r* = -.397** *r* = -.072 *r* = -.34 *r* = -.164	
Lloyd, Schmidt, Simic, & Tchanturia (2015)	Independent-measures t-tests found no significant between-group differences in terms of mothers' scores on subscales measuring PC or PS. This suggests no association between PC and child's diagnostic status.	*d* = -.45	*d* = -.28 *d* = -.08	N/A
Randall, Bohnert, & Travers (2015)	Bivariate correlations did not indicate any significant relationships between any outcomes of adolescent adjustment and SPP.	N/A	*r* = .11 *r* = .12	*r* = -.110
Randall et al. (2018)	There were small, significant, positive correlations between parent socially-prescribed perfectionism and both child pain-related fear ($r = .2$, $p < .01$) and pain catastrophising ($r = .15$, $p < 0.5$). There was no	*r* = .02 *r* = .06	*r* = .2** *r* = .15*	N/A

Study	Key findings in relation to PPC/PPS and CPOs	Raw effect sizes extracted in relation to PPS to child distress	Raw effect sizes extracted in relation to PPC to child distress	Raw effect sizes extracted in relation to PPC to child well-being
	significant correlation found between self-orientated perfectionism and pain-related fear or catastrophising.			
Randolph & Dykman (1998)	There were significant positive correlations found between perfectionistic parenting measured by the MPPS and depression (r = .25, p < .0005; small – moderate effect size), depression proneness (r = .3, p < .0005; moderate effect size), dysfunctional attitudes (r = .37, p < .01; moderate effect size) and magical ideation (r = .19, p < .01; small effect size). Meanwhile, mediation analyses found that the strongest relationship in the pathway between aspects of parenting and child depression was perfectionistic parenting.	N/A	r = .25*** r = .3*** r = .37*** r = .19**	N/A
Rice, Tucker, & Desmond (2008)	There was a significant, moderate, positive correlation between discrepancy and child's depression in Whites (r = .35, p < .01), but not African-Americans. In terms of high standards, there was a significant, moderate, negative association between this and child's depression in African Americans (r = -.47, p < .01) but not Whites. Regression analyses revealed that parental perfectionism did not significantly contribute to adolescents' depression.	r = -.47** r = -.09	r = .35** r = .12	N/A

Study	Key findings in relation to PPC/PPS and CPOs	Raw effect sizes extracted in relation to PPS to child distress	Raw effect sizes extracted in relation to PPC to child distress	Raw effect sizes extracted in relation to PPC to child well-being
Sarkhanlou & Kiamenesh (2015)	Findings indicated significant, small, positive correlations between negative perfectionism and depression (r = .201, p < .01), anxiety (r=.191, p< .01) and stress (r = .191, p < .01). There were no significant relationships between positive perfectionism and emotional problems. Regression analyses indicated that negative perfectionism explained 5% variance in emotional problems, whilst positive perfectionism explained 7%.	r = -.118 r = -.042 r = -.089	r = .201** r = .191** r = .191**	N/A
Soenens, Vansteenkist, Duriez, & Goossens (2006)	A significant negative correlation were found between parents' maladaptive perfectionism and child's self-esteem (p < .05; however, a mediation analysis indicated that this was fully mediated by psychological control). There was no significant correlation between PC and depression and loneliness.	N/A	r = .07 r = .06	r = -.110*
Woodside et al. (2002)	Mothers of children with anorexia nervosa had significantly higher scores on subscales concern over mistakes (F(1) = 6.84) and parental criticism (F(1) = 9.03; both p < .01). Once r was calculated, these both corresponded to small effect sizes (r = .149 and r = .1745 respectively). Between-group comparisons of fathers (of those with children with or without anorexia nervosa) only differed significantly in parental	No effect sizes reported, F-ratios used to calculate d: F = 3.73 F = .31 d = .224	No effect sizes reported, F-ratios used to calculate d: F = 6.84** F = .06 F = 9.03** F = 1.13	N/A

Study	Key findings in relation to PPC/PPS and CPOs	Raw effect sizes extracted in relation to PPS to child distress	Raw effect sizes extracted in relation to PPC to child distress	Raw effect sizes extracted in relation to PPC to child well-being
	expectations ($F(1) = 4.78$, $p = .03$; r was calculated and reflected a small effect size; $r = .126$). There were no significant differences between groups of parents with/without children with anorexia nervosa in terms of scores on PS subscales.	$d = .065$	$F = .65$ $F = 4.78$* $F = 1.4$ $F = .27$ $d = .303$ $d = .028$ $d = .349$ $d = .123$ $d = .094$ $d = .254$ $d = .137$ $d = .06$	

*$p < .05$, **$p < .01$, ***$p < .0005$

Appendix C: Moderation analysis of PPS and child distress for continuous variables

Figure A1: Scatterplot showing parent age as a moderator.

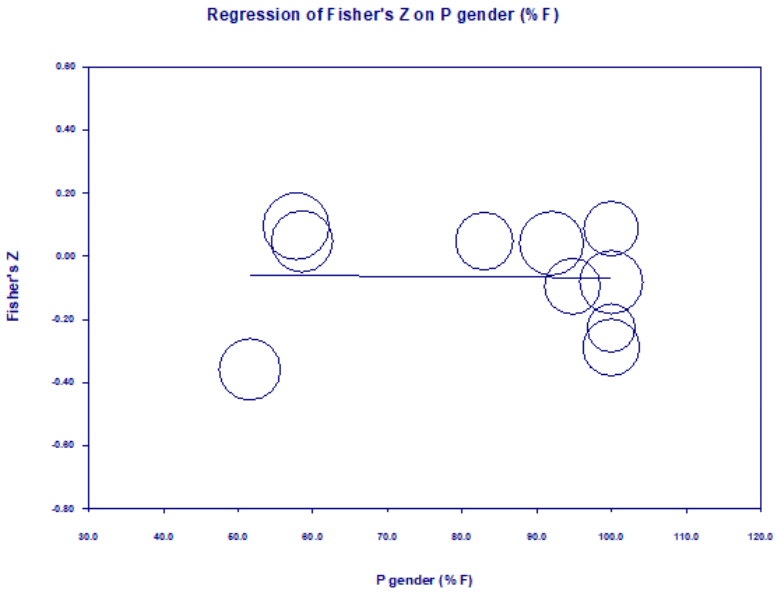

Figure A2: Scatterplot showing parent gender as a moderator.

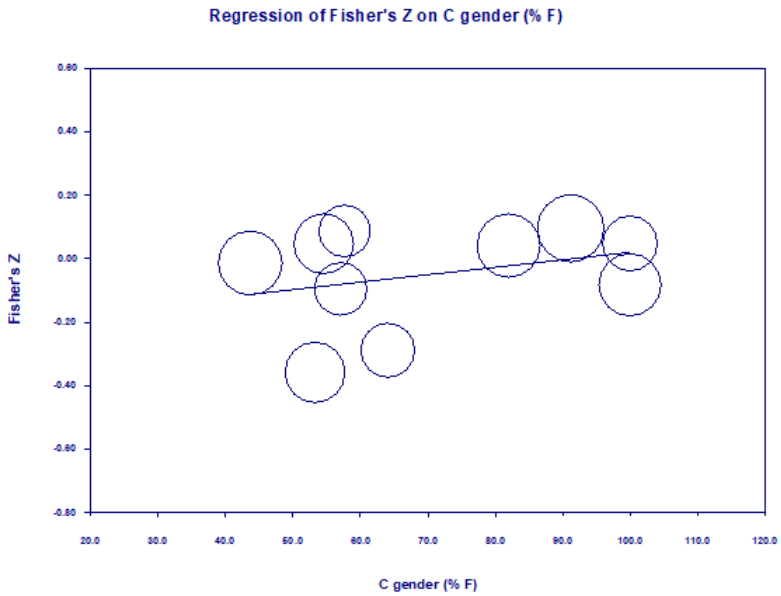

Figure A3: Scatterplot showing child gender as a moderator.

Appendix D: Moderation analysis of PPC and child distress for continuous variables

Figure A4: Scatterplot showing parent age as a moderator.

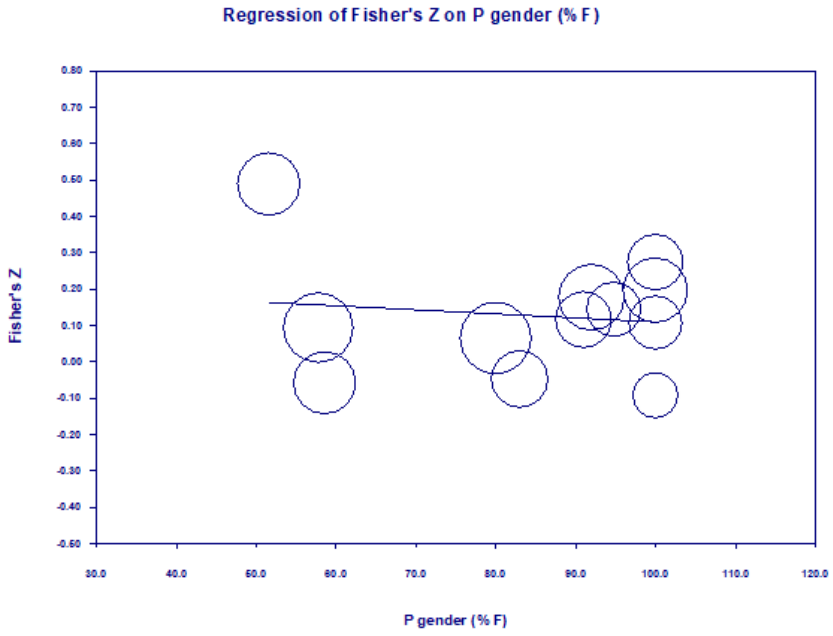

Figure A5: Scatterplot showing parent gender as a moderator.

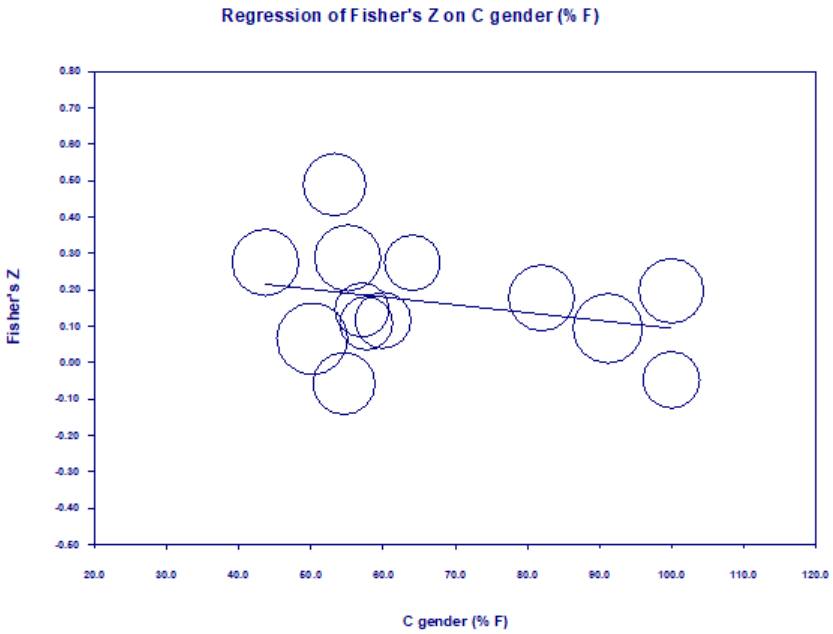

Figure A6: Scatterplot showing child gender as a moderator.

Appendix E: Quality Appraisal

Table A2.

Quality appraisal items and compliance per study

	Title and abstract		Introduction		Methods													Results										Discussion				Other	
Study	1a	1b	2	3	4	5	6a	6b	7	8	9	10	11	12a	12b	12c	12d	12e	13a	13b	13c	14a	14b	14c	15	16a	16b	16c	17	18	19	20	21	22	STROBE %
1	×	✓	✓	✓	✓	✓	✓	N/A	✓	✓	✓	×	✓	✓	N/A	×	N/A	N/A	×	×	×	✓	×	N/A	✓	✓	N/A	N/A	✓	✓	✓	✓	✓	×	70.37%
2	×	✓	✓	✓	✓	✓	✓	N/A	✓	✓	✓	×	✓	✓	N/A	×	N/A	N/A	×	×	×	✓	×	N/A	✓	✓	N/A	N/A	✓	✓	✓	✓	✓	×	70.37%
3	×	✓	✓	✓	✓	✓	✓	N/A	✓	✓	×	×	✓	×	✓	×	N/A	N/A	×	×	×	×	×	N/A	✓	×	✓	N/A	✓	✓	×	×	×	×	48.28%
4	×	×	✓	✓	✓	✓	✓	N/A	✓	✓	✓	×	✓	✓	✓	×	✓	✓	×	×	×	✓	×	N/A	✓	×	N/A	N/A	✓	✓	✓	✓	×	×	63.33%
5	×	✓	✓	✓	✓	✓	✓	N/A	✓	✓	×	×	✓	✓	N/A	×	N/A	✓	×	×	×	✓	×	N/A	✓	✓	N/A	N/A	✓	✓	✓	✓	×	✓	67.86%
6	×	×	✓	✓	✓	✓	✓	N/A	✓	✓	✓	✓	✓	×	N/A	×	×	N/A	×	×	×	×	×	N/A	×	✓	N/A	N/A	✓	✓	✓	✓	✓	×	57.14%

	Title and abstract		Introduction		Methods													Results										Discussion				Other	
Study	1a	1b	2	3	4	5	6a	6b	7	8	9	10	11	12a	12b	12c	12d	12e	13a	13b	13c	14a	14b	14c	15	16a	16b	16c	17	18	19	20	21	22	STROBE %
7	✓	✓	✓	✓	✓	✓	✓	×	✓	✓	×	×	✓	✓	✓	×	N/A	N/A	✓	✓	✓	✓	×	N/A	×	✓	N/A	N/A	✓	✓	×	✓	✓	×	72.41%
8	✓	✓	✓	✓	✓	✓	✓	N/A	✓	✓	✓	×	✓	✓	✓	✓	N/A	N/A	×	×	×	✓	✓	N/A	✓	✓	N/A	N/A	✓	✓	✓	✓	✓	×	82.14%
9	×	✓	✓	✓	✓	✓	✓	N/A	×	✓	✓	×	✓	✓	✓	✓	N/A	N/A	✓	✓	×	✓	×	N/A	✓	×	N/A	N/A	✓	✓	×	✓	✓	×	71.43%
10	×	✓	✓	✓	✓	×	✓	N/A	✓	✓	✓	×	✓	✓	N/A	×	N/A	✓	✓	✓	×	✓	✓	N/A	✓	×	N/A	N/A	✓	✓	✓	✓	✓	×	75%
11	×	✓	✓	✓	✓	✓	✓	N/A	✓	✓	✓	×	✓	×	✓	✓	N/A	N/A	✓	✓	×	✓	×	N/A	✓	×	N/A	N/A	✓	✓	×	✓	✓	×	71.43%
12	×	✓	✓	×	×	×	✓	N/A	×	✓	×	×	✓	×	N/A	×	×	N/A	×	×	×	×	×	N/A	✓	×	N/A	N/A	✓	✓	×	×	×	×	28.57%
13	×	✓	✓	✓	✓	✓	✓	N/A	✓	✓	✓	✓	✓	✓	✓	×	✓	N/A	×	×	×	✓	×	N/A	✓	×	N/A	N/A	✓	✓	×	✓	✓	×	68.97%
14	×	×	✓	✓	✓	✓	✓	✓	×	✓	✓	×	✓	✓	✓	×	N/A	N/A	×	×	×	×	×	N/A	✓	×	N/A	N/A	✓	✓	✓	✓	✓	×	58.62%

Appendix F: Summary of STROBE compliance ratings per section

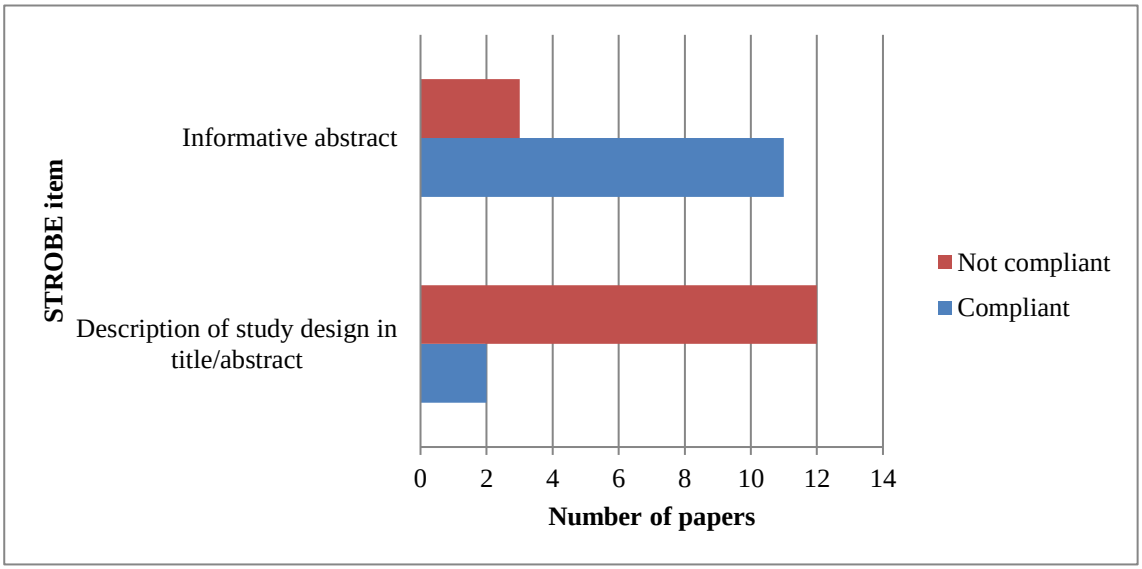

Figure A7: STROBE Compliance Ratings for Title and Abstract Sections.

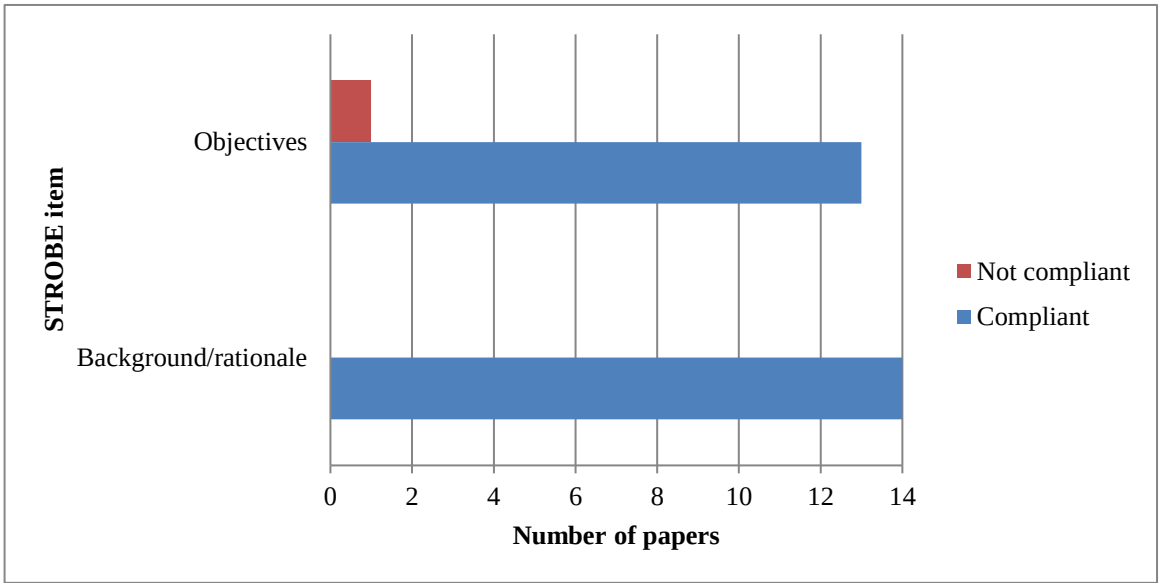

Figure A8: STROBE Compliance Ratings for Introduction Sections.

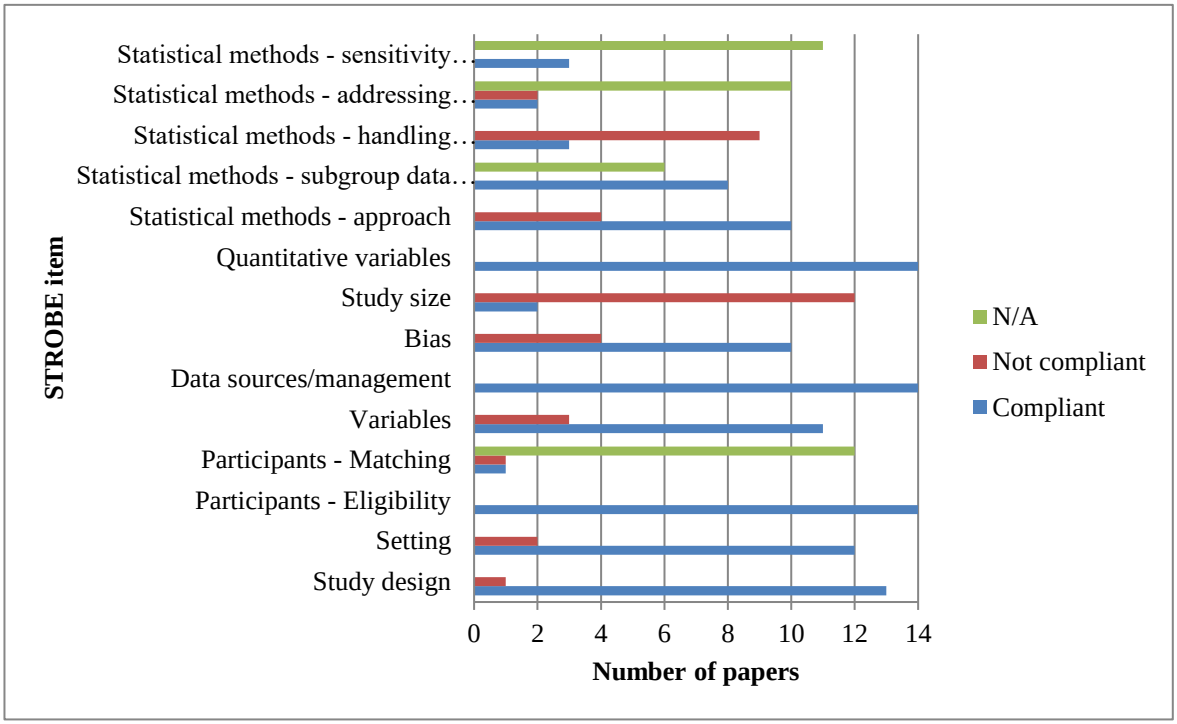

Figure A9: STROBE Compliance Ratings for Method Sections.

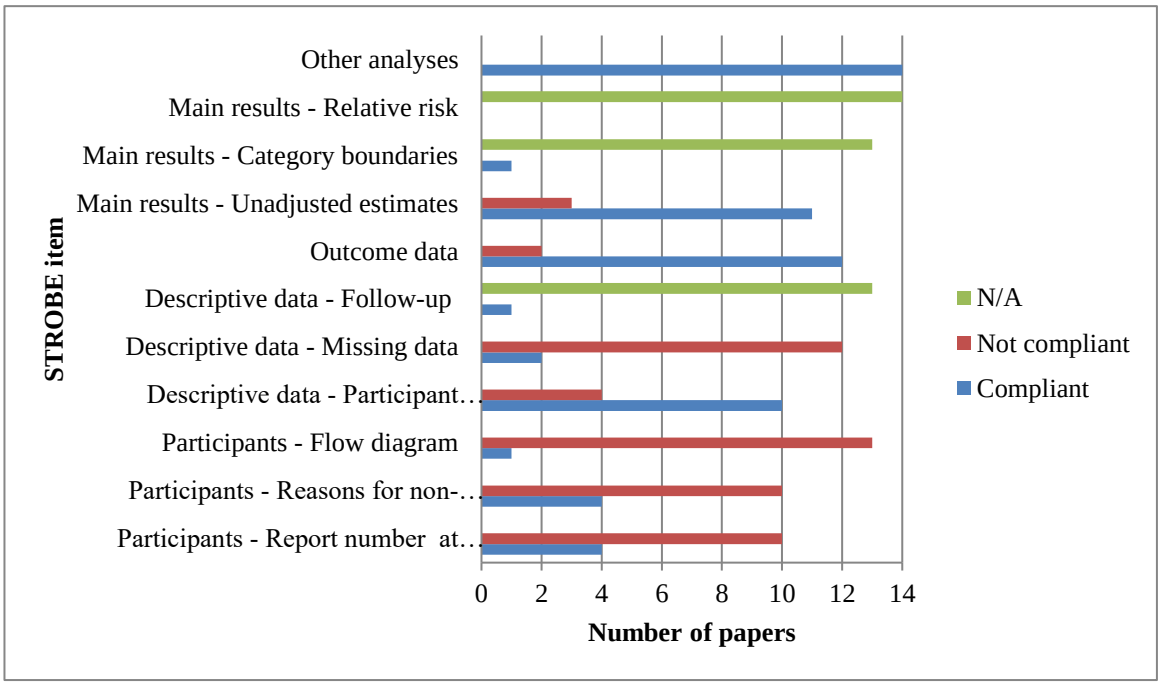

Figure A10: STROBE Compliance Ratings for Results Sections.

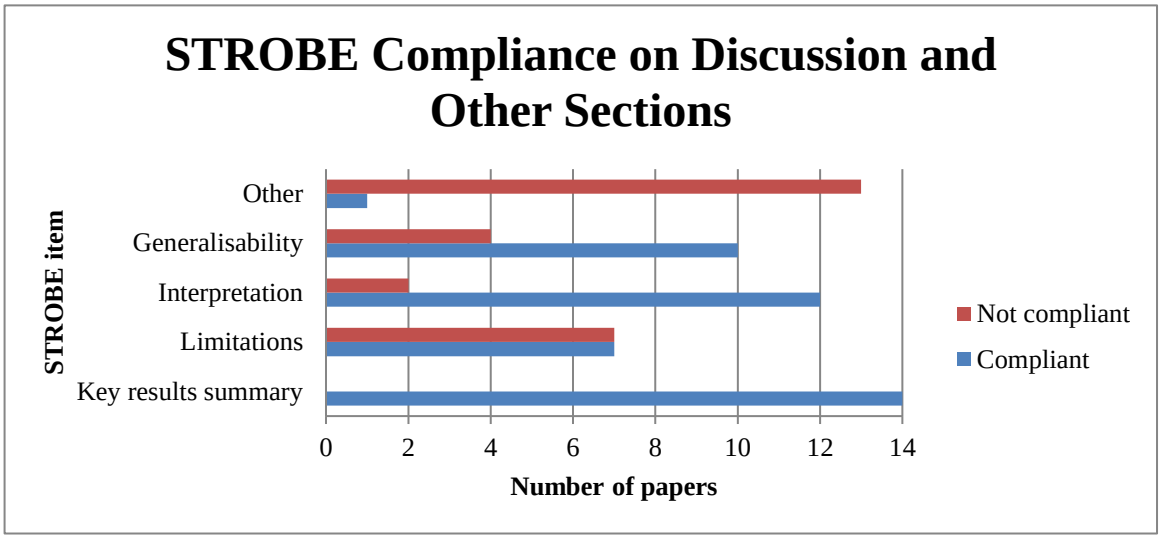

Figure A11: STROBE Compliance Ratings for Other Sections.

Section II: Research Report

A Self-compassion Intervention with Parents of Children with Type 1 Diabetes, Epilepsy, or Asthma: Perfectionistic Cognitions, Shame and Self-Compassion

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Abstract

Objectives. Research suggests that self-compassion interventions increase self-compassion and reduce shame, although perfectionistic cognitions (PCs) may reduce this effect. This research tested whether an online self-compassion intervention (SCI) increased state self-compassion and reduced state shame in parents of children with chronic health conditions (CHCs). Further aims were to test the relationship between trait self-compassion and state shame (as moderated by PCs).

Method. This research used cross-sectional and experimental pre-and-post designs. The cross-sectional element included $N = 344$ participants recruited through hospital clinics or the Internet. Participants completed online baseline measures regarding state shame, trait self-compassion, and PCs. Two days later a follow-up study was emailed to participants. Baseline measures were repeated, followed by pre-condition measures of state self-compassion and state shame. Participants were randomised to receive the SCI or an active-control condition, followed by post-condition state self-compassion/state shame measures. The follow-up study was completed by $N = 162$ participants.

Results. Analysis of covariance found that the SCI significantly increased state self-compassion ($p < .001$, partial $eta^2 = .167$) and lowered state shame ($p < .001$, partial $eta^2 = .115$). Correlational analyses indicated a negative correlation between state shame and trait self-compassion ($p < .001$), which was not moderated by PCs. Moderation analyses also found that PCs did not reduce the effectiveness of the SCI.

Conclusions. The SCI increased state self-compassion and reduced state shame in parents of children with CHCs. PCs did not moderate this effect. Findings have clinical implications regarding parental support that can be offered in paediatric healthcare.

Limitations

- Sampling methods introduced potential for bias.
- The study included a measure not specifically designed to test state shame.
- Correlational analyses do not infer causality.

Practitioner points

- Online SCIs could be offered to parents of children with CHCs accessing healthcare services to effectively increase state self-compassion and reduce state shame.
- Clinicians may wish to discuss shame as a barrier to self-acceptance within formulation.
- It may be useful to consider how to facilitate self-compassion in parents when they attend paediatric clinics.

Key words: 'Perfectionistic cognitions', shame, self-compassion, parents, health

Introduction

Chronic health conditions (CHCs) are defined as long-term illnesses that are incurable or feature limitations in daily living that require ongoing assistance or adaptations (Jessup & Stein, as cited in Coffey, 2006, p. 51). Where CHCs occur in children, parents/carers are likely to have increased responsibility to provide this assistance (Drotar, 1992; Emerson & Bögels, 2017). This may feel difficult, as evidence suggests that parents of children with a CHC can experience more distress than parents of children without a CHC (Cousino & Hazan, 2013). In turn, this potentially limits their ability to care effectively for their child's CHC (Wood, Miller, & Lehman, 2015).

Paediatric Type 1 Diabetes, Epilepsy and Asthma

According to Pinquart (2013), the parent-child relationship can be placed under significant stress when the child is diagnosed with either Type 1 diabetes, epilepsy, or asthma. These are also three of the most common CHCs in children that can be managed in schools (NHS Choices, 2015), and the National Health Service (NHS) Outcomes Framework now includes an indicator on reducing unplanned hospital admissions for these CHCs in the under-19s (Treadgold, 2012). Type 1 diabetes is an autoimmune disease whereby the pancreas stops producing insulin (Juvenile Diabetes Research Foundation; JDRF, 2019). Approximately every 1 in 430 children in the UK are diagnosed with Type 1 diabetes (52% males to 48% females; Diabetes UK, 2014), and management involves manually balancing blood sugars. However, the tasks involved in balancing blood sugars often fall to parents in cases of paediatric diabetes (Whittemore, Jaser, Chao, Chang, & Grey, 2012).

Meanwhile, epilepsy is not a single disease, but a brain disorder where the individual experiences recurrent seizures (Young Epilepsy, 2019). It is estimated that epilepsy occurs in every 1 in 220 children aged under 18 (with slightly more males

affected; Epilepsy Foundation, 2019; Young Epilepsy). Although the aetiology and treatment of epilepsy varies, it often involves taking anti-epileptic medication and attending medical appointments (Young Epilepsy).

Asthma is a lung condition affecting every 1 in 11 children in the UK (Asthma UK, 2019), with nationally more males aged 4 – 14 diagnosed (Jarjour et al., 2012). Although asthma is generally managed with inhalers and medicines, it can feel complicated to manage medication every day (Asthma UK), and parents are often involved in managing environmental risk where children are diagnosed (Pinquart, 2013).

Shame in Parenting a Child with a CHC

Research has shown that parenting a child with Type 1 diabetes, epilepsy or asthma can cause a significant amount of psychological distress (e.g. Kieckhefer & Ratcliffe, 2000; Rodenburg, Meijer, Dekovic, & Aldencamp, 2005; Whittemore, Jaser, Chao, Chang, & Grey, 2012). Specifically, Emerson and Bögels (2017) state that parents can feel guilt and shame in response to events that occur when parenting a child with a CHC. Guilt is defined as a self-conscious emotion, arising when a behaviour is negatively evaluated, whilst shame is constructed of negative evaluations directed towards the self (Lewis, 1971; Tangey, Miller, Flicker, & Barlow, 1996). Although both are integral to social processes (e.g. to correct future behaviour; Tangey et al.), they have been associated with negative states, such as depression (Kim, Thibodeau, & Jorgensen, 2011) and reduced well-being (Sirois, Bögels, & Emerson, 2019).

According to Liss, Schiffrin, and Rizzo (2013), and Scarnier, Schmader, and Lickel (2009), shame is particularly common in a parenting context, perhaps because it is inextricably linked to feelings about the self in relation to others (e.g. parents in relation to children). Furthermore, as shame has been associated with high levels of

cortisol (Mills, Imm, Walling, & Weiler, 2008), events causing shame could feel extremely debilitating for parents.

The Role of Self-compassion

According to Emerson and Bögels (2017), parental distress can contribute towards child distress and poor management in the context of paediatric CHCs. However, interventions to-date have not directly attempted to address this (with the exception of problem-solving therapy; Eccleston, Fisher, Law, Bartlett, & Palermo 2015). This is despite the notion that shame can exist as both a trait (a habitual and dispositional characteristic) and a state (which changes in response to events; Tangey, Miller, Flicker, & Barlow, 1996); therefore, it is potentially modifiable through interventions.

An example of interventions used to target shame are self-compassion interventions (e.g. Gilbert & Irons, 2004). Self-compassion is described as being mindful to emotions and responding towards oneself with kindness and a sense of common humanity, through difficulties, or following perceived failure/personal shortcomings (Neff, 2017). There is currently emerging evidence for the role of self-compassion in predicting emotional and cognitive responses to negative events, and in buffering against negative feelings about the self in relation to events (Leary, Tate, Adams, Batts Allen, & Hancock, 2007). Evidence has also found that self-compassion plays a role in promoting health behaviours in populations of people with CHCs (Sirois, Kitner, & Hirsch, 2015; Sirois & Rowse, 2016).

Importantly, research now indicates that self-compassion helps parents cope with negative emotions associated with parenting (Gouveia, Carona, Canavarro, & Moreira, 2016), and that associations between self-compassion and distress are mediated by shame (e.g. Johnson & O'Brien, 2013). Therefore, in the context of caring

for a child with a CHC, self-compassion may be useful to support parents who try to promote health behaviours for their children, but perhaps perceive themselves to be 'bad parents' if they struggle.

Similarly to shame, self-compassion can be measured as a trait or a state and is thus modifiable through self-compassion interventions (Neff, 2016). Of particular relevance to the issues outlined above, Sirois, Bögels, and Emerson (2019) tested an online self-compassion intervention with a non-clinical sample of parents, and found that it increased parental state self-compassion and reduced state shame.

Perfectionism and Perfectionistic Cognitions as a Barrier to Self-compassion

Another factor that might affect feelings and behaviour in parents is perfectionism. Perfectionism is described as the setting of unrealistically high standards, paired with negative self-evaluation and criticism (Frost, Marten, Lahart, & Rosenblate, 1990). Although previously understood as unidimensional, empirical studies now suggest that perfectionism is multidimensional, and can exist as a trait or state (Sirois & Molnar, 2016).

In terms of perfectionism as a trait, research has indicated the existence of two higher-order dimensions (e.g. Bieling, Israeli, & Anthony, 2004). These are known as perfectionistic strivings (setting excessively high personal standards), and perfectionistic concerns (including harsh self-scrutiny, concerns about others' evaluations and critical appraisals of one's own behaviour). Evidence suggests that these dimensions are differentially related to psychological and physical health outcomes, with perfectionistic strivings tending to be associated with positive outcomes, and perfectionistic concerns associated with negative outcomes (see Sirois & Molnar, 2016). In a physical health context, perfectionistic concerns have particularly been found to increase vulnerability to the impact of health difficulties (e.g. Kempke et al.,

2011), and have been implicated in self-critical thoughts instead of constructive action to manage physical health (Sirois & Molnar, 2014). Research has also found that perfectionistic concerns are positively correlated with state shame and proneness to shame (Fedewa, Burns, & Gomez, 2005). Furthermore, Bayir and Lomas (2016) found that perfectionistic tendencies make it difficult for people to accept flaws as part of the human experience. Therefore, perfectionistic concerns potentially present a barrier to self-compassion.

Regarding perfectionism as a state, the self-evaluation and criticism inherent to perfectionistic concerns can relate to internal cognitive processes. To this end, perfectionistic concerns can be linked to increased automatic, perfectionistic thoughts (known as 'perfectionistic cognitions'; PCs; Flett, Madorsky, Hewitt, & Heisel, 2002). Similar to perfectionistic concerns, PCs are often associated with negative psychological and physical outcomes. For example, Flett, Gafi-Pechenkov, Molnar, Hewitt, and Goldstein (2012) found a positive relationship between PCs and depression. Flett, Madorsky, Hewitt, and Heisel also found evidence for a relationship between PCs and anxiety and depression, as well as an association between high PCs and high levels of rumination after a stressful event. Therefore, the effectiveness of self-compassion interventions (in reducing parental shame in the context of parenting a child with a CHC) may be particularly compromised where the parent has a high level of PCs.

One proposed model to elucidate how PCs are a risk factor for distress related to CHCs is the Stress and Coping Cyclical Amplification Model of Perfectionism in Illness (SCCAMPI; Molnar, Sirois, & Methot-Jones, 2016; Figure 1). Within this model, a pathway is indicated between PCs leading to self-evaluation and stress, which modifies health and health-related behaviours. In a parenting context, this may extend to mean that PCs could lead a parent to criticise themselves in relation to parenting (e.g.

adequately carrying out health-related behaviours for a child with a CHC), which thus negatively affects child health as they feel depleted.

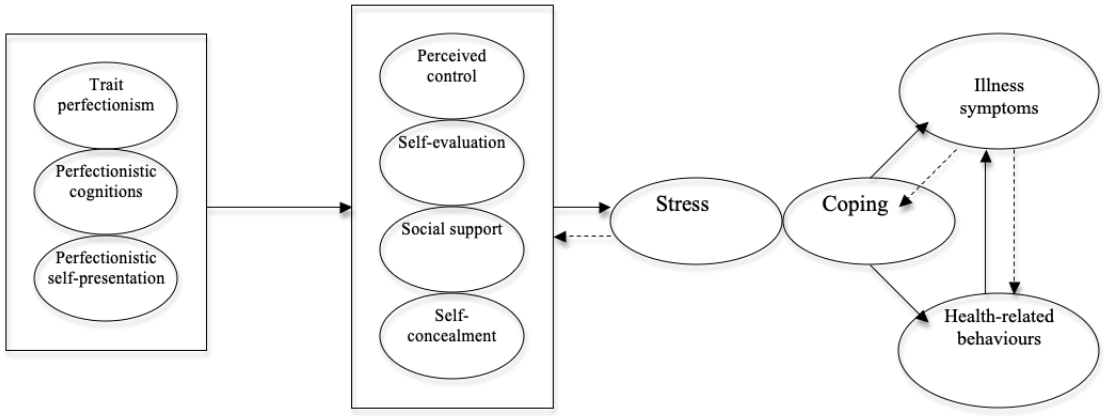

Figure 1: The SCCAMPI model.

The Current Study

There is a need for parental support that targets distress (particularly shame) in parents of children with CHCs. Self-compassion interventions have been suggested as able to reduce shame, and one such intervention from Sirois, Bögels, and Emerson (2019) has been found to be effective in increasing self-compassion and reducing state shame in a parent sample. However, literature suggests that PCs present a barrier to self-compassion, meaning that the intervention may be less effective where parents harbour high levels of PCs. Also, parents of children with CHCs are more likely to experience shame in relation to parenting events (Emerson & Bögels, 2017). Therefore, the findings from Sirois, Bögels, and Emerson (2019) may not be generalisable to this CHC population.

In addition, a number of parental and child characteristics may modify the effectiveness of the self-compassion intervention (e.g. parent age, parent gender, child age, child gender, and child CHC). For instance, a meta-analysis by Yarnell et al. (2015)

found that men are more self-compassionate than women. Furthermore, Neff and Pommier (2013) report that older age significantly predicts higher levels of self-compassion, whilst Albani et al. (2017) suggest that shame is a significant burden for parents of children with Type 1 diabetes.

Aims. The aim of this study is to test whether the online self-compassion intervention (SCI) developed by Sirois, Bögels, and Emerson (2019) increases state self-compassion and reduces state shame for parents of children with CHCs. Secondary aims are to test whether intervention effects are affected by parents' levels of PCs and to test for a relationship between PCs, trait self-compassion, and state shame in the context of parenting children with CHCs.

Hypotheses. In light of evidence presented, the following hypotheses are proposed:

1. Parents of children with a CHC will report increased state self-compassion after the SCI, compared with those in the active-control condition.
2. Parents of children with a CHC will report reduced state shame associated with parenting events after the SCI, compared with those in an active-control condition.
3. There will be a negative correlation between trait self-compassion and state shame, and this association will be moderated by PCs (the higher the PCs, the stronger the relationship between low self-compassion and high shame). This result will be replicated two days later.
4. The effects of the SCI will be reduced for those high in PCs.

Method

Design

This research included a cross-sectional design followed by an online, randomised, single-blind, intervention trial featuring pre- and post-measures. The cross-sectional element was to assess for a relationship between state shame, state self-compassion and PCs, and utilised baseline data that was collected with another Trainee Clinical Psychologist (to maximise recruitment pools). See Appendix A.

The trial featured two parallel groups completing one condition each: (1) the SCI; or (2) an active-control condition. The inclusion of an active-control condition is consistent with recommendations from Woodworth, O'Brien-Malone, Diamond, and Schuz (2017), who state that monitoring effects can be reduced by using more robust control conditions.

Eligibility Criteria

Table 1 shows a summary of inclusion and exclusion criteria.

Table 1.
Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
• Participants must be primary caregivers (as defined under the Children's Act, Section 3, 1989). • Children must be aged under 18 years. • Children must be diagnosed with either type 1 diabetes, epilepsy or asthma.	• Participants/carers with children over 18 years. • Participants who did not state that they held parental responsibility. • Participants who resided outside of the UK (indicated within survey software).

Participants

A summary of demographic variables measured at baseline are presented in Tables 2 and 3. Overall, *N* = 344 participants completed baseline measures, whilst *N* = 162 completed the follow-up trial. The majority of the sample at baseline and follow-up were female biological mothers, aged 41 – 50 years, with sons aged 8 – 12 years with Type 1 diabetes.

Sampling Methodology

Purposive sampling methods were used to recruit participants through NHS clinics and the Internet. NHS recruitment took place at Sheffield Children's Hospital, Alder Hey Children's Hospital and Chesterfield Royal Hospital. The author and staff working in diabetes, asthma or epilepsy provided parents of children with CHCs with a leaflet about the study when they attended for routine clinic appointments (Appendix B). The leaflet included a link to survey software (Qualtrics®) to complete the study. In line with local policy and procedures, Research and Development departments in each hospital provided letters of access and confirmation of capacity and capability before recruitment started (Appendices C – E).

Regarding Internet recruitment, opportunistic and snowballing sampling methods were used to recruit participants online. This method involved advertising via social media and charities (see Appendix F). Adverts followed the format contained in Appendix G.

Procedure

Figure 2 summarises the flow of participants through the study. Participant information and consent to participate was provided online (Appendices H – I). All data was collected online via Qualtrics® between August 2018 and January 2019. At baseline, the current study assessed state shame, PCs and trait self-compassion. On

completion of baseline measures, a randomiser tool on Qualtrics® allocated participants to either the follow-up (trial) study described below, or that of the other trainee. The current follow-up study was emailed to participants two days after baseline. This time lapse was chosen because hypotheses did not predict any natural change in variables over time, and so attrition was expected to be minimised with a shorter time period between surveys. It should be noted that those who started but did not complete baseline and consented to being contacted were also invited to the follow-up. This is because the baseline measures were analysed for a relationship between variables, but the follow-up featured a separate analysis of pre-and post-measures, collected at that time point only.

On entry to the follow-up study, participants repeated measures of trait self-compassion, PCs and state shame (presented in that order to prevent self-compassion priming responses on the state shame measure). Repetition assessed for replicability and temporal validity of findings regarding the relationship between these variables at baseline. Participants were then asked to recall a parenting event in which they experienced shame, and type it into a text box provided. The task was a version of that detailed in Sirois, Bögels and Emerson (2019), with adapted wording to acknowledge that participants were parents of children with CHCs (Appendix J). State self-compassion measures were taken, and state shame measures were repeated (to assess whether recall had elicited feelings of shame for the parent). These measures formed the pre-condition measures. The randomiser tool on Qualtrics® was used again to allocate participants to either an active-control condition (which involved re-reading their account of the event and making notes about factual information, e.g. time of day, who was there; Appendix J) or the SCI (see below). After completing the condition participants completed post-condition measures of state shame and state self-compassion, to assess for any change.

Finally, participants completed a mood neutralisation task used in Sirois, Bögels and Emerson (2019; Appendix K). This was included to neutralise any potential distress experienced through participation, and did not contribute data for this study. Participants were shown a debrief sheet after completing the follow-up study (Appendix L).

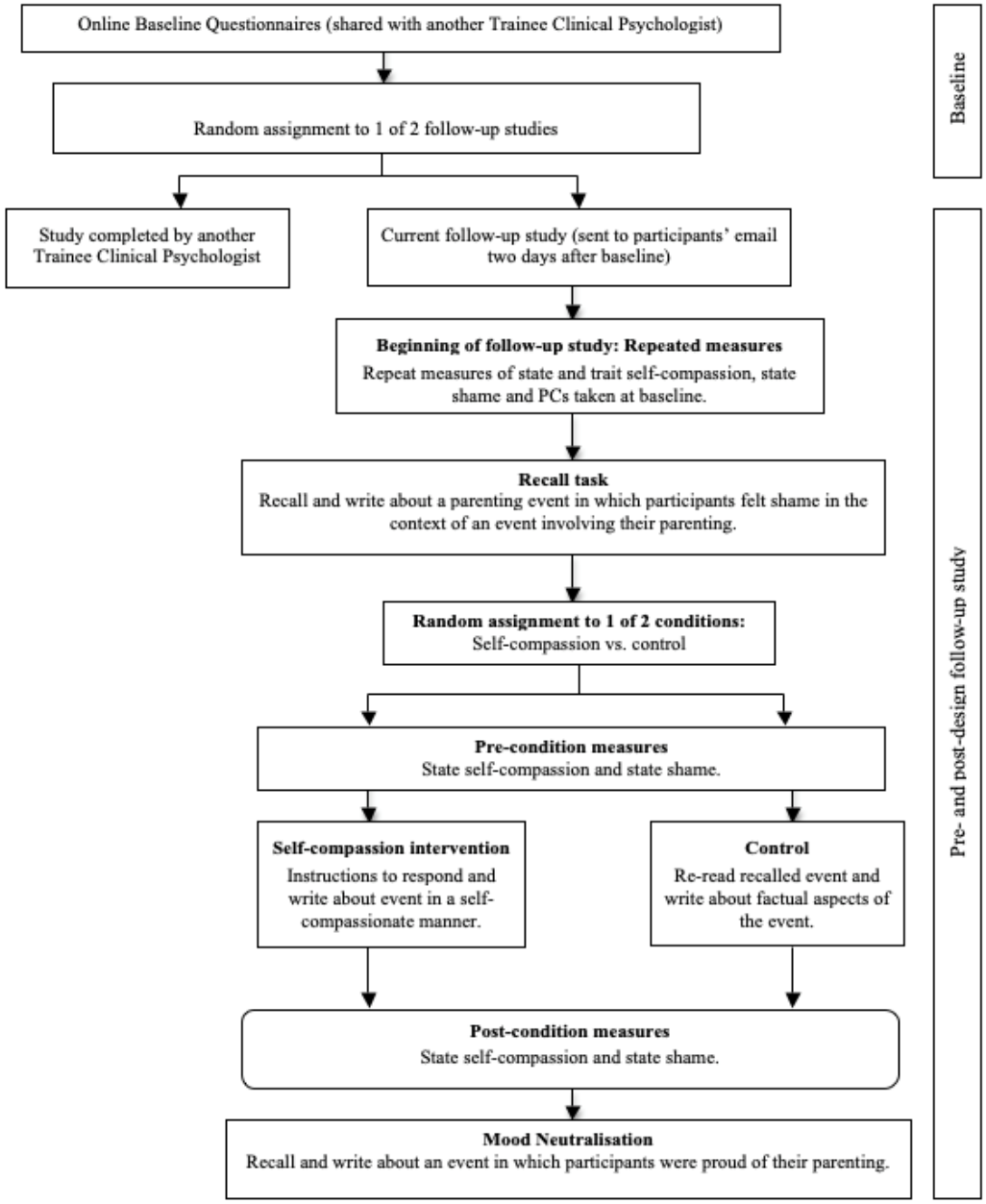

Figure 2. Summary of the flow of participants through study.

Self-compassion Intervention

The SCI comprised a validated set of instructions that parents read within Qualtrics® (Appendix J). The instructions asked them to reflect on their recalled parenting event, and consider that making mistakes could be common. Parents were encouraged to take a balanced and accepting approach towards what happened, and to think about the self with kindness and understanding. After reading these instructions, parents were then asked to write self-compassionate responses to themselves about the event they had recalled, as if to a friend.

Ethics

Ethical approval was provided by South Central – Oxford A Research Ethics Committee under proportionate review: reference 18/SC/0332 (Appendix M). Approval from the Health Research Authority and Health and Care Research Board was also granted (Appendix N), and the trial was registered with the Clinical Trials Protocol Registration and Results System (ID: 155657).

Participants were given the chance to win a £50 gift voucher for taking part, which was deemed a proportionate amount to incentivise participation without coercion (British Psychological Society Code of Ethics, 2010). The British Psychological Society Ethics Guidelines for Internet Mediated Research (2017) was also adhered to throughout this study.

Outcome Measures

Demographic information. Demographic information that potentially co-varied with primary outcome measures (i.e. parent's age, gender, their child's age, child's gender and child's CHC) was collected at baseline (see Appendix O). Data concerning

the participant's relationship to the child and parental responsibility was also collected to assess eligibility.

Trait self-compassion. The 12-item Self-Compassion Scale – Short Form (SCS-SF; Raes, Pommier, Neff, & Van Gucht, 2011; Appendix P) measured parental trait self-compassion at baseline and at the beginning of the follow-up study. The SCS-SF includes subscales measuring self-kindness, self-judgement, common humanity, isolation, mindfulness and over-identification, and has been found to have adequate internal consistency in confirmatory analyses ($\alpha \geq .86$). It also has a near perfect correlation with the 26-item Self-Compassion Scale (Raes, Pommier, Neff, & Van Gucht). Therefore, the short-form was used in this study because it places less burden on participants' time. Items on the SCS-SF are rated from '1 – almost never' to '5 - almost always', and total self-compassion scores are found by reversing items regarding self-judgement, isolation and over-identification and computing a mean. Internal consistency in the current sample was good (baseline $\alpha = .86$ and follow-up $\alpha = .89$).

Perfectionistic cognitions. The Perfectionistic Cognitions Inventory (PCI; Flett, Hewitt, Whelan, & Martin, 2007; Appendix Q) measured PCs at baseline and the beginning of the follow-up study. The PCI includes 25-items, measuring how frequently participants have had thoughts related to perfectionism over the past week, using a four-point scale (with higher scores reflecting more frequent thoughts). The PCI has been found to have good internal consistency ($\alpha = .95$) and is a valid and reliable measure of individual differences between participants with varying psychiatric presentations (Flett, Hewitt, Whelan, & Martin). Internal consistency in the current sample was good ($\alpha = .95$ at baseline, and $\alpha = .94$ at follow-up).

State shame. There are currently no well-validated measures of state shame that are sensitive to change such as that expected via the SCI. Accordingly, the six-item guilt

subscale from the Positive and Negative Affect Schedule-Expanded Form (PANAS-X; Watson & Clark, 1994; Appendix R) was used at baseline, and throughout the follow-up study (i.e. before the recall task, after the recall task to assess whether it had elicited shame/provide pre-condition measures, and post-condition; see Figure 2). Guilt subscale items include 'guilty', 'ashamed', 'blameworthy', 'angry at self', 'disgusted with self' and 'dissatisfied with self', and as seen, many pertain to self-conscious feelings about the self, which relate more to shame than guilt (see Tangey, Miller, Flicker, & Barlow, 1996). Responses are summed, and higher scores indicate higher state shame. The guilt subscale has shown good internal consistency when used with 'in the moment' instructions (α = .86; Watson & Clark), and was used in the study by Sirois, Bögels and Emerson (2019) to measure guilt and shame (they also found the effects of the SCI did not differ as a function of guilt or shame instructions). Internal consistency in the current sample across time points was good (α = .86 at baseline, α = .92 at the beginning of the follow-up study, α = .95 pre-condition, and α = .95 post-condition).

State self-compassion. Five items adapted from the Self-Compassion Scale (Brienes & Chen, 2012; Appendix S) were used to assess parental state self-compassion pre- and post-condition. Each item has the prefix "right now" and items correspond to common humanity, self-kindness and mindfulness (Neff, 2017). Items include a 7-point scale ranging from '1 – not at all' to '7 – very much'. One item score is reversed, and a mean is computed whereby higher scores indicate higher state self-compassion. This measure was used in the study by Sirois, Bögels, and Emerson (2019) and was sensitive to change as expected through the SCI. Internal consistency across the current sample was good (α = .74 pre-condition and α = .77 post-condition).

Sample Size

A priori power analysis was conducted using Cohen's table (Cohen, 1992) to estimate the sample size needed to determine an effect of the SCI on state self-compassion and state shame. The number of participants needed to conduct an Analysis of Covariance (ANCOVA; see below) for power of .8 and a *p* value of .05 was 64 participants per group (i.e. 128 participants in total). This was also a sufficient number needed to identify a relationship between PCs, trait self-compassion and state shame at baseline and follow-up, and to conduct a moderation analysis with trait self-compassion (as the independent variable; IV), state shame or state self-compassion (as the dependent variable; DV) and PCs (as the moderator), for power of .8 and a *p* value of .05.

Analysis

Data Preparation

Data was analysed using the Statistical Package for Social Sciences, Version 25 (SPSS; IBM Corp, 2017). Data was checked for errors, impossible values, missing data, and outliers. Any responses reflecting $\leq$ 80% completion of each measure were excluded (see Figure 3). Where $\geq$ 80% of each measure was completed, linear interpolations were used to estimate missing data (this method has been shown to provide a good fit to actual data where the amount of missing data is small; see Noor, Yahaya, Ramil, & Bakri, 2014). Outliers did not contain any impossible values and so were included in analyses to make full use of the data.

In line with Field (2005) normality of data was assessed for using histograms, Q-Q plots, tests of skewness, kurtosis and Kolmogorov-Smirnov's tests (Appendix T). All state shame data and some PCs data were negatively skewed, and so parametric and equivalent non-parametric tests were run on all PANAS-X and PCI data to assess the

sensitivity of findings according to the statistical method used. The results were not greatly affected in each case, and so parametric test findings are reported below. According to Cone and Foster (2006) the statistical tests used in this study are also robust to skewed data.

Preliminary Analyses

Descriptive data was extracted regarding parent gender, child gender, parent age, child age, parent's relationship to the child and child CHC. Data was then categorised by those who completed the baseline and follow-up study (completers, $N = 148$[1]), and those who did not (non-completers; $N = 196$; see Table 2). Table 3 shows descriptive data of participants who took part in the follow-up study, categorised by experimental or active-control group. Mean scores on all measures completed at all time points were also extracted for each sub-group (see Tables 4 and 5). Analysis of Variance (for dichotomous data) and independent *t*-tests (for continuous data) assessed whether parent age, parent gender, child CHC, child age or child gender (i.e. potential covariates) were related to trait self-compassion, PCs or state shame at baseline or beginning of follow-up.

Correlation analyses. Correlation analyses were run using Pearson's *r*, to explore relationships between all baseline and measures taken during follow-up. It also assessed for predicted relationships between variables at baseline and at follow-up.

Subgroup analyses. A completer vs. non-completer analysis was run to assess for bias between groups that may affect the findings. Frequency of demographics in each group were compared using chi-squared tests for independence. Independent measures *t*-tests were also run to compare baseline scores on measures assessing state shame, PCs and trait self-compassion between completers and non-completers. It was

[1] This number does not include those who only completed the follow-up study ($N = 14$).

not possible to assess for completer vs. non-completer differences in state self-compassion, as this data was only collected at follow-up. This analysis was also run to compare experimental and control groups at follow-up, to assess for effective randomisation to groups, and rule out any between-group variance that could confound the results.

Manipulation checks. A paired-sample *t*-test was run between state shame data collected at the beginning of follow-up and pre-condition state shame scores, to assess whether the recall task elicited shame in response to a parenting task as predicted. This analysis was run separately for the experimental and active-control groups.

Main Analyses

ANCOVA. A one-way ANCOVA was used to test the effect of the SCI on state self-compassion and shame, compared with the active-control group. The IV was the condition (whether participants received the SCI or the active-control condition), and the DV consisted of post-condition scores of state self-compassion and state shame. The ANCOVA was run separately for state self-compassion and state shame. Any demographic characteristics or trait self-compassion and PC scores (taken at the beginning of follow-up) that were correlated with post-condition state self-compassion or state shame scores were included as covariates. Another covariate entered were pre-condition scores of state self-compassion or state shame, as recommended for pre-post designs assessing for an intervention effect in ANCOVA (Field, 2005).

Moderation Analyses. Hypotheses regarding a negative relationship between trait self-compassion and state shame (moderated by PCs) were tested by running moderation analyses on baseline measures of these variables (see Baron & Kenny, 1986). Moderation analyses were run using Model 1 on PROCESS; version 3.3 for SPSS (Hayes, 2012). The IV was trait self-compassion, the DV was state shame, and

the predicted moderator was PCs; see Figure 3. This analysis was also repeated using data taken at the beginning of the follow-up, to test the reliability and temporal validity of findings.

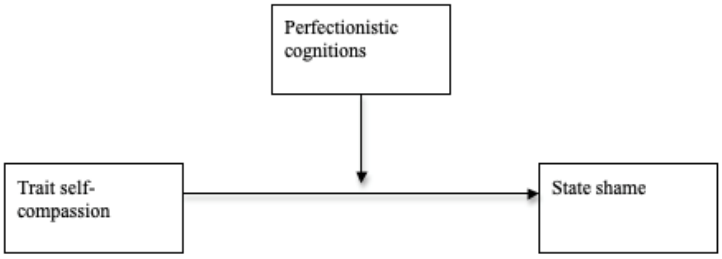

Figure 3: Predicted moderation model for trait self-compassion and PCs on state shame.

Moderation analyses also tested hypotheses regarding the reduced effects of the intervention in participants reporting higher PCs. The IV was the condition (SCI vs. active-control), the DVs were either state self-compassion or state shame, and the moderator was PCs; see Figures 4 and 5.

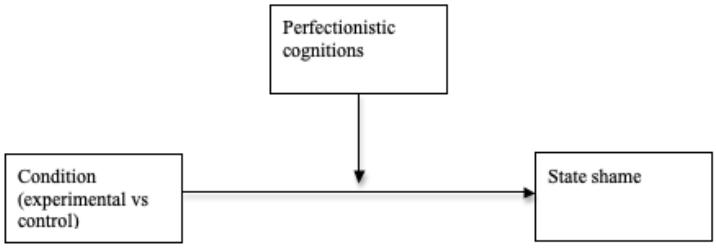

Figure 4: Predicted moderation model for condition and PCs on state shame.

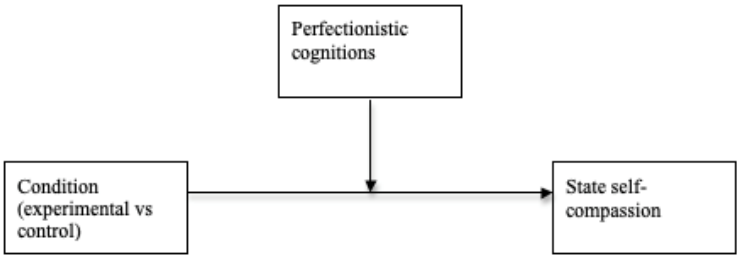

Figure 5: Predicted moderation model for condition and PCs on state self-compassion.

Results

Participant Flow

Figure 6 summarises participant flow through the study. Attrition was calculated at 53% between baseline and follow-up.

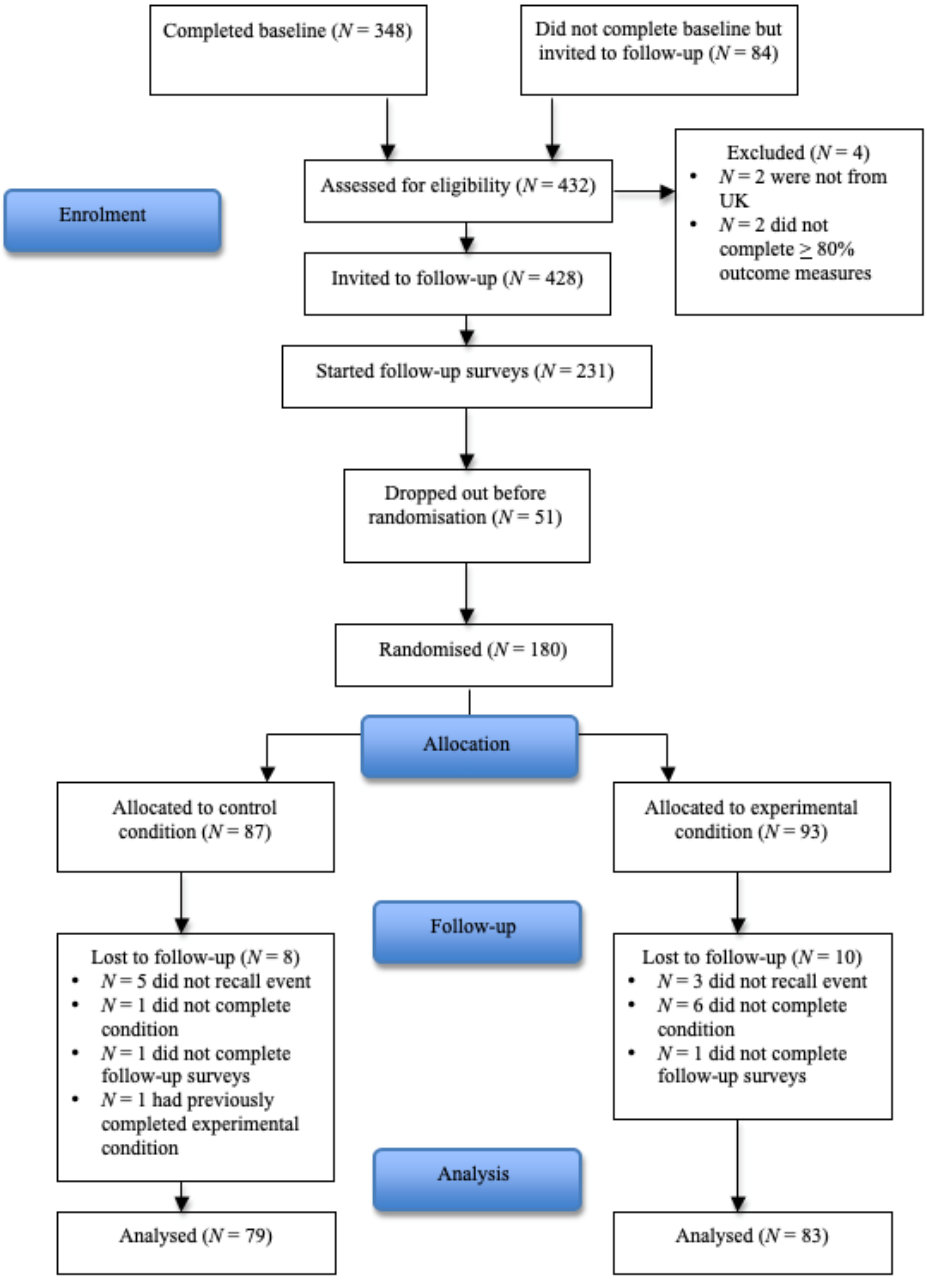

Figure 6. CONSORT diagram.

Participant Demographics

Tables 2 and 3 show a summary of participant demographics at baseline and follow-up. Tables 4 and 5 show descriptive statistics across all variables at all time points, categorised by completer status and condition allocated to.

Table 2.
Baseline participant demographic variables overall and by completion status, and completer vs. non-completer analysis summary statistics

Characteristic	Overall (*N* = 344) *N* (%)	Completers (*N* =148) *N* (%)	Non-completers (*N* = 196) *N* (%)	Test statistic to compare completers vs. non-completers
Parent gender				
Males	10 (2.9)	4 (2.7)	6 (3.1)	*p*. = 1
Females	332 (96.5)	143 (96.6)	189 (96.4)	
Did not answer	2 (0.6)	1 (0.7)	1 (0.5)	
Parent age in years				
Under 20	9 (2.6)	3 (2)	6 (3.1)	*p* .= 2
21 – 30	23 (6.7)	9 (6.1)	14 (7.1)	
31 – 40	138 (40.1)	50 (33.8)	88 (44.9)	
41 – 50	149 (43.3)	71 (48)	78 (39.8)	
Over 50	25 (7.3)	15 (10.1)	10 (5.1)	
Relationship to child				
Biological mother	332 (96.5)	144 (97.3)	188 (95.9)	*p*. = 23
Biological father	8 (2.3)	4 (2.7)	4 (2)	
Other	4 (1.2)	-	4 (2)	
Step mother	2 (0.6)		2 (1)	
Step father	1 (0.3)		1 (0.5)	
Non-biological mother, same sex partner	1 (0.3)		1 (0.5)	

	Overall (N = 344)	Completers (N =148)	Non-completers (N = 196)	Test statistic to compare completers vs. non-completers
Child gender				
Males	190 (55.2)	83 (56.1)	107 (54.6)	χ^2 = .00, p = 1
Females	145 (42.2)	63 (42.6)	82 (41.8)	
Did not answer	9 (2.6)	2 (1.4)	7 (3.6)	
Child age in years				
1 year or under	6 (1.7)	4 (2.7)	2 (1)	p. = 38
2 – 4	34 (9.9)	17 (11.5)	17 (8.7)	
5 – 7	69 (20.1)	28 (18.9)	41 (20.9)	
8 – 12	123 (35.8)	49 (33.1)	74 (37.8)	
13 – 16	85 (24.7)	34 (23)	51 (26)	
17 years or older	26 (7.6)	15 (10.1)	11 (5.6)	
Did not answer	1 (0.3)	1 (0.7)	-	
Child condition				
Type 1 diabetes	211 (61.3)	100 (67.6)	111 (56.6)	χ^2 = 4.83, p = .09
Epilepsy	106 (30.8)	40 (27)	66 (33.7)	
Asthma	27 (7.8)	8 (5.4)	19 (9.7)	

χ^2 = Chi squared statistic

Table 3.
Follow-up participant demographic variables overall and by condition

Characteristic	Both groups (*N* = 162)	Experimental group (*N* = 83)	Control group (*N* = 79)	Test statistic to compare experimental vs. control
	N (%)	*N* (%)	*N* (%)	
Parent gender				
Males	5 (3.1)	1 (1.2)	4 (5.1)	*p*. = 2
Females	156 (96.3)	82 (98.8)	74 (93.7)	
Did not answer	1 (0.6)	-	1 (1.3)	
Parent age in years				
Under 20	3 (1.9)	2 (2.4)	1 (1.3)	*p*. = 71
21 – 30	9 (5.6)	6 (7.2)	3 (3.8)	
31 – 40	54 (33.3)	29 (34.9)	25 (31.6)	
41 – 50	80 (49.4)	37 (44.6)	43 (54.4)	
Over 50	16 (9.9)	9 (10.8)	7 (8.9)	
Relationship to child				
Biological mother	156 (96.3)	82 (98.8)	74 (93.7)	*p*. = 13
Biological father	5 (3.1)	1 (1.2)	4 (5.1)	
Adoptive mother	1 (0.6)	-	1 (1.3)	
Child gender				
Males	90 (55.6)	45 (54.2)	45 (57)	χ^2 = .91, *p* = .76
Females	67 (41.4)	36 (43.4)	31 (39.2)	

	Both groups (N = 162)	Experimental group (N = 83)	Control group (N = 79)	Test statistic to compare experimental vs. control
Did not answer	5 (3.1)	2 (2.4)	3 (3.8)	
Child age in years				
1 year or under	4 (2.5)	-	4 (5.1)	p. = 17
2 – 4	19 (11.7)	10 (12)	9 (11.4)	
5 – 7	28 (17.3)	15 (18.1)	13 (16.5)	
8 – 12	53 (32.7)	31 (37.3)	22 (27.8)	
13 – 16	39 (24.1)	20 (24.1)	19 (24.1)	
17 years or older	16 (9.9)	5 (6)	11 (13.9)	
Did not answer	3 (1.9)	2 (2.4)	1 (1.3)	
Child condition				
Type 1 diabetes	109 (66.9)	57 (68.7)	51 (64.6)	χ^2 = 43.31, p = .19
Epilepsy	42 (25.8)	18 (21.7)	24 (30.4)	
Asthma	11 (6.7)	8 (9.6)	3 (3.8)	
Did not answer	1 (0.6)	-	1 (1.3)	

Table 4.
Descriptive statistics for all variables by completer status

	Mean (SD)		
Variable	Overall	Completers	Non-completers
Baseline trait self-compassion	2.74 (.74)	2.65 (.77)	2.81 (.71)
Baseline PCs	45.53 (45)	46.07 (20.84)	45.12 (21.04)
Baseline state shame	2.05 (.95)	2.16 (.97)	1.96 (.93)

Table 5.
Descriptive statistics for all variables for experimental and control groups

	Mean (SD)		
	Overall	Experimental	Control
Follow-up trait self-compassion	2.69 (.8)	2.7 (.82)	2.68 (.77)
Follow-up PCs	45.93 (20.01)	46.63 (20.68)	45.19 (19.39)
Follow-up state shame	2.52 (1.16)	2.60 (1.21)	2.44 (1.24)
Pre-condition state shame	2.87 (1.25)	2.85(1.27)	2.89 (1.24)
Pre-condition state self-compassion	3.52 (1.07)	3.58 (1.09)	3.46 (1.07)
Post-condition state shame	2.46 (1.16)	2.27 (1.144)	2.65 (1.16)
Post-condition state self-compassion	3.95 (1.05)	4.26 (1.04)	3.63 (.96)

Preliminary Analyses

Tables 2 and 3 show the results of the chi-squared tests comparing completer vs. non-completer groups at baseline, and experimental vs. active-control groups at follow-up. Comparisons in terms of parent ages, parent gender, relationship to child and child age showed that assumptions concerning the ‘minimum expected cell frequency’ were violated. This assumption was also violated when comparing experimental and active-control groups on the same demographic measurements. Therefore, Fisher’s Exact Probability Test is reported instead of chi-squared for these variables (as recommended

by Pallant, 2013). Overall there were no significant differences between completers and non-completers, or experimental and active-control groups, in terms of parent age, parent gender, child age, child gender, child CHC or relationship to child.

Parent age, child age, parental gender, child gender or child's CHC was also not significantly related to scores on any baseline or follow-up measures. See Appendix U.

Table 6 shows the results of the correlation analyses. Correlations were collapsed across experimental and active-control groups, as there were no significant between-group differences. Fourteen participants completed follow-up but not baseline measures – as they did not provide sufficient baseline data, their data was excluded from correlation analyses. Significant correlations were found amongst all variables as predicted (all $p < .001$). The direction of these relationships also fit with hypotheses; negative relationships were apparent between both trait and state self-compassion and state shame. There was also a negative relationship between trait and state self-compassion and PCs, and positive relationships between PCs and state shame. There was a strong ($r > .8$), positive correlation between trait self-compassion scores obtained at baseline and follow-up, as well as between baseline and follow-up measures of PCs. This suggests stability across time points, and was expected over the short time span.

Table 6.
Correlation matrix between key variables at baseline and T2

Measure	1	2	3	4	5	6	7	8	9	10
1. Baseline PANAS-X	1	-	-	-	-	-	-	-	-	-
2. Baseline SCS	-.51**	1	-	-	-	-	-	-	-	-
3. Baseline PCI	.38**	-.47**	1	-	-	-	-	-	-	-
4. Follow-up PANAS-X	.68**	-53**	.51**	1	-	-	-	-	-	-
5. Follow-up PCI	.36**	-.39**	.81**	.56**	1	-	-	-	-	-
6. Follow-up SCS	-.5**	.86**	-.49**	-.62**	-.51**	1	-	-	-	-
7. Pre-condition state self-compassion	-.43**	-.59**	-.37**	-.55**	-.38**	.66**	1	-	-	-
8. Pre-condition PANAS-X	.57**	-.5**	.48**	.76**	.53**	-.59**	-.66**	1	-	-
9. Post-condition state self-compassion	-.41**	.5**	-.38**	-.43**	-.35**	.55**	.76**	-.51**	1	-
10. Post-condition state shame	-63**	-.52**	.55**	.76**	.55**	-.57**	-.57**	.85**	-.64**	1

**p = < .001

Subgroup Equivalency Checks

Completer vs. Non-completers. Table 7 displays the tests of the comparison between completers and non-completers on baseline PCs, trait self-compassion and state shame scores. There was a significant difference between completers and non-completers in baseline trait self-compassion, with non-completers reporting higher mean levels of self-compassion than completers. There was also a significant difference between completers and non-completers in state shame at baseline, with completers reporting higher mean state shame. There were no significant differences between completers and non-completers on baseline PCs. Given these findings, the completer sample may be biased. However, it is unlikely that bias was substantial, as the magnitude of effect of group on baseline trait self-compassion and state shame was small[2].

Table 7.
Completer vs. non-completer SCS, PCI and PANAS-X scores measured at baseline

	Completers (*N* = 148)	Non-completers (*N* = 196)					
Measure	*M (SD)*	*M (SD)*	Mean difference	*t*	*95% CI*	*p*	*d*
SCS	2.65 (.77)	2.81 (.71)	-.16	-2.03	[.32, .08]	.044*	.22
PCI	46.07 (20.84)	45.12 (21.04)	.95	.41	[-3.53, 5.44]	.68	.05
PANAS-X	2.164 (.97)	1.96 (.93)	.21	2.01	[.003, .41]	.05*	.22

M = mean, *SD* = standard deviation, t = t-test, *CI* = confidence interval, *d* = Cohen's d effect size
**p* = < .05
***p* = < .001

[2] Effect sizes *d* = .2 (small effect), *d* = .5 (medium effect), *d* = .8 (large effect; Cohen, 1988, as cited in Field, 2005).

Experimental vs. Control. There were no significant differences found at follow-up between the experimental and control groups on measures of trait self-compassion, PCs, or state shame. The experimental and control groups were also equivalent in pre-condition state self-compassion (see Table 8).

Table 8.
Experimental vs. control group SCS, PCI, PANAS-X and state self-compassion scores measured at follow-up

Measure	Experimental (*N* = 83) *M (SD)*	Control (*N* = 79) *M (SD)*	Mean difference	*t*	*95% CI*	*p*	*d*
SCS	2.7 (.82)	2.68 (.77)	.017	.14	[-.23, .26]	.89	.02
PCI	46.63 (20.68)	45.19 (19.39)	1.44	.46	[-4.78, 7.67]	.65	.07
PANAS-X	2.6 (1.21)	2.44 (1.24)	.16	.9	[-.2, .53]	.37	.13
State self-compassion	3.58 (1.09)	3.46 (1.07)	.12	.73	[-.21, .46]	.47	.11

Manipulation Checks

Results found a significant increase in state shame after recall, with small/small – medium effect sizes (see Table 9). As such, the recall task elicited shame as predicted across both groups.

Table 9.
State shame pre-and post-recall task

Condition	Pre-recall *M (SD)*	Post-recall *M (SD)*	Mean difference *(SD)*	*t*	*95% CI*	*d*
Experimental	2.6 (1.21)	2.85 (1.27)	-.25 (.73)	-3.07*	[-.41, -.09]	.2
Control	2.44 (1.11)	2.89 (1.24)	-.45 (.96)	-4.19**	[.11, -.24]	.4

Main Analyses

There were no reported adverse effects as a result of the SCI/active-control. Preliminary checks were run to ensure that there were no violations in terms of normality, linearity, homogeneity of variances, homogeneity of regression slopes, and reliable measurement of the covariates. Although checks for homogeneity of regression slopes showed a significant interaction between child CHC and the condition, Levene's test for equality of variance was non-significant (p = .07 for both state shame and state self-compassion), suggesting that between-group variance was homogenous. Additionally, ANCOVA (see below) is reasonably robust to violations of this assumption (Pallant, 2013).

Test for experimental effects on state self-compassion. Given that there were no significant relationships found between demographic variables and state self-compassion, a one-way ANCOVA was run to check for the effects of the condition on state self-compassion, without including these predicted covariates. However, measures of trait self-compassion and PCs taken at the beginning of follow-up were included as covariates, as they were correlated with post-condition state self-compassion. Pre-condition measures of state self-compassion were also included. After adjusting for these covariates, a significant difference was found in state self-compassion, whereby

the experimental group reported a higher level of state self-compassion after the SCI ($F(1,160) = 31.32$, $p < .001$). There was also a large effect size of condition on post-condition self-compassion (partial $eta^2 = .17$[3]).

To examine the extent to which results were sensitive to the input of predicted covariates, ANCOVA was repeated including demographic covariates. After adjusting for demographic covariates, pre-condition state self-compassion, and PCs and trait self-compassion taken at the beginning of follow-up, a significant difference was found again between the experimental and control group in terms of post-condition state self-compassion ($F(1,153$[4]$) = 25.98$, $p. < .001$, partial $eta^2 = .15$), in that state self-compassion was rated higher post-SCI with a large effect size. These similar results suggest that findings were not sensitive to the inclusion of demographic covariates.

Test for experimental effects of state shame. Similar to the test for state self-compassion, one-way ANCOVAs were run, both including and not including predicted demographic covariates. This was because preliminary analyses indicated that there were no significant relationships between demographic covariates and state shame. In both cases, follow-up measures of trait self-compassion and PCs were included as covariates, as well as pre-condition scores of state shame.

Regarding the ANCOVA not including predicted demographic covariates, there was a significant difference between the experimental and control groups in post-condition state shame, with the experimental group reporting lower shame after receiving the SCI ($F(1,160) = 20.33$, $p. < .001$). The effect size was medium (partial $eta^2 = .12$).

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[3] Effect sizes partial eta^2 .01 = small, .06 = medium, .14 = large (Pallant, 2013).
[4] This value is accounted for by some missing demographic data; see Tables 2 and 3.

A similar result was found regarding the ANCOVA including demographic covariates (again suggesting that findings were not particularly sensitive to the input of such covariates). Namely, there was a significant between-group difference in state shame ($F(1,153) = 18.09, < .001$), whereby ratings of shame were lower post-SCI. The effect size was medium (partial $eta^2 = .11$).

Tests for moderating effect of PCs at baseline. The results of the regression analysis via PROCESS found that the model (consisting of baseline measures of trait self-compassion and PCs) accounted for 27% variance in state shame ($F(3, 340) = 41.97$, $p < .001.$, $R^2 = .27$). Both trait self-compassion and PCs significantly predicted state shame (trait self-compassion: $b = -.36$, $t(3, 340) = -2.52$, $p = .01$; PCs: $b = -.36$, $t(3, 340) = -2.52$, $p = .01$). However, the interaction effect was non-significant ($b = -.004$, $t(3, 340) = -1.15$, $p = .25$), meaning that the effect of trait self-compassion on state shame did not differ as a function of PCs. The test of interaction between trait self-compassion and PCs onto state shame is displayed in Figure 7.

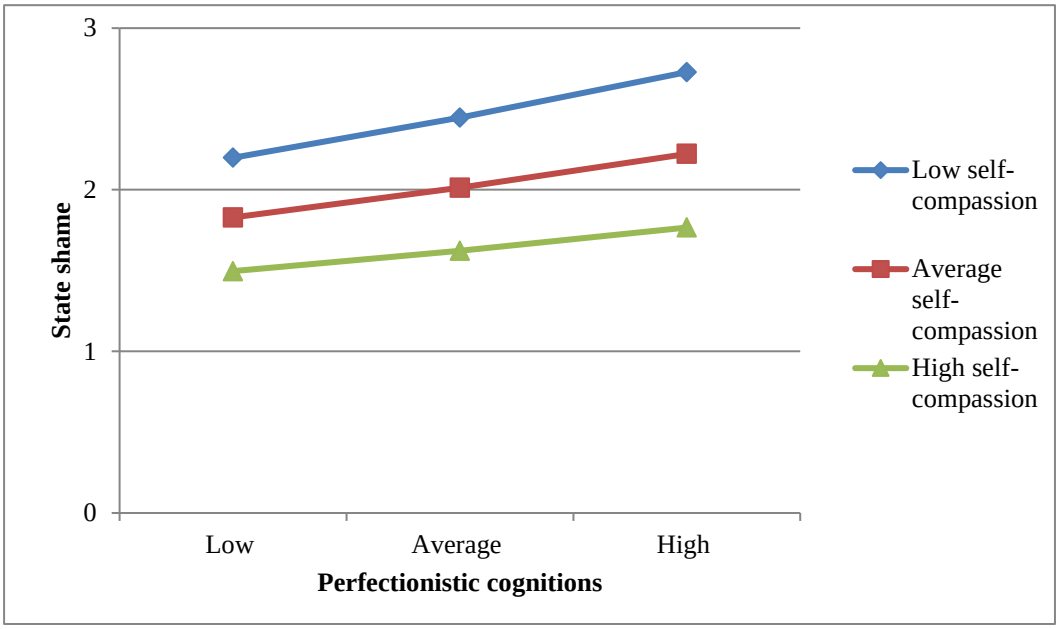

Figure 7: Test of the interaction of trait self-compassion and PCs on state shame at baseline.

Reliability tests. Moderation analyses were repeated using outcome measure data taken at the beginning of follow-up. As with the baseline analysis, trait self-compassion was entered as the IV, state shame was the DV and PCs was the moderator. Results from the regression analysis indicated that the model accounted for 48% variance in state shame at follow-up ($F(3, 158) = 49.86$, $p. < .001.$, $R^2 = .49$). Again, trait self-compassion and PCs significantly predicted state shame with very similar results (trait self-compassion: $b = -.47$, $t(3, 158) = -2.37$, $p = .02$; PCs: $b = .033$, $t(3, 158) = -2.8261$, $p = .005$). The interaction effect was not significant ($b = -.0053$, $t(3, 158) = -1.28$, $p = .2$). Figure 8 shows the interactions effects of trait self-compassion and PCs on state shame measured at follow-up. It was concluded that these results replicate those at baseline, providing more reliable and temporally valid evidence that there is no moderating effect of PCs on the relationship between trait self-compassion and state shame.

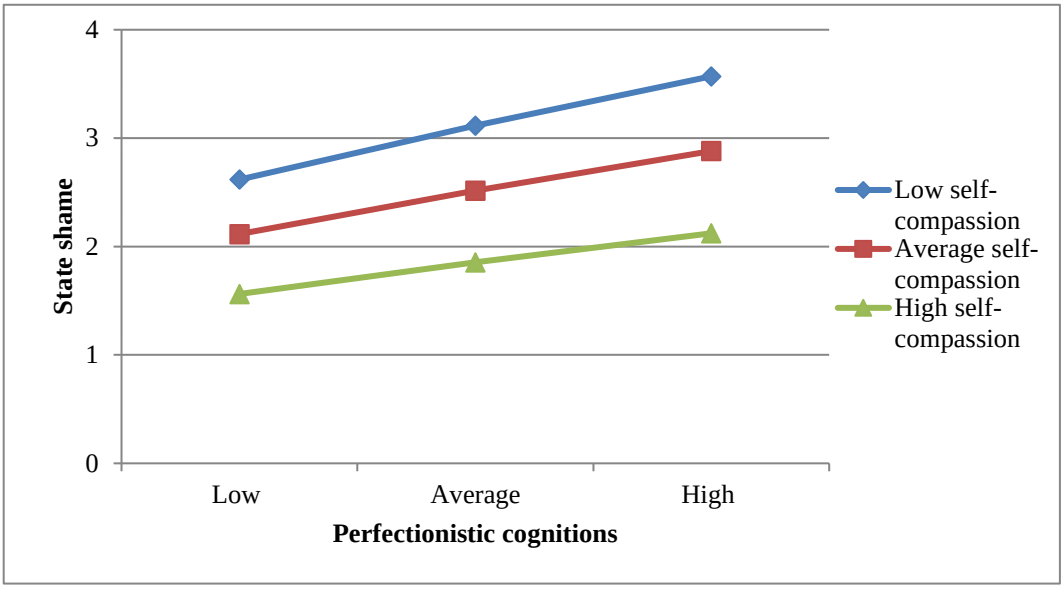

Figure 8: Test of the interaction of trait self-compassion and PCs on state shame at follow-up.

Tests for moderating effect of PCs on effect of intervention on state shame. The regression analysis on follow-up data showed that the model as a whole explained 34% of the variance in state shame ($F(3, 158) = 27.5$, $p. < .001.$, $R^2 = .34$). Both condition and PCs made a significant contribution to state shame scores (condition: $b = .75$, $t(3, 158) = 2.002$, $p = .05$; PCs: $b = .043$, $t(3, 158) = 3.69$, $p = .0003$). Yet there was no significant interaction effect between condition and PCs on state shame following the intervention ($b = -.007$, $t(3, 158) = -.937$, $p = .35$). Therefore, the condition and PCs affected post-intervention ratings of shame, but PCs did not moderate the effect of condition on state shame.

Tests for moderating effect of PCs on effect of intervention on state self-compassion. Regression analyses indicated that the model significantly predicted 23% of variance in state self-compassion ($F(3, 158) = 15.69$, $p < .001$, $R^2 = .23$). The moderation analysis found that both condition and PCs significantly contributed to ratings of state self-compassion (condition: $b = -1.08$, $t(3, 158) = -2.94$, $p = .004$; PCs: b

= -.03, $t(3, 158) = -2.88$, $p = .005$). Yet there was no significant interaction effect between condition and PCs on state self-compassion ($b = .009$, $t(3, 158) = 1.27$, $p = .21$), suggesting no moderation.

Discussion

In line with hypotheses, parents of children with a CHC reported significantly higher state self-compassion and lower state shame post-intervention, compared with those who received the active-control. Effect sizes were medium to large. Lower trait self-compassion also related to higher levels of shame, as predicted. Although high PCs were associated with lower trait and state self-compassion and higher state shame, the association between trait self-compassion and state shame was not moderated by PCs as predicted. Meanwhile, analyses assessing for a moderating effect of PCs on the effectiveness of the condition in increasing state self-compassion and reducing state shame found no interaction effects. This suggests that the SCI was not less effective in instances where the parent reported higher levels of PCs.

These findings are consistent with findings from Sirois, Bögels, and Emerson (2019), who found that the SCI increased self-compassion and reduced state shame in a sample of parents. This study also extends those findings, by testing the effectiveness of the SCI with parents of children with CHCs, who have been suggested to experience higher levels of distress (including shame) than parents without children with CHCs (e.g. Pinquart, 2013; Emerson & Bögels, 2017). Furthermore, findings add to a growing evidence-base suggesting that SCIs can be effective in reducing shame. For example, Gilbert and Irons (2004) found that a four-session self-compassion intervention was effective in reducing self-critical thoughts, which aligns to shame as it is concerned with critical evaluations towards the self (see Lewis, 1971). Similarly to this study, Johnson and O'Brien (2013) also found that writing about recalled shame and responding to it

self-compassionately was effective in reducing shame in students. However, participants in the study by Johnson and O'Brien repeated the intervention three times over one week. This contrasts with the methodology featured in this study.

According to Gilbert (2000), shame is a multifaceted experience, which includes a desire to hide own behaviours, thoughts or feelings. Given that this study utilised a recall task in which the participant was asked to describe an event that made them feel shame, and complete self-report measures, the lower effect size of the SCI on state shame (compared with the large effect size on state self-compassion) may be explainable if the participant found it particularly difficult to disclose shame. This issue may be compounded in perfectionistic individuals who, according to Molnar, Sioris, and Methot-Jones (2016), feel compelled to present a flawless image of themselves. Therefore, participants high in PCs could feel compelled to modify their answers on the state shame outcome measures. It should also be noted that concealing flaws is characteristic of a form of trait perfection known as 'perfectionistic self-preservation' (see Molnar, Sirois, & Methot-Jones). As such, assessing the potentially moderating role of perfectionistic self-preservation would be useful if this study were replicated.

Other considerations to make when interpreting the findings include the notion that perfectionism can be triggered when the individual encounters ego-involving stressors (Hewitt & Flett, 1991). It is possible that the recall task triggered such a stressor, which increased PCs. Yet as PCs were measured before recall, the finding that PCs do not moderate the relationship between the condition and state shame/self-compassion might be affected by the order that measures were presented.

It is also noteworthy that, within the regression analyses, the amount of variance in state self-compassion or state shame as a function of trait self-compassion and PCs was relatively low (at each time point). This may correspond to the inclusion of PCs as

a moderator, which is a form of state perfectionism. Meanwhile, studies considering the relationship between parental perfectionism and well-being have often utilised trait measures of perfectionistic strivings or perfectionistic concerns (e.g. Bardone-Cone et al., 2007; Egan, Wade, & Shafran, 2011). Therefore, perhaps trait perfectionism could increase state shame in different contexts.

Strengths and Limitations

The findings of this study should be considered in the context of its strengths and limitations. Regarding limitations, the sample was self-selecting, which may introduce a source of bias to the sample. The high attrition rate (53%) between baseline and follow-up also raises the question of whether completers were biased (e.g. in their desire for an intervention). Furthermore, the number of participants who started the follow-up study but did not complete (N = 51; 22%) should be acknowledged, because participants harbouring specific characteristics or needs may have been more likely to continue with the task. Another limitation was bias in terms of Type 1 diabetes reflecting the majority of CHCs reported in the sample – generally, of the three CHCs of interest in this study, the most prevalent in the UK is asthma. Therefore, findings may not be generalisable across CHCs. Also, according to Moskowitz (1986) self-reports (such as those used this study) are subject to response bias, which may limit the validity of the study findings. However, given that self-compassion, shame and PCs are internally experienced, self-report measures were deemed most appropriate. A further consideration is the fact that there were no validated state shame measures available for use in this study. Although the PANAS-X guilt subscale was considered appropriate for reasons specified, it may not have accurately measured state shame. This may limit the internal validity of the findings.

It should also be considered that there were relatively low levels of reported state shame at the beginning of the follow-up study (M = 2.52 out of a possible seven). According to the process model of emotion, strategies such as cognitive reappraisal are effective in regulating emotion in instances where the individual is feeling less intense negative emotions (Sheppes & Goss, 2011). As self-compassion can be viewed as a form of cognitive reappraisal (Diedrich, Hofmann, Cuijpers, Berking, 2016), the effectiveness of the SCI may be conflated in the current sample where state shame was already low. Therefore, the SCI may not be as effective in reducing high levels of state shame. In addition, although correlational analyses indicated a relationship between trait self-compassion, PCs and shame in line with hypotheses, this does not infer causality.

Despite these limitations, this study was the first of its kind to empirically explore the role of PCs in the relationship between self-compassion and shame. This is also the first study to assess the effectiveness of an intervention targeting parental distress in the context of child CHCs, which has a number of clinical implications (see below).

Furthermore, the use of the recall task increased the ecological validity of the findings, as the SCI was targeting shame elicited from a real-life situation. Another strength of this study is the design, as it enabled consideration of a range of research questions; for example, the cross-sectional aspect allowed for correlation analyses at two time points, and strengthened the reliability of findings regarding relationships between key variables. The experimental design with an active-control condition also allowed stronger conclusions to be made regarding the effectiveness of the SCI, as without an active-control it would be difficult to ascertain whether findings could simply be the effect of making contact.

Finally, the proportion of male and female children in the study appeared representative of prevalence rates of Type 1 diabetes, epilepsy or asthma in children in

the UK, which increases the external validity of findings. In general, slightly more male children are diagnosed with Type 1 diabetes, epilepsy or asthma, and indeed there were slightly more parents of children with male children in the sample.

Future Research

This study did not consider that some participants may be parents of children with co-morbid conditions, or assess for the long-term effects of the SCI. Therefore, future research could address these issues. Furthermore, as this research involved parents recalling a historical parenting event, little is known about the effectiveness of the SCI the context of ongoing parenting issues as they arise. Studies considering this would be a useful next step.

Another recommendation for future research would be to repeat the study but gather additional data on child outcomes. For example, some studies report that parental trait perfectionism (particularly perfectionistic concerns) are positively associated with forms of child distress (e.g. Besharat, 2003; Rice, Tucker, & Desmond, 2008; Cook & Kearney, 2009). Should findings be replicated and child distress be reduced, it would provide evidence for the effectiveness of parental self-compassion interventions in improving child outcomes. Finally, as Wood, Miller, and Lehman (2015) suggest that parental distress can negatively affect parents' ability to care for the child's health, it might be useful to empirically test this suggestion in relation to parental shame. This study could therefore be replicated including a measure of parental care resources and/or child physical health.

Clinical and Theoretical Implications

The findings of this study have a number of clinical implications. Firstly, there is now evidence suggesting that self-compassion interventions would be useful in a chronic health context, to increase self-compassion and reduce shame in parents with

children with a CHC. Given the paucity of research in this area, this is a significant addition to the field.

The SCI could also have utility in the context of a stretched NHS, as it is brief, online, and can be easily administered via leaflets or charities (as it was during recruitment). However, the sample used in this study were parents who were not necessarily referred for psychological support, and so findings may differ for such a population.

Furthermore, given that findings indicated a negative relationship between self-compassion and shame, clinicians may wish to discuss shame as a barrier to self-acceptance within formulation with service-users (where appropriate). Strategies to facilitate self-compassion/counter shame could also include tasks similar to that in the SCI. Additionally, it may be useful to consider how multidisciplinary teams could facilitate self-compassion in parents accessing paediatric clinics with their child.

In terms of theoretical implications, findings provide further support for the effectiveness of SCIs in addressing difficult emotions. The study also provides information regarding the proposed pathway between PCs, self-compassion and shame on the SCCAMPI (Molnar, Sirois, & Methot-Jones, 2016), in that PCs did not moderate the relationship between self-compassion and shame. Additionally, the SCCAMPI suggests other forms of perfectionism that could moderate a relationship between self-compassion and shame (e.g. perfectionistic concerns or self-presentation). Therefore, measuring these forms of perfectionism may provide support for other pathways in this model.

Conclusion

The SCI has potential to support parents of children with CHCs to respond to challenging parenting events with kindness, humanity and acceptance. The SCI could

also address shame, which according to Emerson and Bögels (2017) can be experienced when parenting a child with a CHC. These findings are important in the field of child chronic health, as there is currently little evidence regarding support available for parents. PCs did not moderate the relationship between self-compassion and shame. Future research is recommended to assess the effectiveness of the SCI in parenting events as they arise, and including measures of child outcomes and/or parental resources. Research could also test whether forms of trait perfectionism moderate a relationship between self-compassion and shame.

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Appendices

Appendix A: Details of Collaboration with Trainee Clinical Psychologist

Element of research	Overlap
Design	✕
Variables of interest	✕
Participant data included at baseline	✕
Participant data included at follow-up	✕
Sample size	✕
Materials used to recruit for baseline (e.g. leaflets)	✔
Procedure up to completion of baseline	✔
Procedure following completion of baseline	✕
Baseline measures of interest	✕
Follow-up measures	✕
Analysis	✕
Ethics	✕
Costing	✕
Information and consent form	✔
Debrief sheet	✕
Analysis	✕
Write up	✕

✔ Areas of overlap with other Trainee Clinical Psychologist
✕ Separate elements of the current study

Appendix B: Advert Used to Advertise in Hospitals

ARE YOU A PARENT OF A CHILD WITH TYPE 1 DIABETES, ASTHMA OR EPILEPSY?

If so, we would like to invite you to take part in a research study exploring parenting experiences in the context of caring for a child with a chronic health condition.

Anyone who has parental responsibility for a child under 18 with type 1 diabetes, asthma or epilepsy is eligible to participate.

The study involves completing a set of online questionnaires (this will take 20-30 minutes), then either:

- Completing the same questionnaires again four weeks later
- OR taking part in a short online task aiming to support parents with managing the stress of caring for a child with a chronic health condition followed by some of the same questionnaires to see if it helped.

You may or may not find some of the questions feel intrusive, but you can stop them at any time and contact the researcher if you do feel this way. Your responses will be anonymous.

For participating you will be given a chance to win a £50 Amazon voucher.

For more information and/or to participate please follow this link:
https://sheffieldpsychology.eu.qualtrics.com/jfe/form/SV_8cOWJqJYCIl1wR7

Or scan this barcode using your mobile phone!

Many thanks!!

The University Of Sheffield.

NHS

This research is being conducted by Kirsteen Meheran and Catherine Lilley (Trainee Clinical Psychologists), under the supervision of Dr Fuschia Sirois (f.sirois@sheffield.ac.uk) and Dr Georgina Rowse (g.rowse@sheffield.ac.uk) from the Department of Psychology at the University of Sheffield. It has received ethics approval from the NHS Ethical Review board.

Appendix C: Confirmation of Capacity and Capability – Sheffield Children's Hospital

Sheffield Children's NHS
NHS Foundation Trust

D Floor Stephenson Wing
Sheffield Children's NHS Foundation Trust
Western Bank, Sheffield S10 2TH

Tel: 0114 226 7980 Fax: 0114 226 7844

14th September 2018

Dr [redacted]
Department of Paediatric Clinical Psychology
Sheffield Children's NHS Foundation Trust
1 Northumberland Road
S10 2TT

Dear [redacted]

SCH-2315 – The role of parental perfectionist cognitions in an intervention to improve self-compassion and reduce shame: Findings in the context of child chronic health conditions

IRAS Ref: 240289

The Directorate of Research & Innovation at Sheffield Children's NHS Foundation Trust has completed a capacity and capability review for the above study and can confirm authorisation for the study to be undertaken within the Trust. The list of documents reviewed is given in appendix 1 of this letter.

The Trust authorisation for this research study is on the understanding and provision that you will adhere to the following conditions:-

That the research should:

Be conducted in accordance with, ICH GCP, the Declaration of Helsinki and the NHS Research Governance Framework (Second Edition, 2005).

- Comply with regulatory requirements and legislation including The Medicines for Human Use (Clinical Trials) Regulations 2004 and subsequent amendments, Data Protection, Health & Safety, Trust Caldicott Guidelines and the use of Human Tissue for research purposes.

You must also:

- Ensure you and your team are familiar with issues of informed consent within research having completed the Good Clinical Practice (GCP) training in accordance with the Sponsor's requirements.
- Request written approval for any change to the approved protocol/study documents that you or the Chief Investigator wishes to implement.
- Ensure that all study personnel, not employed by Sheffield Children's NHS Foundation Trust hold either an honorary contract with the Trust or a letter of access issued by the Trust, before they have access to any facilities, patients, staff, their data, tissue or organs/

- Ensure you and the relevant members of your research team are trained in the use of EDGE and are able to upload participant recruitment data in a timely manner.
- Complete and return progress report requests and notify the Directorate of Research & Innovation when your research is completed. At the point of completion, please submit your findings and any publication or presentations of your findings.
- Inform the Directorate of Research & Innovation If you decide to terminate this research prematurely, by sending a report and indicating the reason for the early termination.
- Advise the Directorate of Research & Innovation of any unusual or unexpected results that raise questions about the safety of the research.

In line with our continued commitment to the above mentioned laws, guidance and statutes, it will be necessary for the Directorate of Research & Innovation to be involved in the conduct of your study as it progresses. Therefore, please ensure that your documentation, including this letter is maintained in the Investigator Site File the appropriate manner and up-to-date.

The target date for recruitment of the first participant is **14th October 2018**. If you are unlikely to meet this target date, please let us know as soon as possible.

I would like to take this opportunity to wish you every success with your project. If you have any questions or we can be of any further assistance to you, do not hesitate to contact the Directorate of Research & Innovation.

Yours sincerely

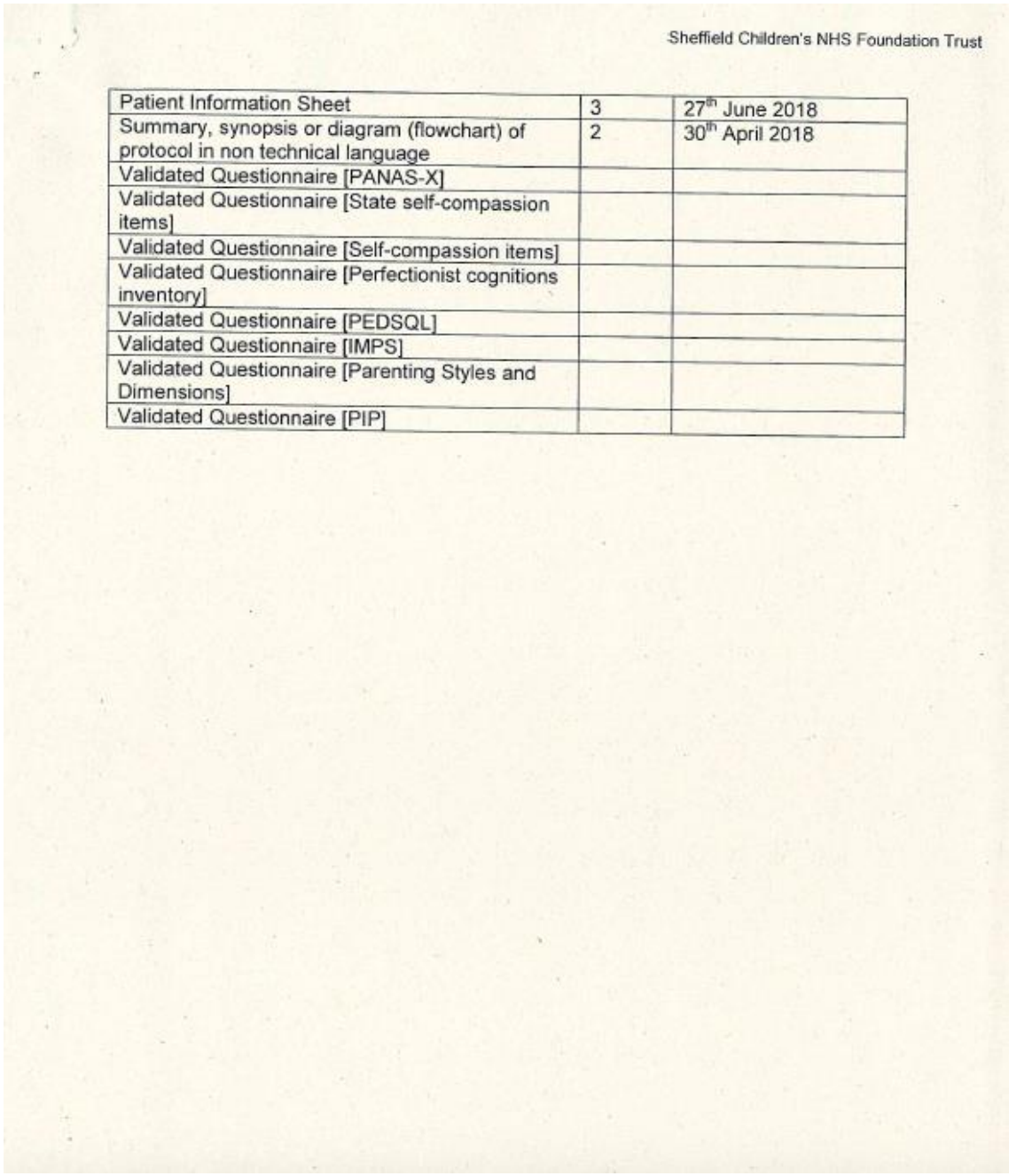
[redacted]
Director of Research & Innovation

Cc Catherine Lilley, Chief Investigator

Appendix 1
Documents reviewed:

These are the documents that have been approved for <SCH-2315>

Document	Version	Date
HRA approval		17th July 2018
Research Protocol	2	20th December 2017
Copies of advertisement materials for research participants [NHS poster]	2	27th June 2018
IRAS application form		6th July 2018
Invitation letter to participants	2	27th June 2018
Invitation letter to participants [Social media advert]	2	27th June 2018
Demographics Form	1	20th December 2017
Participant Consent Form	3	27th June 2018
Participant Information Sheet [Debrief Sheet]	1	20th December 2017



Sheffield Children's NHS Foundation Trust

Patient Information Sheet	3	27th June 2018
Summary, synopsis or diagram (flowchart) of protocol in non technical language	2	30th April 2018
Validated Questionnaire [PANAS-X]		
Validated Questionnaire [State self-compassion items]		
Validated Questionnaire [Self-compassion items]		
Validated Questionnaire [Perfectionist cognitions inventory]		
Validated Questionnaire [PEDSQL]		
Validated Questionnaire [IMPS]		
Validated Questionnaire [Parenting Styles and Dimensions]		
Validated Questionnaire [PIP]		

Note: Some names have been blanked out to ensure confidentiality.

Appendix D: Confirmation of Capacity and Capability – Alder Hey Children's Hospital

[redacted]

Mon, 3 Sep 2018, 09:27

Dear Catherine,

RE: IRAS: 240289 The role of parental perfectionistic cognitions in an intervention to improve self-compassion and reduce shame: Findings in the context of child chronic health.

This email confirms that Alder Hey Children's NHS Foundation Trust has the capacity and capability to deliver the above referenced study.

We agree to start this study on 3/9/18 & expect the study to run until 31/11/18 (pic site).

The supervisor for this study at Alder Hey is Dr [redacted]

If you wish to discuss further, please do not hesitate to contact me.

The SoA attached forms the agreement between sponsor & site.

Regards,

[redacted]

Portfolio & Performance Co-ordinator.
NIHR CRN: North West Coast Children's Speciality
2nd Floor Institute in the Park
Clinical Research Division
Alder Hey Children's NHS Foundation Trust
Eaton Road, Liverpool L12 2AP

[redacted]

[redacted]

31 Oct 2018, 14:43

Dear Catherine,

Please accept this email as confirmation that the aforementioned studies can carry on recruiting at Alder Hey Children's NHS FT until at least the end of February 2019 but no later than the end of August 2019.

Regards,

[redacted]

NIHR CRN: North West Coast Children's Speciality
1st Floor Institute in the Park
Clinical Research Division
Alder Hey Children's NHS Foundation Trust
Eaton Road, Liverpool L12 2AP

[redacted]

www.alderhey.nhs.uk

Note: Some names have been blanked out to ensure confidentiality.

Appendix E: Confirmation of Capacity and Capability – Chesterfield Royal Hospital

Chesterfield Royal Hospital NHS
NHS Foundation Trust

Calow
Chesterfield
S44 5BL

Tel: 01246 277271
Minicom: 01246 512611
www.chesterfieldroyal.nhs.uk

enrich

Research Department
Chief Executive Office

Tel: 01246 516872
e-mail: [redacted]

12 December 2018

Ref: 2018/36 (240289) KM/jw

Dr [redacted]
Lead Clinical Psychologist for Learning Disabilities
CRH

Dear [redacted]

Re: The role of parental perfectionistic cognitions in an intervention to improve self-compassion and reduce shame: Findings in the context of child chronic health conditions. [REC reference: 18/SC/0332]

I would like to confirm Chesterfield Royal Hospital NHS Foundation Trust's agreement to participate in the above study as a Patient Identification Site only.

Documents reviewed:

- Protocol v2 (20 December 2017)

Yours sincerely

[redacted]
General Manager

Copy to

- clilley2@sheffield.ac.uk
- [redacted]

Note: Some names have been blanked out to ensure confidentiality.

Appendix F: List of Charities Agreeing to Support Project

Asthma UK
Diabetes UK
Epilepsy UK
JDRF
Matthew's Friends (Epilepsy)
Successful Diabetes
Tia's Treasures (Epilepsy)
Young Epilepsy

Appendix G: Online Advert Wording

Are you a parent of a child with Type 1 diabetes, asthma or epilepsy?

Are you currently a parent of a child with Type 1 diabetes, asthma or epilepsy, living in the UK? If so, we would like to invite you to take part in a research study exploring parenting difficulties in the context of caring for a child with a chronic health condition.

Anyone who has parental responsibility for a child under 18 with type 1 diabetes, asthma or epilepsy is eligible to participate. Participation involves completing online research surveys. You may or may not find some of the questions feel intrusive, but you can stop them at any time and contact the researcher if you do feel this way. Some people may also be invited to take an online intervention aiming to support parents with managing the stress of caring for a child with a chronic health condition. They will be asked to take some of surveys again to see whether it has helped or not. Your responses will be anonymous.

This research is being conducted by Catherine Lilley and Kirsteen Meheren (Trainee Clinical Psychologists), under the supervision of Dr. Fuschia Sirois (f.sirois@sheffield.ac.uk) and Dr Georgina Rowse (g.rowse@sheffield.ac.uk) from the Department of Psychology at the University of Sheffield. It has received ethics approval from the NHS Ethical Review board.

For participating you will be given a chance to win an £50 Amazon voucher.
For more information and/or to participate please click here. [link]

Please feel free to pass this message on to anyone who may be eligible and interested. Many thanks.

Appendix H: Online Participant Information Sheet

Research project:
Exploring parenting difficulties in the context of caring for a child with a chronic health condition.

Invitation
You are being invited to take part in this research. Before agreeing to take part, it is important that you are aware of why this research is being conducted and what is involved in taking part. Please read this information carefully. If you would like any further information before you decide, please contact one of the lead researchers (see below for contact details).

What is the purpose of the study?
This study is to explore parenting experiences in the context of caring for a child with a chronic health condition. We hope that a greater understanding of this would: (1) enable the development of effective interventions which help parents feel more supported in health care services; (2) feel better equipped to help their child manage their chronic health condition.

Why have I been chosen?
You have been chosen because you have a child with a chronic health condition. As such, you have knowledge and experience of supporting a child living with a chronic health condition.

Do I have to take part?
It is entirely up to you whether or not you take part. If you do decide to take part, you are free to change your mind (see withdrawal section).

What do I have to do?
You will be asked to complete electronic questionnaires relating to how you feel about parenting a child with a chronic health condition and how you respond to difficult situations more generally. Should you agree to take part, you will complete online questionnaires then be randomly allocated to one of two follow-up studies: (1) A randomised-controlled trial which tests an online intervention aiming to help parents deal with distress that can occur as part of parenting a child with a chronic health condition. A randomised-controlled trial means that some people will do the intervention and some will not, and (2) Exploring how parenting style links to child quality of life.

For both studies you will repeat some of the online questionnaires you did when you first agreed to take part.

Please note that if you took part in either study you may also receive an emailed link to another intervention. This will be because you were either randomly allocated to the group that did not receive the intervention in study (1), or you were randomly allocated to study (2), and we thought you may like to complete it. If you decide to take this

intervention you can do this in your own time and will not need to do the questionnaires again.

Before you complete the set of questionnaires you will be asked to provide your email address so that you can be entered into a £50 Amazon voucher prize draw. When the study is closed, we will select one random winner per study, and notify them by email. All email addresses will be encrypted and not shared. After the study has ended, all email addresses will be deleted and removed from our database.

What are the possible benefits of taking part?
We will be asking you to reflect upon your experiences of supporting a child with a chronic health condition and on parenting in general. We hope that you will find this a meaningful and helpful experience. You may also be offered an intervention which aims to help you manage any distress you might experience as part of caring for your child.

What are the possible risks and disadvantages of taking part?
We do not anticipate that there will be any risks in taking part in this project. However, we appreciate that filling out questionnaires or an intervention can feel time consuming or intrusive. Every effort has been made to keep time to a minimum whilst still enabling us to gather detailed information to answer our research question.
If you do feel that you need further support at any time, you should consider approaching your GP, or the professionals involved in your child's care and they will be able to advise you. You can also speak to the Samaritans by phoning: (0114)116 123.
Charities can also be a source of support. Therefore, it may be that the following are of interest to you:
Asthma UK: https://www.asthma.org.uk
Juvenile Diabetes Research Foundation Ltd: https://jdrf.org.uk
Young Epilepsy: http://www.youngepilepsy.org.uk

Withdrawal
If you no longer wish to take part in the study, you can withdraw at any time without question within 2 weeks of completing the final round of questionnaires. After this time your data will be anonymised, making it impossible to extract your questionnaires from others. To withdraw, please contact one of the lead researchers within this time frame.

Confidentiality
The researchers involved in this project would not have access to any personal information other than that which is included in the questionnaires. However the lead researchers will temporarily have access to your email address so that prompts can be sent for the next questionnaires. This will not be shared with anyone outside of this study and protected under the General Data Protection Regulation (GDPR) 2018.

The University of Sheffield is the sponsor for this study based in the United Kingdom. We will be using information from you in order to undertake this study and will act as the data controller for this study. This means that we are responsible for looking after your information and using it properly. The University of Sheffield will keep identifiable information about you (your email address) until 6 months following completion of the final set of questionnaires (this is when the whole project will be complete and we will have selected a participant for the prize draw).

Your rights to access, change or move your information are limited, as we need to manage your information in specific ways in order for the research to be reliable and accurate. If you withdraw from the study, we will keep the information about you that we have already obtained. To safeguard your rights, we will use the minimum personally-identifiable information possible.

You can find out more about how we use your information at https://www.hra.nhs.uk/planning-and-improving-research/policies-standards-legislation/data-protection-and-information-governance/gdpr-guidance/ or by contacting one of the lead researchers for this study.

The University of Sheffield will collect information from you for this research study in accordance with our instructions. The University of Sheffield will use your email address to contact you about the research study, and make sure that relevant information about the study is recorded for your care, and to oversee the quality of the study. The only people in The University of Sheffield who will have access to information that identifies you will be people who need to contact you to send you a follow up link to the next stage of the study, to send you a debrief sheet on study completion, to let you know if you win the prize draw, or audit the data collection process. The people who analyse the information will not be able to identify you and will not be able to find out your contact details.

The University of Sheffield will keep identifiable information about you from this study until 6 months following completion of the final set of questionnaires.

What will happen to the results of the project?
The results of the study will form part of a Clinical Psychology Doctoral thesis. It is also the researchers' aim to publish the results of this project in a relevant academic journal, however participants will not be identifiable in the publication as all data will be anonymous. If you would like a copy of the report once it is ready, please contact one of the lead researchers and ask to be added to our circulation list.

Who is organising and funding this research?
The project is being conducted by Catherine Lilley (Clinical Psychologist in Training) and Kirsteen Meheran (Clinical Psychologist in Training) as part of their training towards becoming a Doctor of Clinical Psychology at the University of Sheffield. They are being supervised by Dr. Fuschia Sirois and Dr Georgina Rowse, who are based at the University of Sheffield.

Who has ethically reviewed this project?
Study 1 has been approved by South Central – Oxford A Research Ethics Committee.
Study 2 has been approved by London South East Research Ethics Committee.
This means that it has been agreed that it is unlikely to pose risk to those that take part, and it has approval to be conducted in the NHS and in the community.

How do I make a complaint?
If you would like to make a complaint about this project, in the first instance you should contact the lead researcher or their supervisor. If you do not feel satisfied that your

complaint has been dealt with appropriately you can contact the University of Sheffield's Registrar and Secretary to take your complaint further. The University of Sheffield's Registrar and Secretary is Dr Philip Harvey. He can be contacted at the following address: Dr Philip Harvey, The Registrar and Secretary's Office, University of Sheffield, Firth Court, Western Bank, Sheffield S10 2TN, UK.

Further information and contact details
Lead researcher contact details:
Catherine Lilley: clilley2@sheffield.ac.uk
Kirsteen Meheran:kmeheran2@sheffield.ac.uk

Supervisor contact details:
Dr Fuschia Sirois: f.sirois@sheffield.ac.uk
Dr Georgina Rowse: g.rowse@sheffield.ac.uk

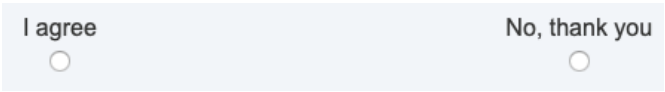
Appendix I: Online Consent Form

I agree to participate in this study and I have made this decision based on the information I have received about it.

Please click the "I agree" box below to indicate that you:

- Have read and understood the project information sheet
- Have been given the opportunity to ask questions about the project (via email provided in the information sheet to the researcher).
- Agree to take part in the project, and understand that taking part in the project will include completing questionnaires, and possibly a short task.
- Understand that your taking part is voluntary and that you can withdraw from the study any time up to the point that you submit your survey. You do not have to give any reasons for why you no longer want to take part and there will be no adverse consequences if you choose to withdraw.
- Understand that your personal details (i.e. your email address) will only be used to send information about the next part of the study, to send a reminder about the study, and to let you know if you have won the prize draw of £50 Amazon vouchers.
- Understand and agree that other authorised researchers will have access to this anonymous survey data for the purpose of analysis only.
- Understand and agree that other authorised researchers may use your anonymous survey data in publications, reports, web pages, and other research outputs.
- Give permission for the anonymous survey data that you provide to be deposited in the Dept. of Psychology at the University of Sheffield, so it can be used for future research and learning.
- Agree to assign the copyright you hold for any materials generated as part of this project to The University of Sheffield.

Do you wish to continue? To acknowledge that you have read and understood this information and would like to continue with the research study, please click on "I agree".



Appendix J: Experimental and Active-control Condition Wording

Recall task:

Now we would like you to think about a recent parenting-related event with your child with a chronic health condition, which made you feel very ashamed with regards to your parenting. It should be an event that you can recall fairly easily, and one which you still feel a bit troubled about.

This can be a parenting event that involved either your own behaviour (e.g. you made a mistake looking after your child's chronic health condition, and felt ashamed for doing so), or one that involves your child's behaviour (e.g. your child behaved in a way that made you feel ashamed as a parent).

Recall what happened and how you were feeling in this situation as clearly as you can, and try to vividly imagine yourself back in this situation and what it felt like. In the space below, please briefly describe this parenting event. Please describe it in as much detail as possible, in a way that we can fully understand what happened. We ask that you do not rush through this task.

Experimental condition prompt:

Thinking about the parenting event that you just recalled and wrote about, we would like you to consider the fact that making mistakes while looking after a child with a chronic health condition is very common, and almost everyone in your position will have experienced something similar at some point. You are not the first person who has made a mistake when looking after their child, nor will you be the last.

When troubling parenting events happen, like the one you just wrote about, it is very common for people to be hard on themselves. But being hard on yourself won't change what happened, and may make things worse.

Try instead to take a balanced perspective on this time when you made a mistake, and how you felt. Be kind, accepting, and compassionate towards yourself about what happened.

We would like you to now write a couple of sentences in the space below expressing this kindness, understanding, and balanced perspective to yourself regarding the parenting event you described above.

Write in the same way that you might if you were supporting a friend who had gone through something similar.

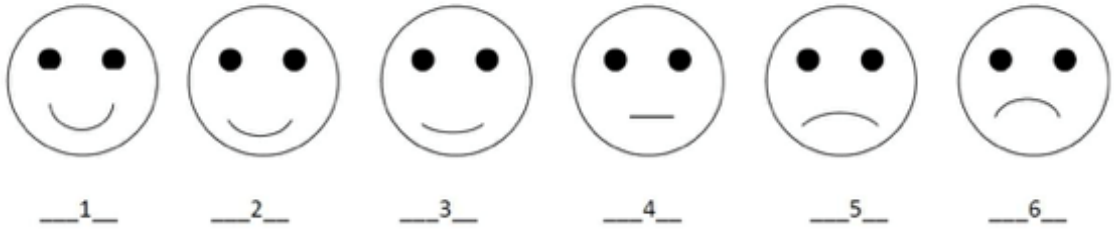
Active-control condition prompt:

Thinking about the parenting event that you just recalled and wrote about, please write a couple of sentences in the space below describing the factual details of this event, such as what time of day and week it was, who you were with, and what the weather was like.

Appendix K: Mood Neutralisation Task:

Now we would like you to think about a time when you were really proud of your parenting, that is, you or your child did something, and you felt really good about this. It could have been something big or small, but the main thing was that you were happy and proud that your parenting had been influential in the event.
Take a moment to think about this time when you were proud of your parenting and briefly describe what happened below.

Overall, how do you feel right now after thinking about the situation you described above? Please use the slider below to choose the face that expresses how you are feeling in this moment.



Appendix L: Debrief Form

Thank you for completing this study. It is very much appreciated.

This study was to explore whether an online self-compassion intervention reduced parental distress that can often occur as part of parenting a child with a chronic health condition. We hope that this will: (1) help to enable the development of effective interventions so that parents feel supported in health care services; (2) help parents feel better equipped to help their child manage their chronic health condition. If you have any further comments, please feel free to contact the lead researcher.

What will happen to the results of the project?
It is the researchers' aim to write up the study as part of a doctoral thesis and publish the results of this project, however you will not be identified in the publication. If you would like a copy of the report once it is ready, please contact the lead researcher and ask to be added to our circulation list.

What next?
You will be entered into our prize draw to win a £50 Amazon voucher. After all data is collected we will select a winner at random and contact via email. You may also receive an emailed link to another intervention – this will be because you were randomly allocated to a group that did not receive the self-compassion intervention, and we thought you may like to complete it. If you decide to take this intervention you can do this in your own time and will not need to do the questionnaires again.
All email addresses will be removed from the database following this.

How do I make a complaint?
If you would like to make a complaint about this project, in the first instance you should contact the lead researcher or their supervisor. If you do not feel satisfied that your complaint has been dealt with appropriately you can contact the University of Sheffield's Registrar and Secretary to take your complaint further. The University of Sheffield's Registrar and Secretary is Dr Philip Harvey. He can be contacted at the following address: Dr Philip Harvey, The Registrar and Secretary's Office, University of Sheffield, Firth Court, Western Bank, Sheffield S10 2TN, UK.

Further information and contact details
Lead researcher contact details:
Catherine Lilley: clilley2@sheffield.ac.uk
Supervisor contact details:
Dr Fuschia Sirois: f.sirois@sheffield.ac.uk
Dr Georgina Rowse: g.rowse@sheffield.ac.uk

Relevant charities
It can be hard to parent children with chronic health conditions. Although it was not the intention, it is possible that this study may have led you to experience distress. If you do feel that you need further support at any time, you can speak to your GP, or the professionals involved in your child's care and they will be able to advise you. You can also speak to the Samaritans by using any phone to call: 116 123.
Charities can also be a source of support. Therefore, it may be that the following are of interest to you:

Asthma UK:https://www.asthma.org.uk
Juvenile Diabetes Research Foundation Ltd:https://jdrf.org.uk
Young Epilepsy:http://www.youngepilepsy.org.uk

Appendix M: Research Ethics Committee Approval

Health Research Authority

South Central - Oxford A Research Ethics Committee
Bristol Research Ethics Committee Centre
Whitefriars
Level 3 Block B
Lewins Mead
Bristol
BS1 2NT

Telephone: 02071048052

Please note: This is the favourable opinion of the REC only and does not allow you to start your study at NHS sites in England until you receive HRA Approval

16 July 2018

Ms Catherine Lilley
Clinical Psychology Unit
Cathedral Court
University of Sheffield
S1 2LT

Dear Ms Lilley

Study title:	**The role of parental perfectionistic cognitions in an intervention to improve self-compassion and reduce shame: Findings in the context of child chronic health conditions.**
REC reference:	**18/SC/0332**
Protocol number:	**155657**
IRAS project ID:	**240289**

Thank you for your letter, responding to the Proportionate Review Sub-Committee's request for changes to the documentation for the above study.

The revised documentation has been reviewed and approved by the sub-committee.

We plan to publish your research summary wording for the above study on the HRA website, together with your contact details. Publication will be no earlier than three months from the date of this favourable opinion letter. The expectation is that this information will be published for all studies that receive an ethical opinion but should you wish to provide a substitute contact point, wish to make a request to defer, or require further information, please contact please contact hra.studyregistration@nhs.net outlining the reasons for your request.

Under very limited circumstances (e.g. for student research which has received an unfavourable opinion), it may be possible to grant an exemption to the publication of the study.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised.

Conditions of the favourable opinion

The REC favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements. Each NHS organisation must confirm through the signing of agreements and/or other documents that it has given permission for the research to proceed (except where explicitly specified otherwise).

Guidance on applying for HRA and HCRW Approval (England and Wales)/ NHS permission for research is available in the Integrated Research Application System, at www.hra.nhs.uk or at http://www.rdforum.nhs.uk.

Where a NHS organisation's role in the study is limited to identifying and referring potential participants to research sites ("participant identification centre"), guidance should be sought from the R&D office on the information it requires to give permission for this activity.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of management permissions from host organisations.

Registration of Clinical Trials

All clinical trials (defined as the first four categories on the IRAS filter page) must be registered on a publically accessible database. This should be before the first participant is recruited but no later than 6 weeks after recruitment of the first participant.

There is no requirement to separately notify the REC but you should do so at the earliest opportunity e.g. when submitting an amendment. We will audit the registration details as part of the annual progress reporting process.

To ensure transparency in research, we strongly recommend that all research is registered but for non-clinical trials this is not currently mandatory.

If a sponsor wishes to request a deferral for study registration within the required timeframe, they should contact hra.studyregistration@nhs.net. The expectation is that all clinical trials will be registered, however, in exceptional circumstances non registration may be permissible with prior agreement from the HRA. Guidance on where to register is provided on the HRA website.

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

Ethical review of research sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" above).

Approved documents

The documents reviewed and approved by the Committee are:

Document	*Version*	*Date*
Copies of advertisement materials for research participants [NHS poster]	2	27 June 2018
Covering letter on headed paper [Covering letter following REC provisional decision]	1	08 July 2018
Evidence of Sponsor insurance or indemnity (non NHS Sponsors only) [sponsor indemnity insurance certificate]	1	05 September 2017
IRAS Application Form [IRAS_Form_06072018]		06 July 2018
IRAS Application Form XML file [IRAS_Form_06072018]		06 July 2018
IRAS Checklist XML [Checklist_06072018]		06 July 2018
IRAS Checklist XML [Checklist_09072018]		09 July 2018
IRAS Checklist XML [Checklist_12072018]		12 July 2018
Letter from sponsor [Letter from sponsor]	1	23 January 2018
Letter from statistician [Letter from statistician and scientific approval]	1	23 January 2018
Letters of invitation to participant [Invitation to participants]	2	27 June 2018
Letters of invitation to participant [Social media advert]	2	27 June 2018
Non-validated questionnaire [Demographics form]	1	20 December 2017
Participant consent form [Consent form]	3	27 June 2018
Participant information sheet (PIS) [Debrief sheet]	1	20 December 2017
Participant information sheet (PIS) [Patient information sheet]	3	27 June 2018
Referee's report or other scientific critique report [Scientific report]	1	23 January 2018
Research protocol or project proposal [C. Lilley protocol]	2	20 December 2017

Summary CV for Chief Investigator (CI) [C. Lilley research CV]	1	02 January 2018
Summary CV for student [C. Lilley CV]	1	02 January 2018
Summary CV for supervisor (student research) [F. Sirois CV]	1	07 April 2018
Summary CV for supervisor (student research) [G. Rowse CV]	1	07 April 2018
Summary, synopsis or diagram (flowchart) of protocol in non-technical language [Details of joint project]	2	30 April 2018
Validated questionnaire [PANAS-X]		
Validated questionnaire [State self-compassion items]		
Validated questionnaire [Self-compassion scale]		
Validated questionnaire [Perfectionistic cognitions inventory]		
Validated questionnaire [PEDSQL (for other study only but taken at baseline)]		
Validated questionnaire [IMPS (for other study only but taken at baseline)]		
Validated questionnaire [Parenting styles and dimensions (for other study only but taken at baseline)]		
Validated questionnaire [PIP (for other study only but taken at baseline)]		

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Reporting requirements

The attached document "After ethical review – guidance for researchers" gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol
- Progress and safety reports
- Notifying the end of the study

The HRA website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

Feedback

You are invited to give your view of the service that you have received from the Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the HRA website:
http://www.hra.nhs.uk/about-the-hra/governance/quality-assurance

We are pleased to welcome researchers and R & D staff at our RES Committee members'

training days – see details at http://www.hra.nhs.uk/hra-training/

18/SC/0332	Please quote this number on all correspondence

With the Committee's best wishes for the success of this project

Yours sincerely

p.p.

Dr [redacted]
Chair

Email: nrescommittee.southcentral-oxforda@nhs.net

Enclosures: *"After ethical review – guidance for researchers"*

Copy to: *Mr Amrit Sinha*
[redacted] *Sheffield Children's NHS Foundation Trust*

Note: Some names have been blanked out to ensure confidentiality.

Appendix N: Health Research Authority Approval

Ymchwil Iechyd a Gofal Cymru
Health and Care Research Wales

NHS
Health Research Authority

Ms Catherine Lilley
Clinical Psychology Unit
Cathedral Court
University of Sheffield
S1 2LT

Email: hra.approval@nhs.net
Research-permissions@wales.nhs.uk

17 July 2018

Dear Ms Lilley

HRA and Health and Care Research Wales (HCRW) Approval Letter

Study title:	**The role of parental perfectionistic cognitions in an intervention to improve self-compassion and reduce shame: Findings in the context of child chronic health conditions.**
IRAS project ID:	**240289**
Protocol number:	**155657**
REC reference:	**18/SC/0332**
Sponsor	**The University of Sheffield**

I am pleased to confirm that **HRA and Health and Care Research Wales (HCRW) Approval** has been given for the above referenced study, on the basis described in the application form, protocol, supporting documentation and any clarifications received. You should not expect to receive anything further relating to this application.

How should I continue to work with participating NHS organisations in England and Wales?
You should now provide a copy of this letter to all participating NHS organisations in England and Wales, as well as any documentation that has been updated as a result of the assessment.

Following the arranging of capacity and capability, participating NHS organisations should **formally confirm** their capacity and capability to undertake the study. How this will be confirmed is detailed in the "*summary of assessment*" section towards the end of this letter.

You should provide, if you have not already done so, detailed instructions to each organisation as to how you will notify them that research activities may commence at site following their confirmation of capacity and capability (e.g. provision by you of a 'green light' email, formal notification following a site initiation visit, activities may commence immediately following confirmation by participating organisation, etc.).

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It is important that you involve both the research management function (e.g. R&D office) supporting each organisation and the local research team (where there is one) in setting up your study. Contact details of the research management function for each organisation can be accessed here.

How should I work with participating NHS/HSC organisations in Northern Ireland and Scotland?
HRA and HCRW Approval does not apply to NHS/HSC organisations within the devolved administrations of Northern Ireland and Scotland.

If you indicated in your IRAS form that you do have participating organisations in either of these devolved administrations, the final document set and the study wide governance report (including this letter) has been sent to the coordinating centre of each participating nation. You should work with the relevant national coordinating functions to ensure any nation specific checks are complete, and with each site so that they are able to give management permission for the study to begin.

Please see IRAS Help for information on working with NHS/HSC organisations in Northern Ireland and Scotland.

How should I work with participating non-NHS organisations?
HRA and HCRW Approval does not apply to non-NHS organisations. You should work with your non-NHS organisations to obtain local agreement in accordance with their procedures.

What are my notification responsibilities during the study?
The document "*After Ethical Review – guidance for sponsors and investigators*", issued with your REC favourable opinion, gives detailed guidance on reporting expectations for studies, including:

- Registration of research
- Notifying amendments
- Notifying the end of the study

The HRA website also provides guidance on these topics, and is updated in the light of changes in reporting expectations or procedures.

I am a participating NHS organisation in England or Wales. What should I do once I receive this letter?
You should work with the applicant and sponsor to complete any outstanding arrangements so you are able to confirm capacity and capability in line with the information provided in this letter.

The sponsor contact for this application is as follows:

Name: Mr Amrit Sinha
Tel: 01142226650
Email: a.sinha@sheffield.ac.uk

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Who should I contact for further information?
Please do not hesitate to contact me for assistance with this application. My contact details are below.

Your IRAS project ID is **240289**. Please quote this on all correspondence.

Yours sincerely

[redacted]
Assessor

Telephone: 0207 104 8171
Email: hra.approval@nhs.net

Copy to: *Mr Amrit Sinha, Sponsor Contact, University of Sheffield*
[redacted] *Sheffield Children's NHS Foundation Trust*

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List of Documents

The final document set assessed and approved by HRA and HCRW Approval is listed below.

Document	*Version*	*Date*
Copies of advertisement materials for research participants [NHS poster]	2	27 June 2018
Covering letter on headed paper [Covering letter following REC provisional decision]	1	08 July 2018
Evidence of Sponsor insurance or indemnity (non NHS Sponsors only) [sponsor indemnity insurance certificate]	1	05 September 2017
HRA Schedule of Events	1.0	22 June 2018
HRA Statement of Activities	1.0	22 June 2018
IRAS Application Form [IRAS_Form_06072018]		06 July 2018
Letter from sponsor [Letter from sponsor]	1	23 January 2018
Letter from statistician [Letter from statistician and scientific approval]	1	23 January 2018
Letters of invitation to participant [Invitation to participants]	2	27 June 2018
Letters of invitation to participant [Social media advert]	2	27 June 2018
Non-validated questionnaire [Demographics form]	1	20 December 2017
Participant consent form [Consent form]	3	27 June 2018
Participant information sheet (PIS) [Debrief sheet]	1	20 December 2017
Participant information sheet (PIS) [Patient information sheet]	3	27 June 2018
Referee's report or other scientific critique report [Scientific report]	1	23 January 2018
Research protocol or project proposal [C. Lilley protocol]	2	20 December 2017
Summary CV for Chief Investigator (CI) [C. Lilley research CV]	1	02 January 2018
Summary CV for student [C. Lilley CV]	1	02 January 2018
Summary CV for supervisor (student research) [F. Sirois CV]	1	07 April 2018
Summary CV for supervisor (student research) [G. Rowse CV]	1	07 April 2018
Summary, synopsis or diagram (flowchart) of protocol in non technical language [Details of joint project]	2	30 April 2018
Validated questionnaire [PANAS-X]		
Validated questionnaire [State self-compassion items]		
Validated questionnaire [Self-compassion scale]		
Validated questionnaire [Perfectionistic cognitions inventory]		
Validated questionnaire [PEDSQL (for other study only but taken at baseline)]		
Validated questionnaire [IMPS (for other study only but taken at baseline)]		
Validated questionnaire [Parenting styles and dimensions (for other study only but taken at baseline)]		
Validated questionnaire [PIP (for other study only but taken at baseline)]		

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Summary of assessment

The following information provides assurance to you, the sponsor and the NHS in England and Wales that the study, as assessed for HRA and HCRW Approval, is compliant with relevant standards. It also provides information and clarification, where appropriate, to participating NHS organisations in England and Wales to assist in assessing, arranging and confirming capacity and capability.

Assessment criteria

Section	Assessment Criteria	Compliant with Standards	Comments
1.1	IRAS application completed correctly	Yes	No comments
2.1	Participant information/consent documents and consent process	Yes	No comments
3.1	Protocol assessment	Yes	No comments
4.1	Allocation of responsibilities and rights are agreed and documented	Yes	The sponsor has submitted the HRA Statement of Activities and intends for this to form the agreement between the sponsor and study sites. The sponsor is not requesting, and does not require any additional contracts with study sites.
4.2	Insurance/indemnity arrangements assessed	Yes	No comments
4.3	Financial arrangements assessed	Yes	No study funding will be provided to sites, as detailed at Schedule 1 of the Statement of Activities.
5.1	Compliance with the Data Protection Act and data security issues assessed	Yes	No comments
5.2	CTIMPS – Arrangements for compliance with the Clinical Trials Regulations assessed	Not Applicable	No comments

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Section	Assessment Criteria	Compliant with Standards	Comments
5.3	Compliance with any applicable laws or regulations	Yes	No comments
6.1	NHS Research Ethics Committee favourable opinion received for applicable studies	Yes	No comments
6.2	CTIMPS – Clinical Trials Authorisation (CTA) letter received	Not Applicable	No comments
6.3	Devices – MHRA notice of no objection received	Not Applicable	No comments
6.4	Other regulatory approvals and authorisations received	Not Applicable	No comments

Participating NHS Organisations in England

This provides detail on the types of participating NHS organisations in the study and a statement as to whether the activities at all organisations are the same or different.
The Chief Investigator or sponsor should share relevant study documents with participating NHS organisations in England and Wales in order to put arrangements in place to deliver the study. The documents should be sent to both the local study team, where applicable, and the office providing the research management function at the participating organisation. If chief investigators, sponsors or principal investigators are asked to complete site level forms for participating NHS organisations in England and Wales which are not provided in IRAS, the HRA or HCRW websites, the chief investigator, sponsor or principal investigator should notify the HRA immediately at hra.approval@nhs.net or HCRW at Research-permissions@wales.nhs.uk. We will work with these organisations to achieve a consistent approach to information provision.

Principal Investigator Suitability

This confirms whether the sponsor position on whether a PI, LC or neither should be in place is correct for each type of participating NHS organisation in England and the minimum expectations for education, training and experience that PIs should meet (where applicable).
The Chief Investigator will be responsible for all research activities performed at study sites. GCP training is not a generic training expectation, in line with the HRA statement on training expectations.

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HR Good Practice Resource Pack Expectations

This confirms the HR Good Practice Resource Pack expectations for the study and the pre-engagement checks that should and should not be undertaken
Where arrangements are not already in place, network staff (or similar) undertaking any of the research activities listed in A18 or A19 of the IRAS form would be expected to obtain a Letter of Access based on standard DBS checks and occupational health clearance would be appropriate.

Other Information to Aid Study Set-up

This details any other information that may be helpful to sponsors and participating NHS organisations in England to aid study set-up.
The applicant has indicated that they do not intend to apply for inclusion on the NIHR CRN Portfolio.

Note: Some names have been blanked out to ensure confidentiality.

Appendix O: Demographics Form

We will need to know a little about you and your child for this study. This information will only be used for the purpose of this study. Questionnaires should be completed by the primary caregiver, who should also have parental responsibility. If you have any questions or require further guidance, please contact the lead researcher.

Please enter your email address so that we can link your responses to this questionnaire to your responses on the questionnaires you will complete. _____

1. Are you the primary caregiver for your child?

☐ Yes ☐ No ☐ Prefer not to say

2. Would you say that you bear parental responsibility for your child?

☐ Yes ☐ No ☐ Prefer not to say

3. Age:

☐ < 20 ☐ 21 – 30 ☐ 31 – 40 ☐ 41 – 50 ☐ >50 ☐ Prefer not to say

4. Sex:

☐ Male ☐ Female ☐ Prefer not to say

5. What is your relationship to the child?

☐ Biological mother ☐ Biological father ☐ Adoptive mother

☐ Adoptive father ☐ Biological grandparent ☐ Adoptive grandparent

☐ ☐ ☐

Foster mother Foster father Biological sibling (sole carer)

☐
Prefer not to say

Other (please state):
_____

6. What chronic condition is your child diagnosed with?

☐ ☐ ☐ ☐
Type 1 diabetes mellitus Epilepsy Asthma Prefer not to say

7. How old is your child?

☐ ☐ ☐ ☐
< 12 months 1 – 3 4 – 7 8 – 12

☐ ☐ ☐
13 – 16 17 + Prefer not to say

8. Age of onset of chronic condition:

☐ ☐ ☐ ☐ ☐
2 - 4 5 - 7 8 - 12 13 - 18 Prefer not to say

Appendix P: Self-Compassion Scale – Short Form

HOW I TYPICALLY ACT TOWARDS MYSELF IN DIFFICULT TIMES

Please read each statement carefully before answering. To the left of each item, indicate how often you behave in the stated manner, using the following scale:

Almost never				Almost always
1	2	3	4	5

_____1. When I fail at something important to me I become consumed by feelings of inadequacy.

_____2. I try to be understanding and patient towards those aspects of my personality I don't like.

_____3. When something painful happens I try to take a balanced view of the situation.

_____4. When I'm feeling down, I tend to feel like most other people are probably happier than I am.

_____5. I try to see my failings as part of the human condition.

_____6. When I'm going through a very hard time, I give myself the caring and tenderness I need.

_____7. When something upsets me I try to keep my emotions in balance.

_____8. When I fail at something that's important to me, I tend to feel alone in my failure

_____9. When I'm feeling down I tend to obsess and fixate on everything that's wrong.

_____10. When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people.

_____11. I'm disapproving and judgmental about my own flaws and inadequacies.

_____12. I'm intolerant and impatient towards those aspects of my personality I don't like.

Appendix Q: Perfectionistic Cognitions Inventory

PERFECTIONISM COGNITIONS INVENTORY

SEX: M or F **MARITAL STATUS:** _____

Listed below are a variety of thoughts about perfectionism that sometimes pop into people's heads. Please read each thought and indicate how frequently, if at all, the thoughts occurred to you **over the last week**. Please read each item carefully and *circle* the appropriate number, using the scale below.

0	=	Not At All
1	=	Sometimes
2	=	Moderately Often
3	=	Often
4	=	All Of The Time

1.	Why can't I be perfect	0	1	2	3	4
2.	I need to do better	0	1	2	3	4
3.	I should be perfect	0	1	2	3	4
4.	I should never make the same mistake twice	0	1	2	3	4
5.	I've got to keep working on my goals	0	1	2	3	4
6.	I have to be the best	0	1	2	3	4
7.	I should be doing more	0	1	2	3	4
8.	I can't stand to make mistakes	0	1	2	3	4
9.	I have to work hard all the time	0	1	2	3	4
10.	No matter how much I do, it's never enough	0	1	2	3	4
11.	People expect me to be perfect	0	1	2	3	4
12.	I must be efficient at all times	0	1	2	3	4
13.	My goals are very high	0	1	2	3	4
14.	I can always do better, even if things are almost perfect	0	1	2	3	4
15.	I expect to be perfect	0	1	2	3	4
16.	Why can't things be perfect?	0	1	2	3	4
17.	My work has to be superior	0	1	2	3	4
18.	It would be great if everything in my life was perfect	0	1	2	3	4
19.	My work should be flawless	0	1	2	3	4
20.	Things are seldom ideal	0	1	2	3	4
21.	How well am I doing?	0	1	2	3	4
22.	I can't do this perfectly	0	1	2	3	4
23.	I certainly have high standards	0	1	2	3	4
24.	Maybe I should lower my goals	0	1	2	3	4
25.	I am too much of a perfectionist	0	1	2	3	4

Appendix R: PANAS-X Shame/Guilt Subscale

This scale consists of a number of words and phrases that describe different feelings and emotions. Read each item and then mark the appropriate answer on the scale next to that word. Indicate to what extent you feel this way right now/in the present moment.

	1 = very slightly or not at all	2 = a little	3 = moderately	4 = quite a bit	5 = extremely
guilty	○	○	○	○	○
ashamed	○	○	○	○	○
blameworthy	○	○	○	○	○
angry at self	○	○	○	○	○
disgusted with self	○	○	○	○	○
dissatisfied with self	○	○	○	○	○

Appendix S: State Self-Compassion Items

Right now, how **kind** do you feel towards yourself ?

1	2	3	4	5	6	7
Not at all kind			Moderately kind			Extremely kind

Right now, how **accepting** do you feel towards yourself?

1	2	3	4	5	6	7
Not at all accepting			Moderately accepting			Extremely accepting

Right now, how **critical** do you feel towards yourself?

1	2	3	4	5	6	7
Not at all critical			Moderately critical			Extremely critical

Right now, how much do you see your **weaknesses as part of being human**?

1	2	3	4	5	6	7
Not at all			Somewhat			Very much

Right now, how much are you **trying to take a balanced view** of the situation?

1	2	3	4	5	6	7
Not at all			Somewhat			Very much

Appendix T: Assessment for Normality of Data

Table A1.

Summary statistics of normality of outcome measure data collapsed across groups

Variable	*N*	α	Skewness (*SE*)	Kurtosis (*SE*)	Kolmogorov-Smirnov's test
Baseline SCS	344	.856	.290 (.131)	-.259 (.262)	.049*
Baseline PCI	344	.947	.235 (.131)	-.842 (.262)	.078**
Baseline PANAS-X	344	.863	.829 (.131)	-.291 (.262)	.161**
Follow-up SCS	162	.892	.160 (.191)	-.894 (.379)	.086*
Follow-up PCI	162	.944	.061 (.191)	-.771 (.379)	.079*
Follow-up PANAS-X	162	.926	.482 (.191)	-.937 (.379)	.136**
Pre-condition PANAS-X	162	.941	.135 (.191)	-1.199 (.379)	.098*
Pre-condition state self-compassion	162	.760	.485 (.191)	.447 (.379)	.068
Post-condition PANAS-X	162	.949	.431 (.191)	-.990 (.379)	.159**
Post-condition state self-compassion	162	.773	.137 (.191)	.024 (.379)	.079*

SE = Standard error
*p = < .05
**p = < .001

Histograms and normal Q-Q plots of outcome measures data at baseline

Baseline PANAS-X

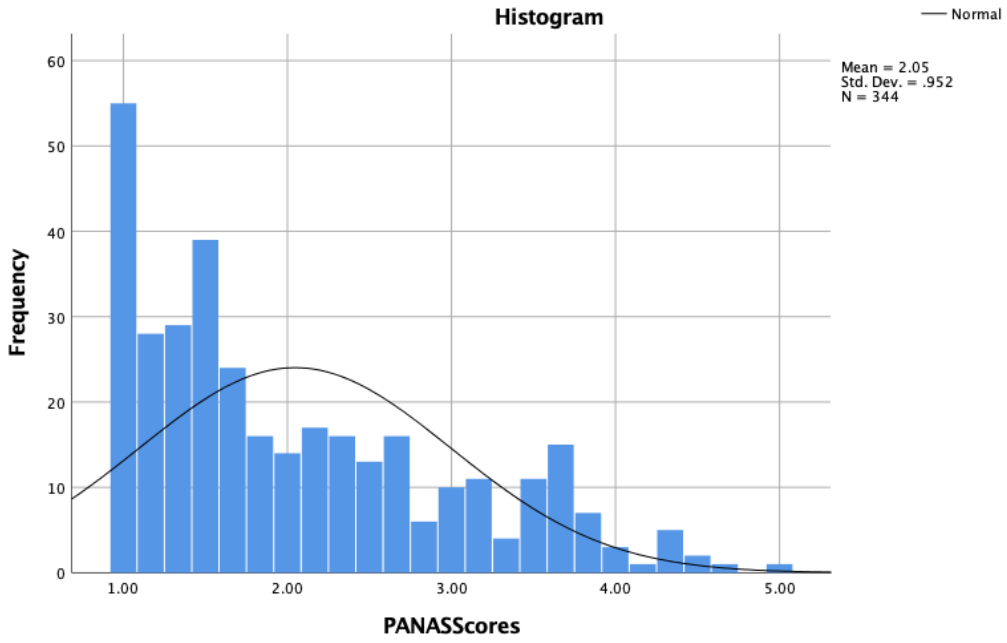

Figure A1: Baseline PANAS-X histogram.

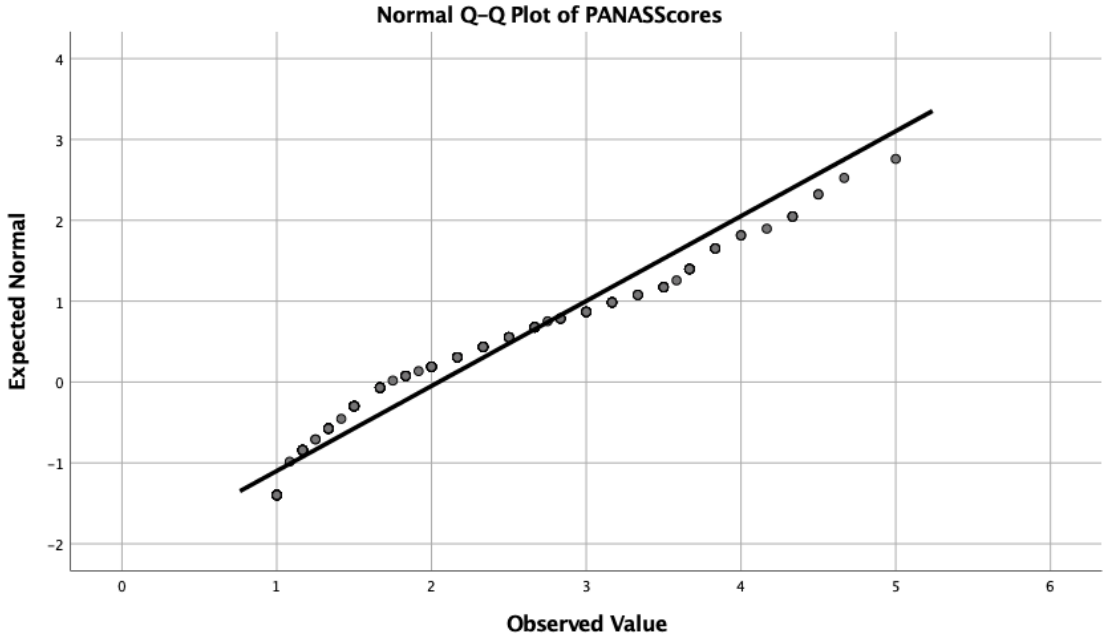

Figure A2: Baseline PANAS-X Q-Q plot.

Baseline PCI

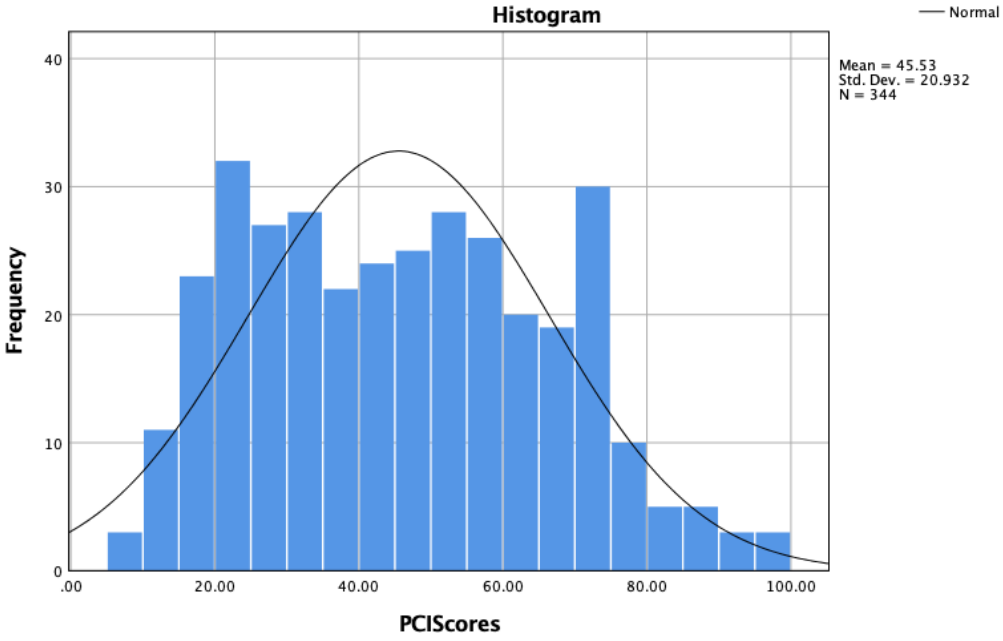

Figure A3: Baseline PCI histogram.

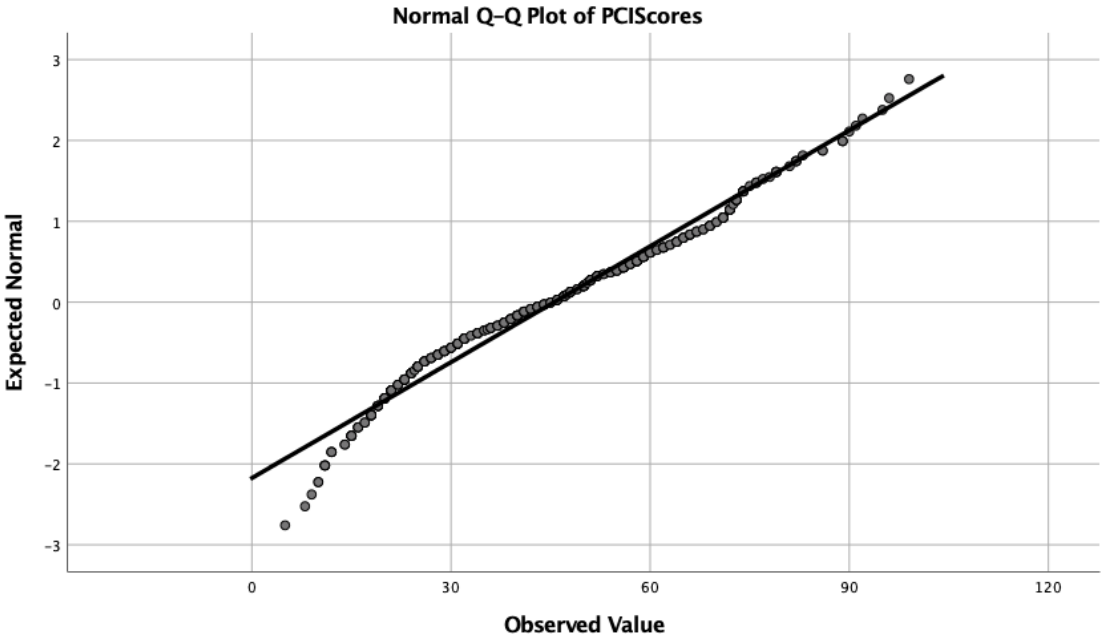

Figure A4: Baseline PCI Q-Q plot.

Baseline SCS

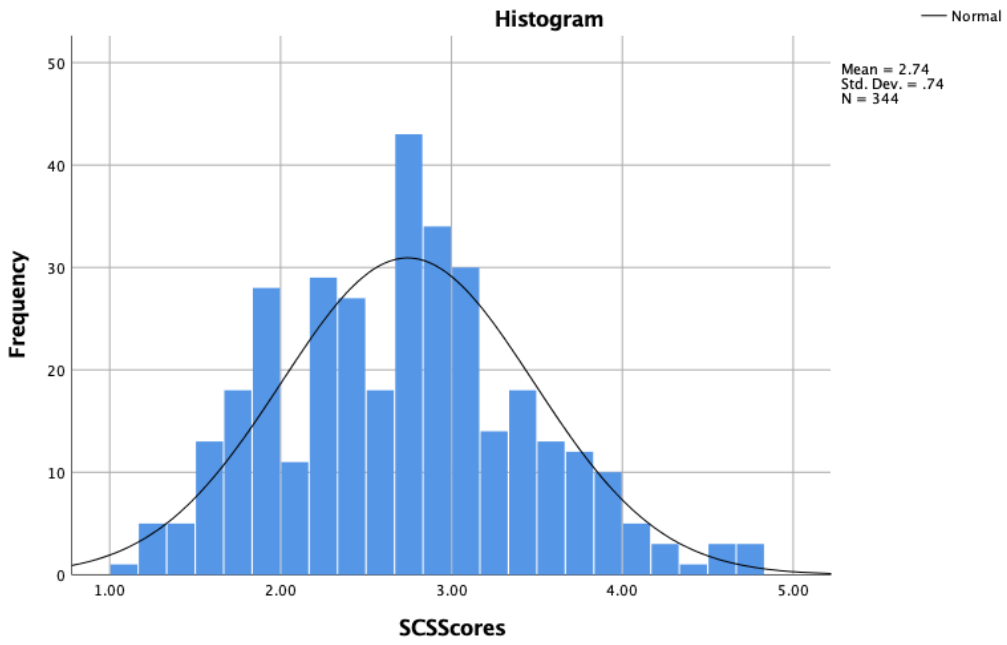

Figure A5: Baseline SCS histogram.

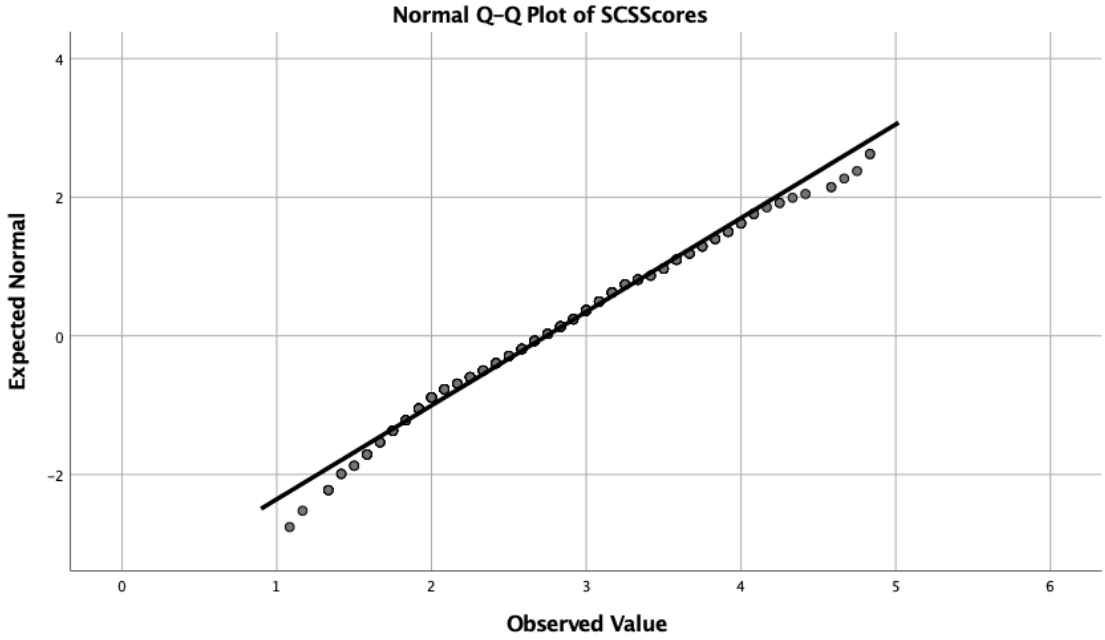

Figure A6: Baseline SCS Q-Q plot.

Histograms and normal Q-Q plots of outcome measures data during follow-up study

Follow-up PANAS-X

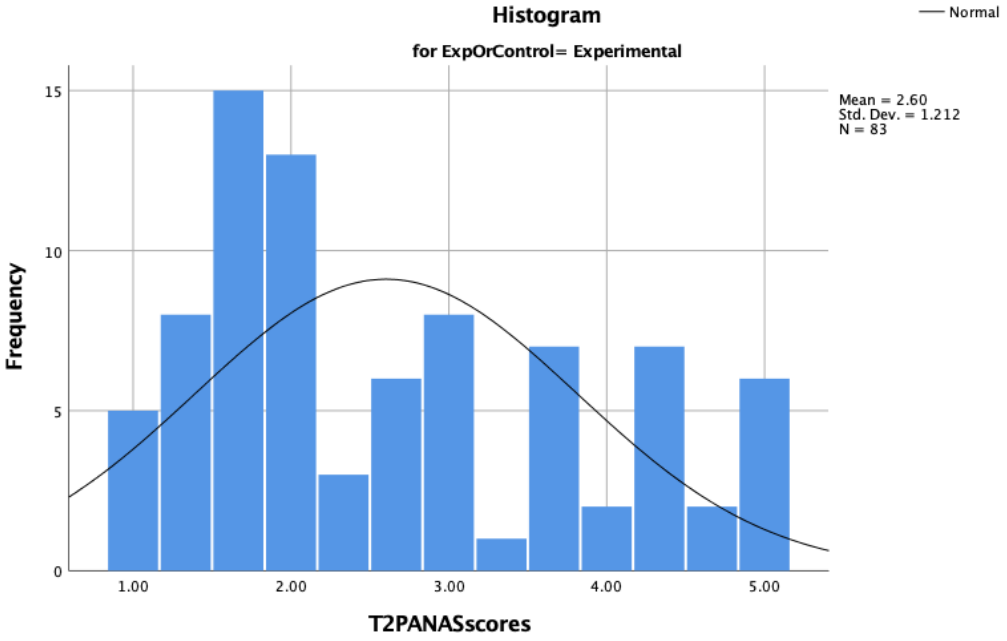

Figure A7: Beginning of follow-up PANAS-X histogram (experimental group).

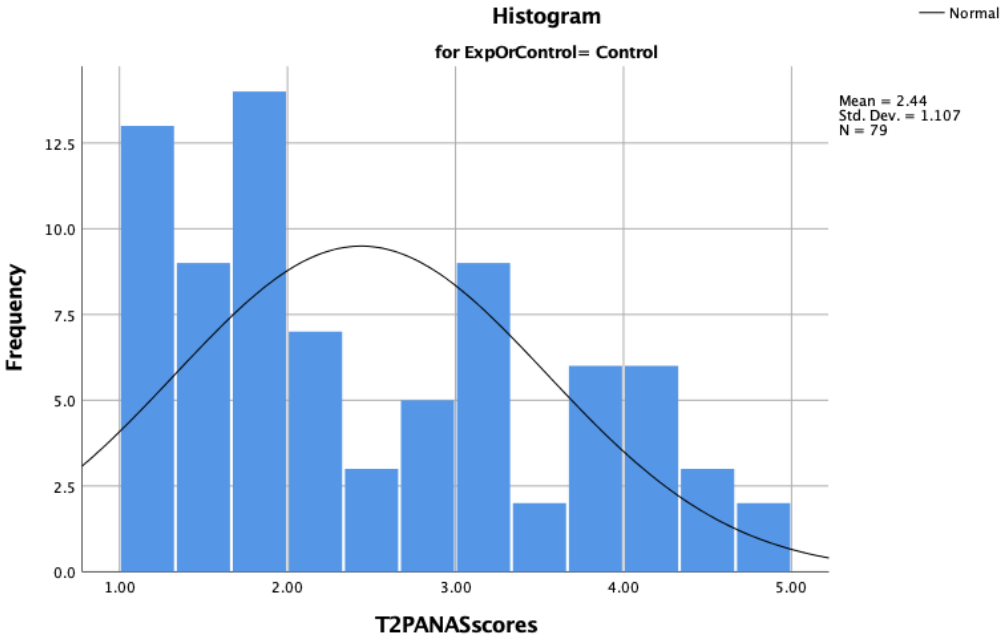

Figure A8: Beginning of follow-up PANAS-X histogram (control group).

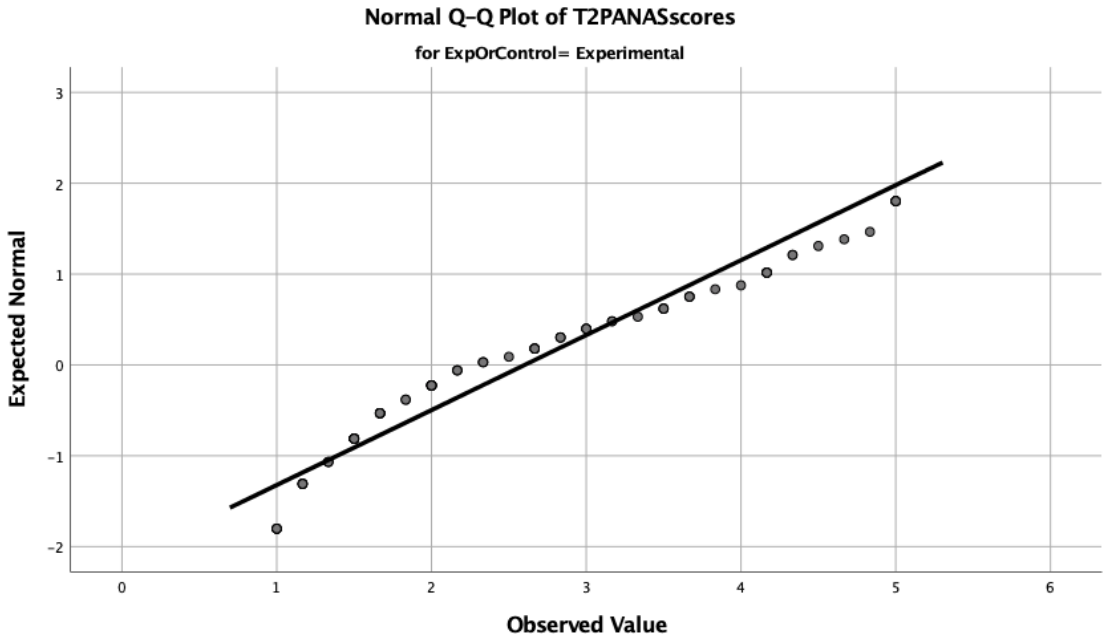

Figure A9: Beginning of follow-up PANAS-X Q-Q plot (experimental group).

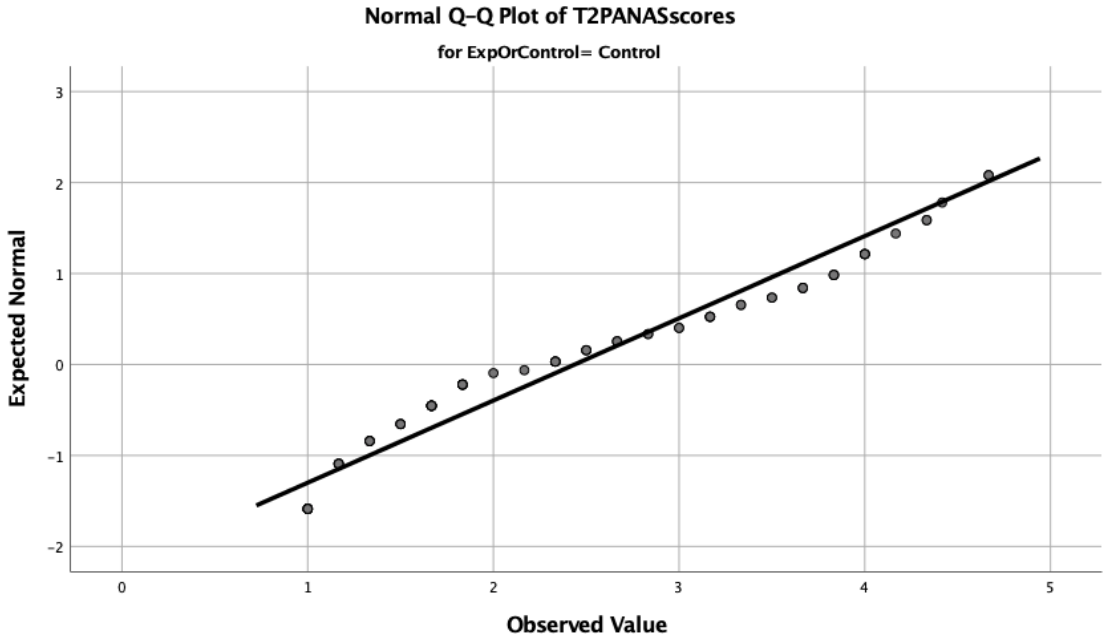

Figure A10: Beginning of follow-up PANAS-X Q-Q plot (control group).

Follow-up PCI

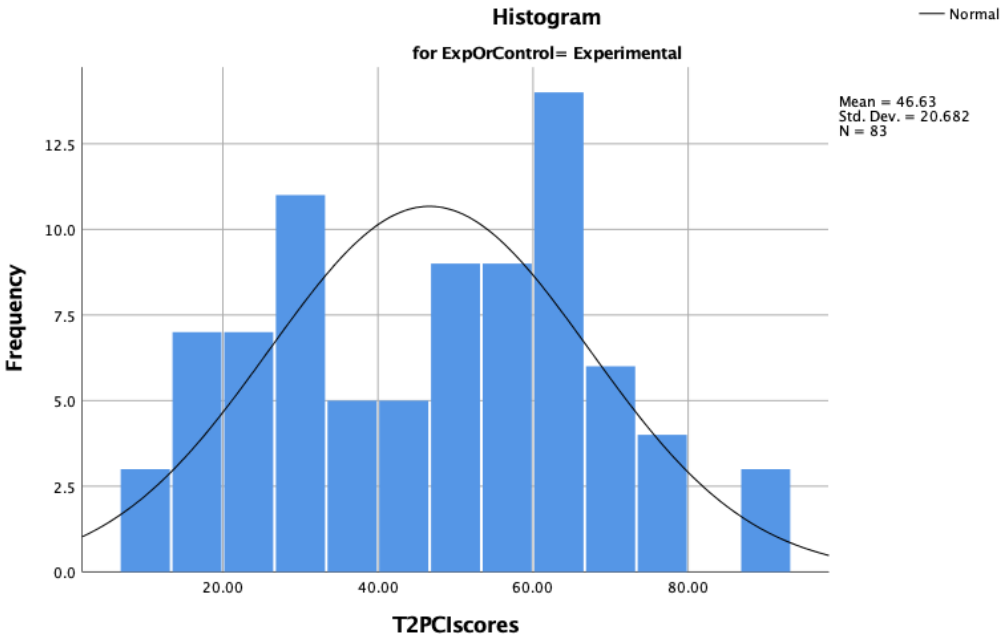

Figure A11: Beginning of follow-up PCI histogram (experimental group).

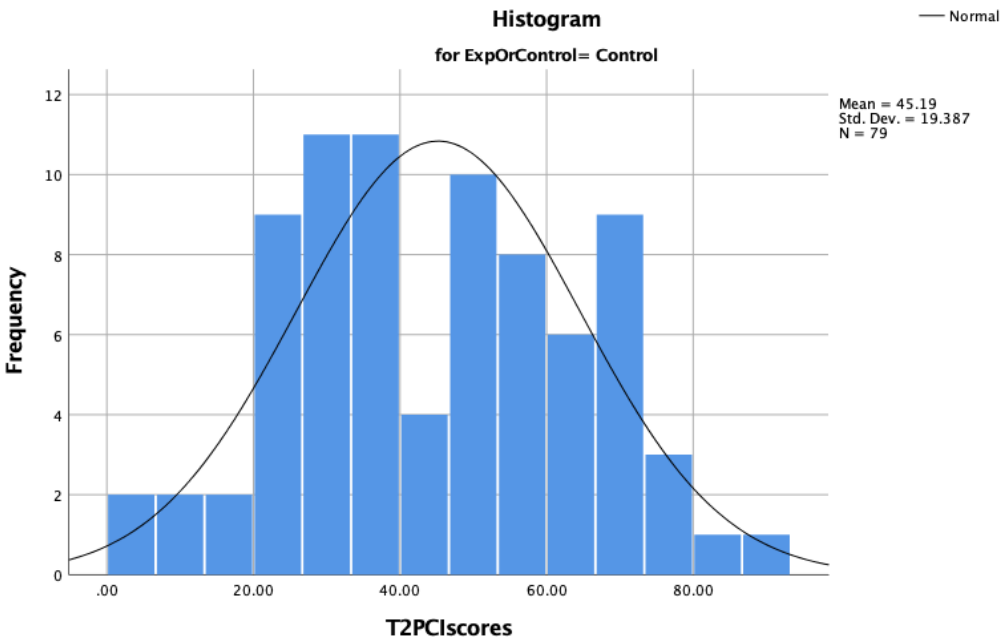

Figure A12: Beginning of follow-up PCI histogram (control group).

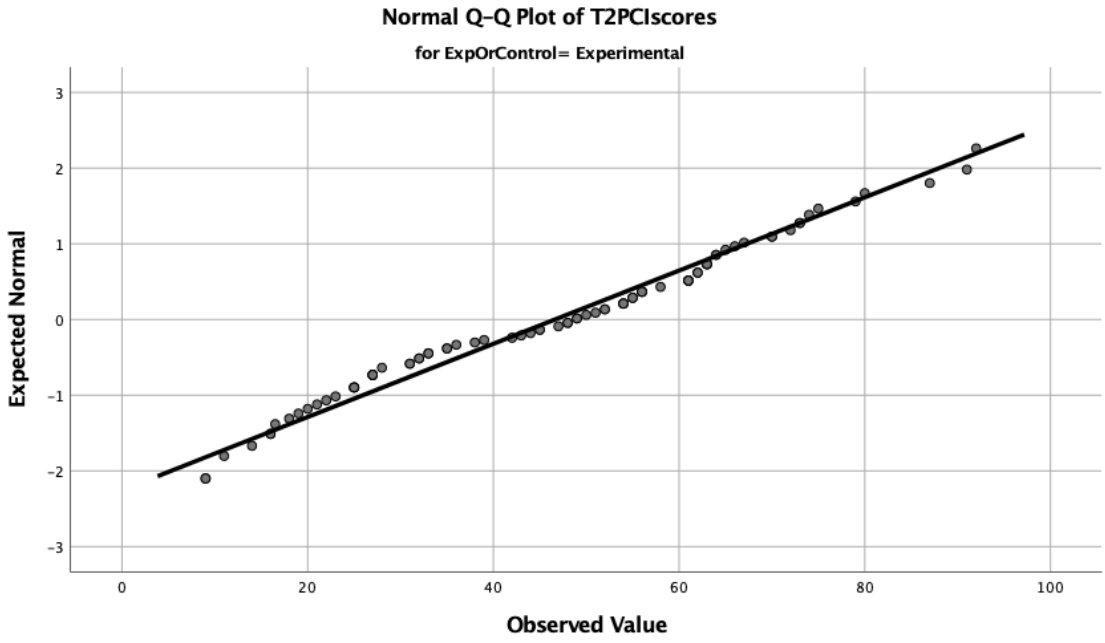

Figure A13: Beginning of follow-up PCI Q-Q plot (experimental group).

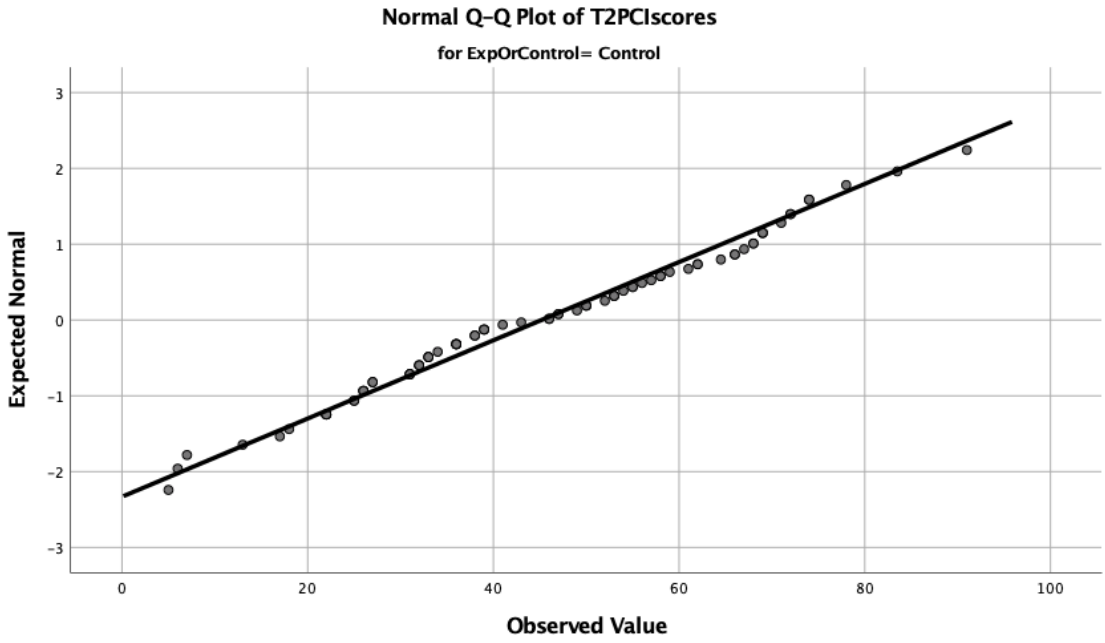

Figure A14: Beginning of follow-up PCI Q-Q plot (control group).

Follow-up SCS

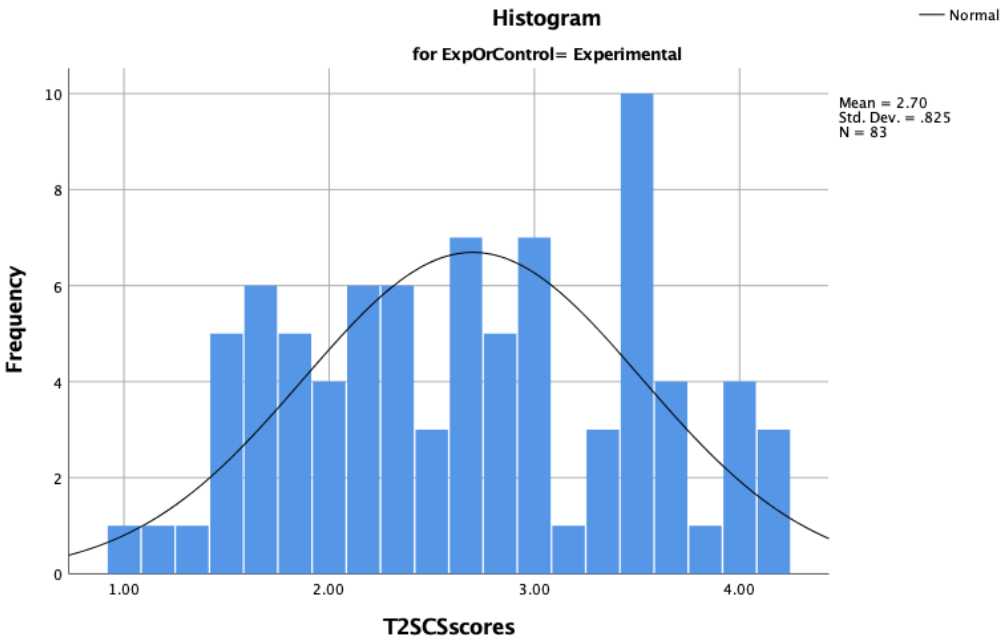

Figure A15: Beginning of follow-up SCS histogram (experimental group).

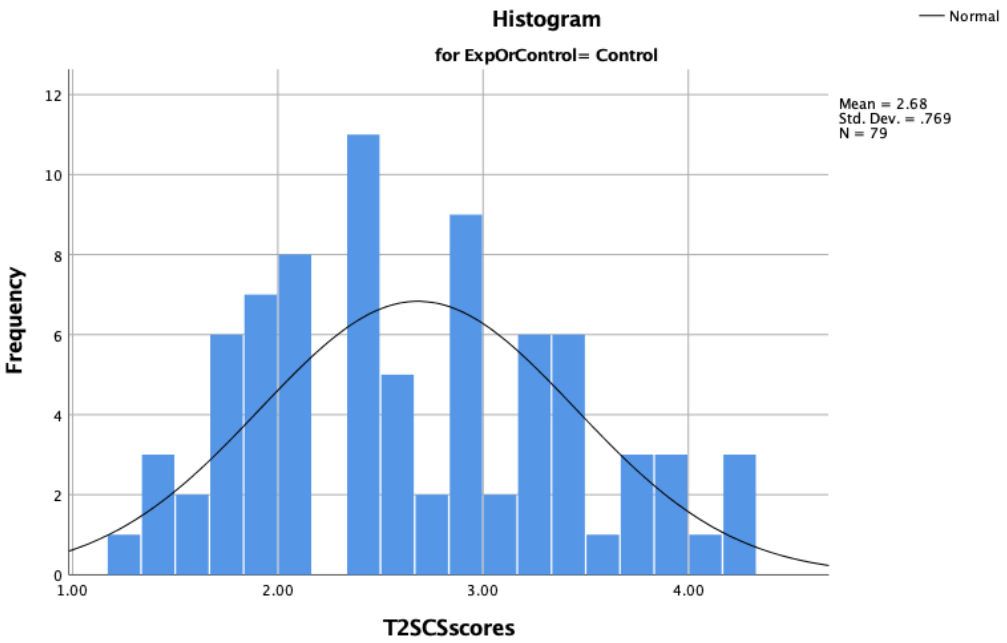

Figure A16: Beginning of follow-up SCS histogram (control group).

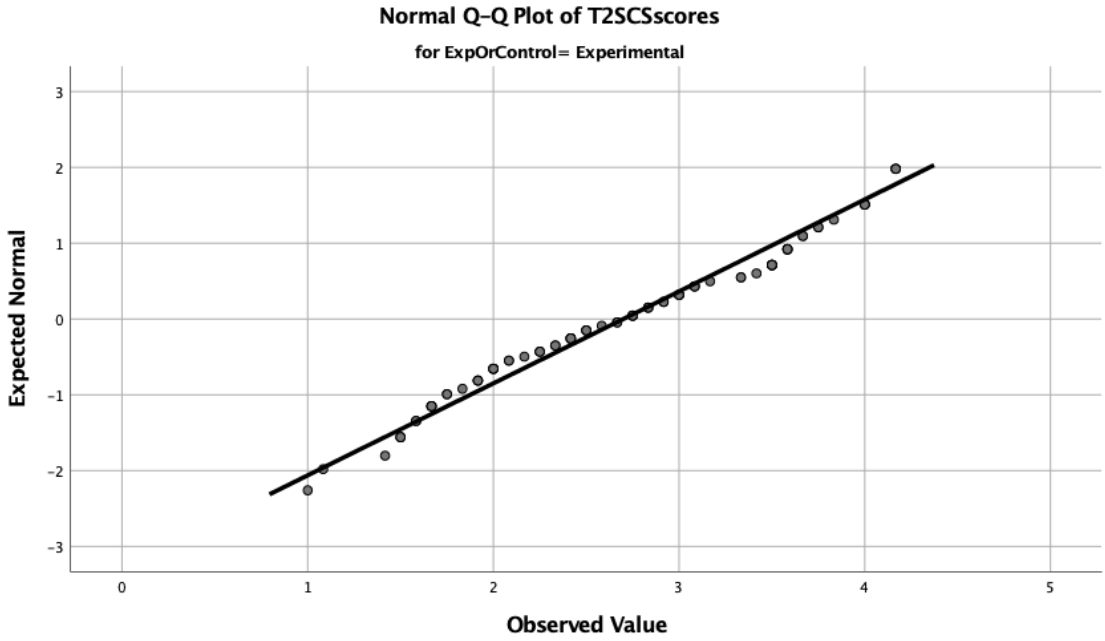

Figure A17: Beginning of follow-up Q-Q plot (experimental group).

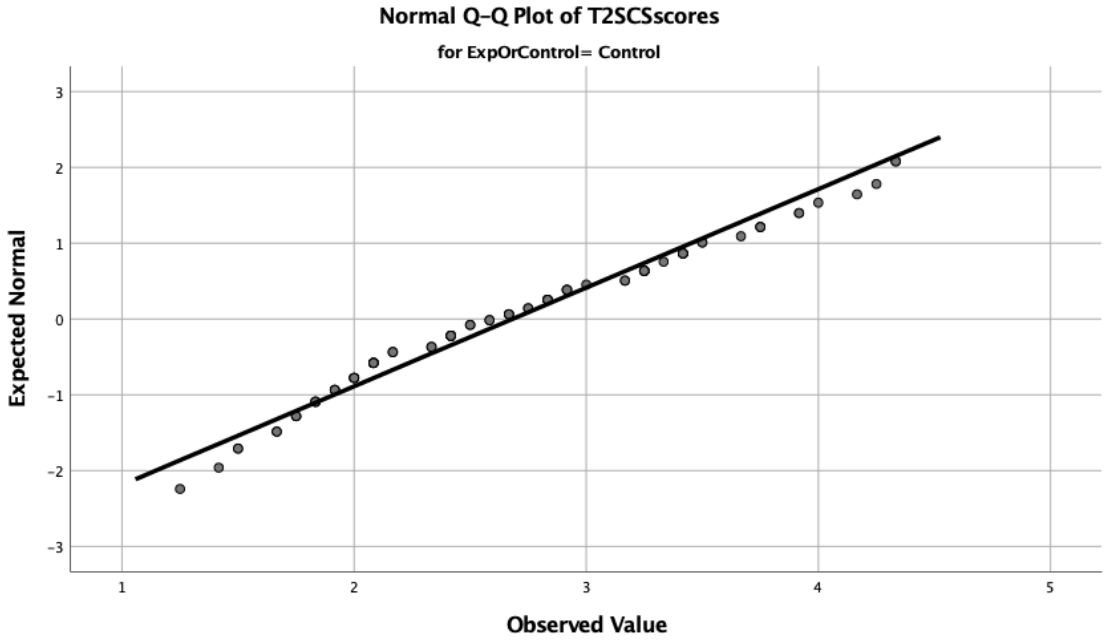

Figure A18: Beginning of follow-up Q-Q plot (control group).

Pre-condition PANAS-X

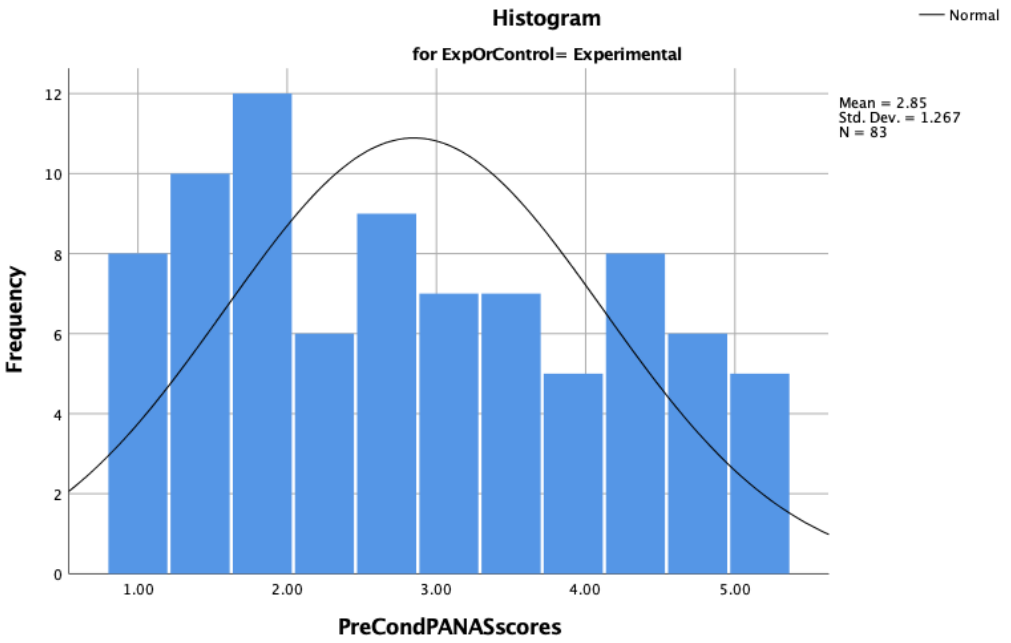

Figure A19: Pre-condition PANAS-X histogram (experimental group).

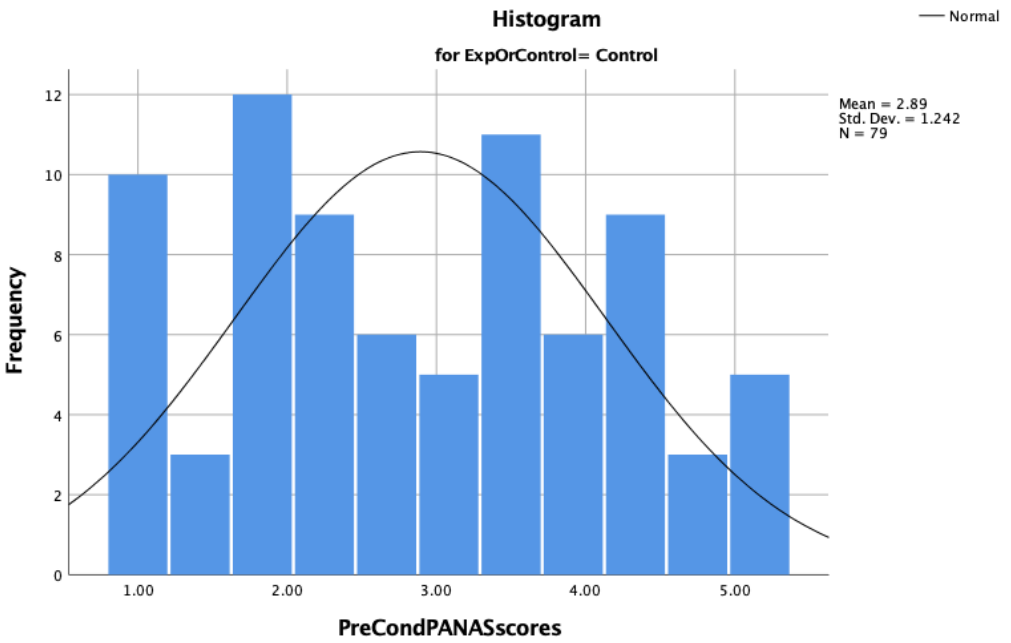

Figure A20: Pre-condition PANAS-X histogram (control group).

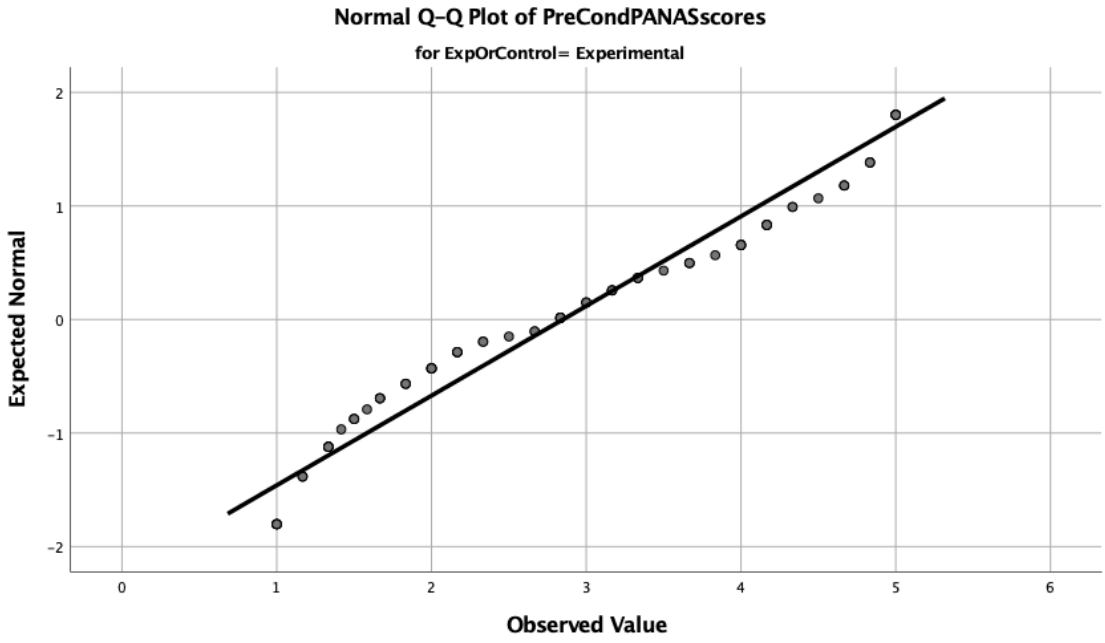

Figure A21: Pre-condition PANAS-X Q-Q plot (experimental group).

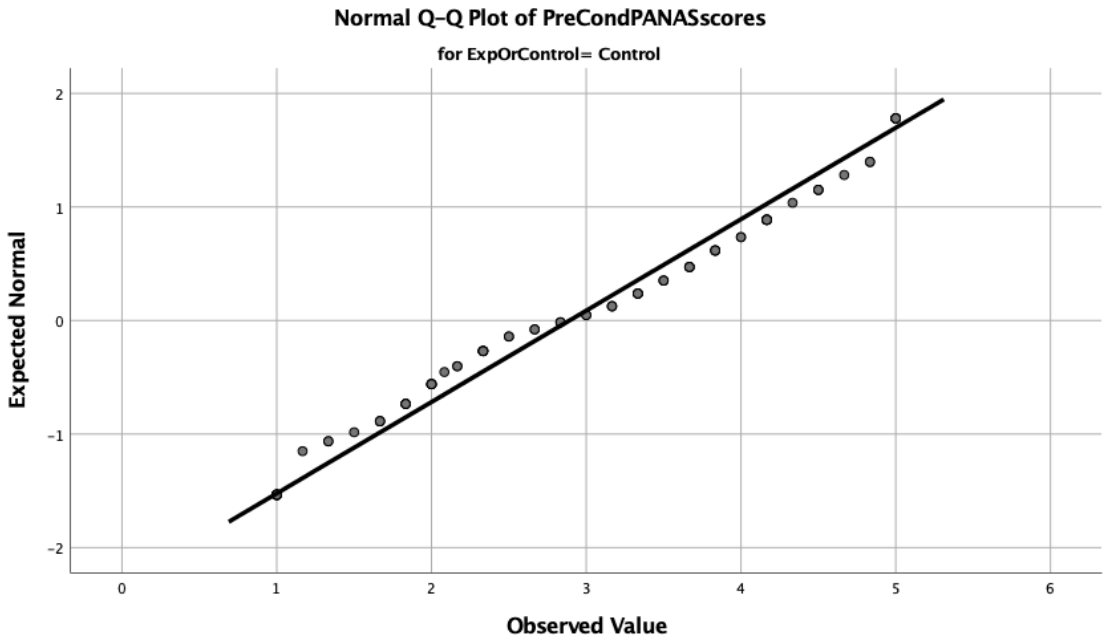

Figure A22: Pre-condition PANAS-X Q-Q plot (control group).

Pre-condition state self-compassion

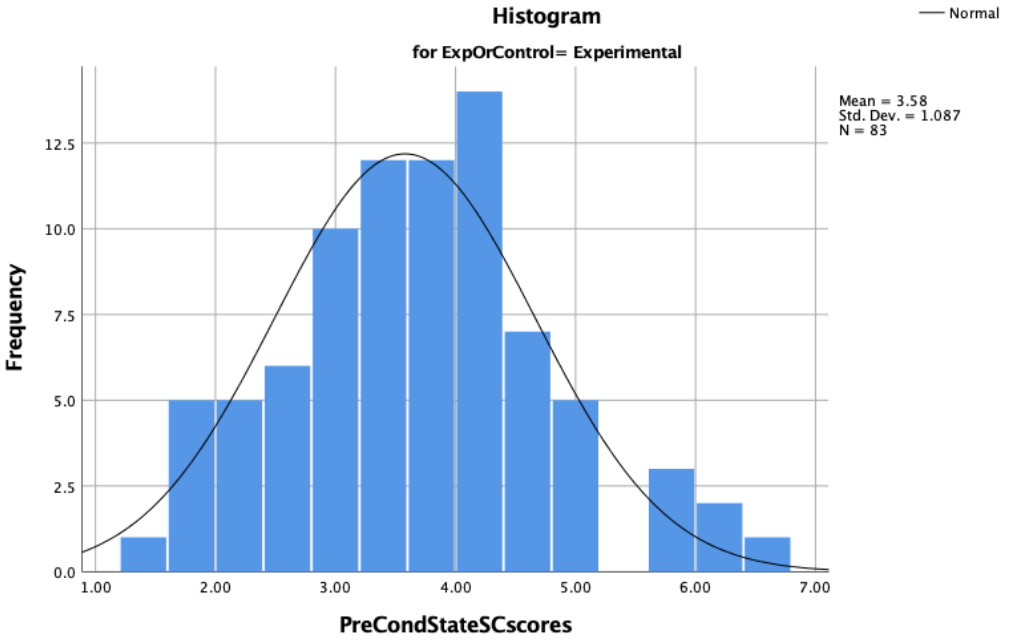

Figure A23: Pre-condition state self-compassion histogram (experimental group).

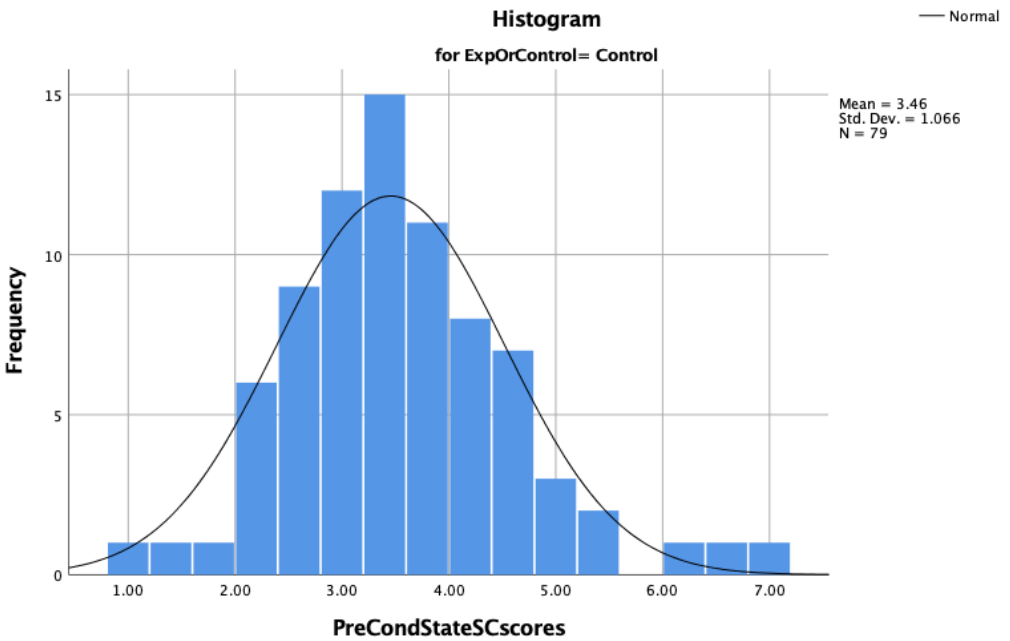

Figure A24: Pre-condition state self-compassion histogram (control group).

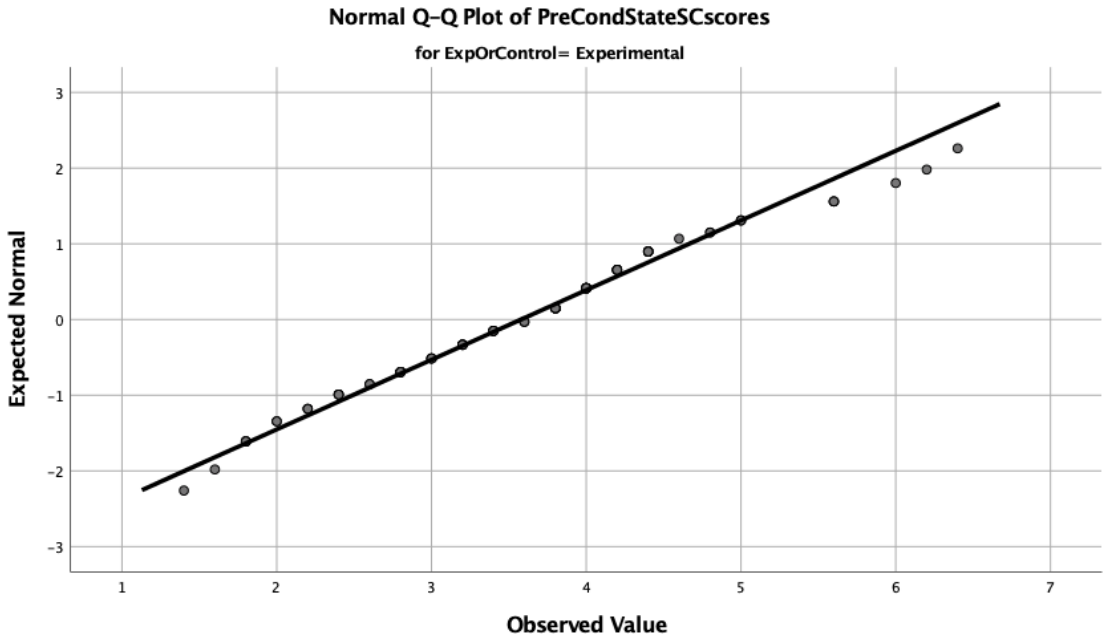

Figure A25: Pre-condition state self-compassion Q-Q plot (experimental group).

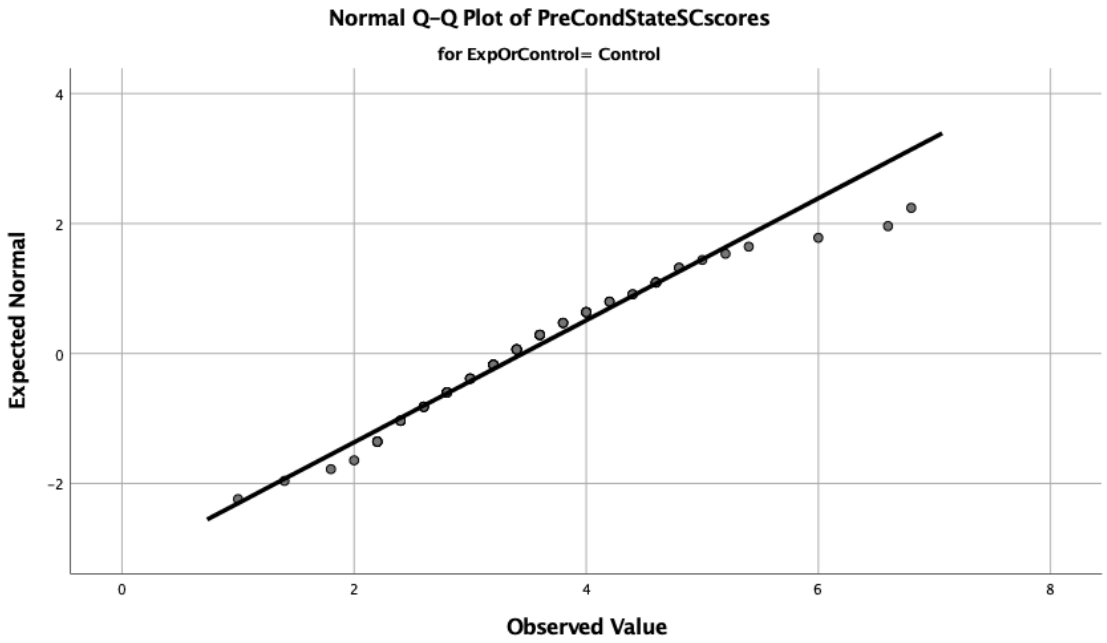

Figure A26: Pre-condition state self-compassion Q-Q plot (control group).

Post-condition PANAS-X

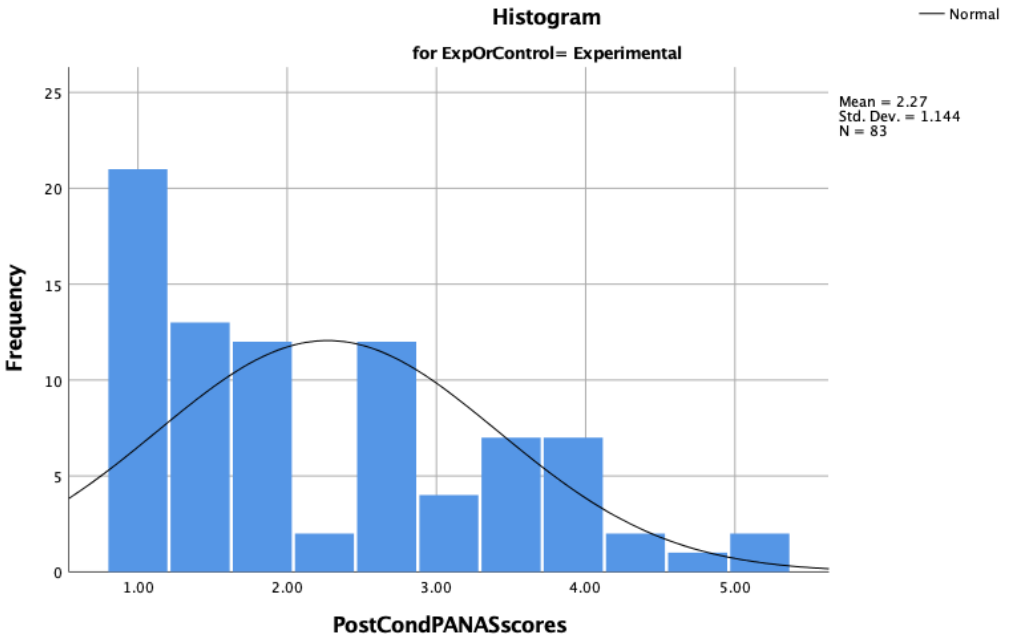

Figure A27: Post-condition PANAS-X histogram (experimental group).

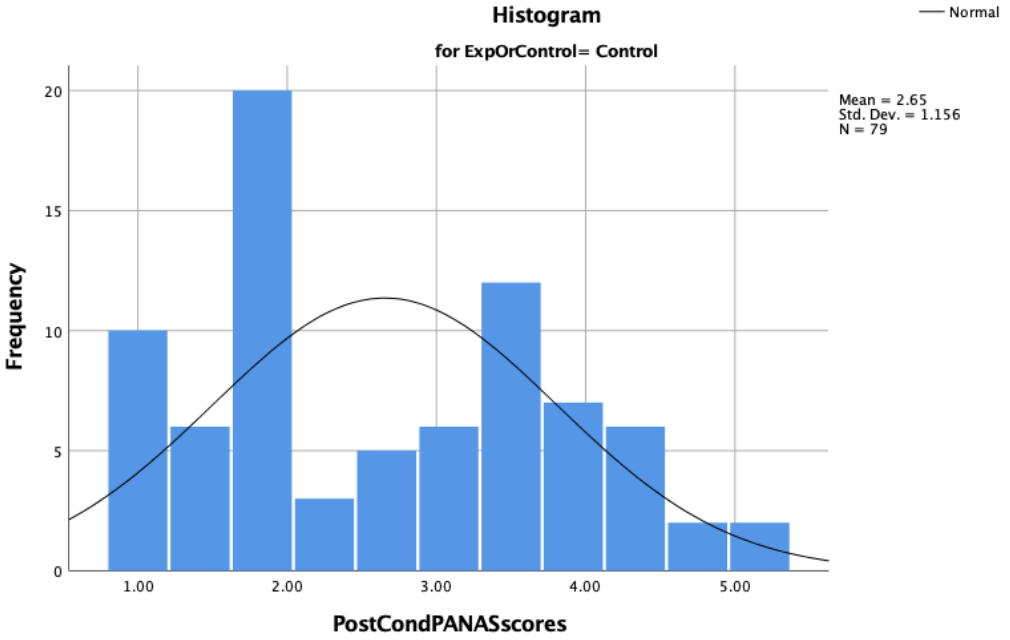

Figure A28: Post-condition PANAS-X histogram (control group).

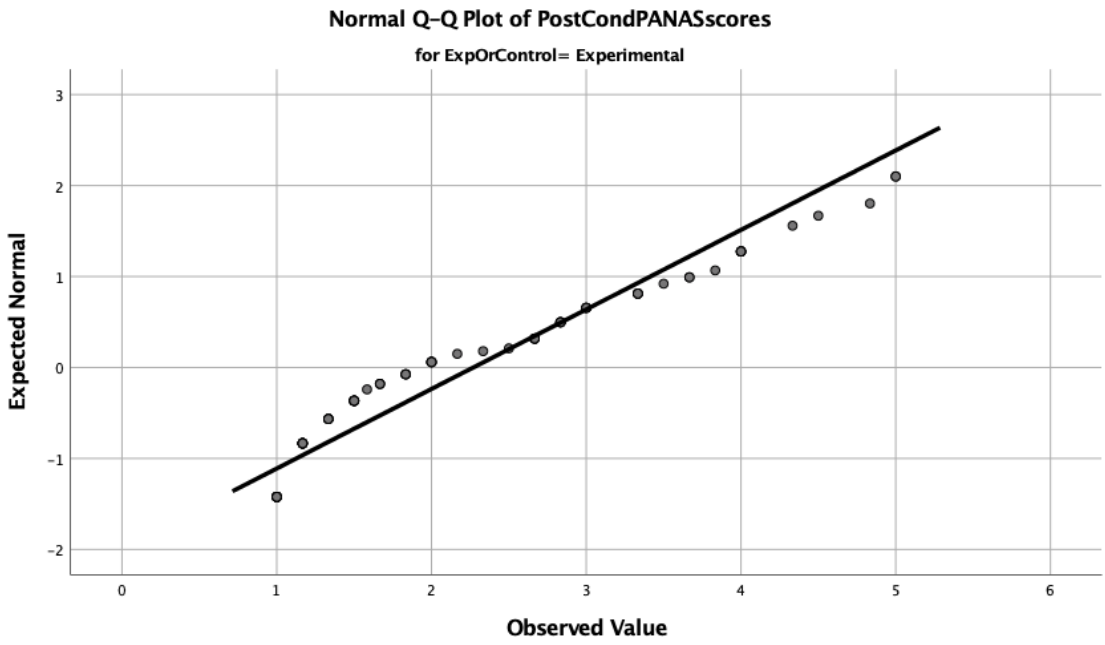

Figure A29: Post-condition PANAS-X Q-Q plot (experimental group).

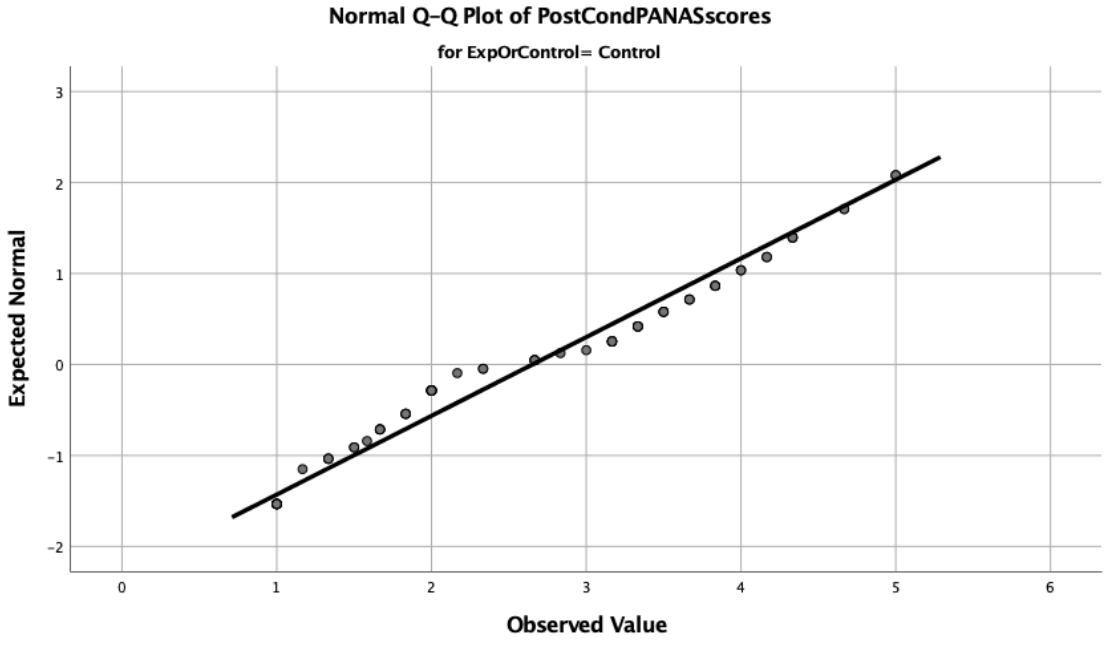

Figure A30: Post-condition PANAS-X Q-Q plot (control group).

Post-condition state self-compassion

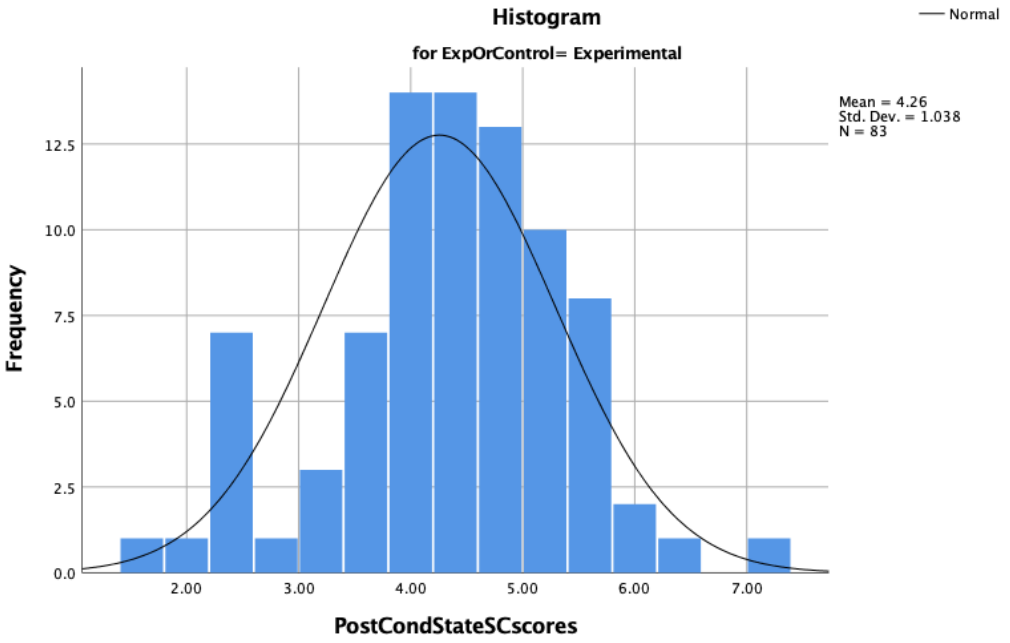

Figure A31: Post-condition state self-compassion histogram (experimental group).

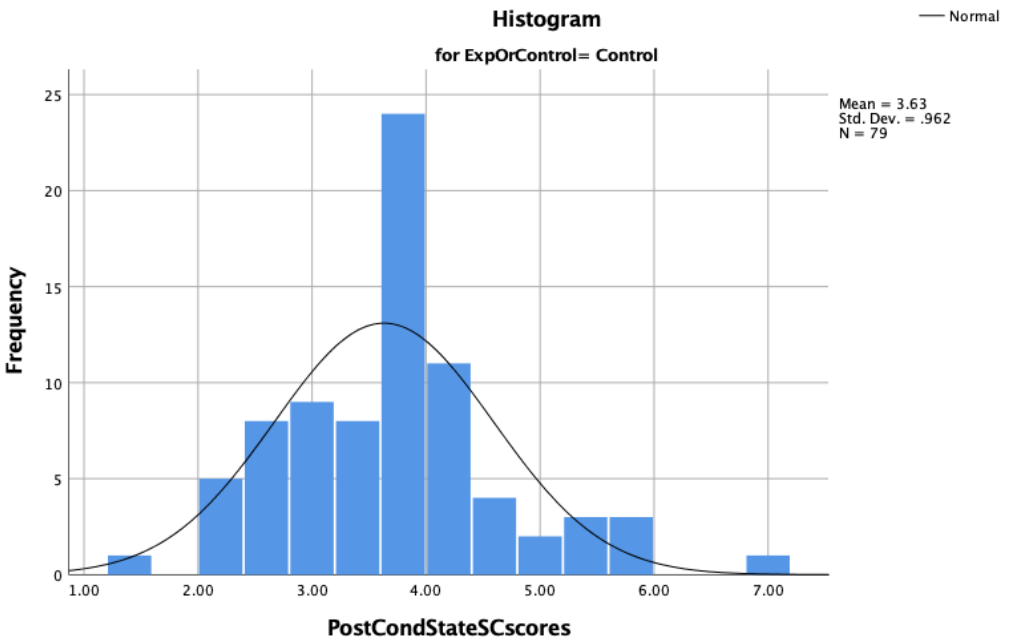

Figure A32: Post-condition state self-compassion histogram (control group).

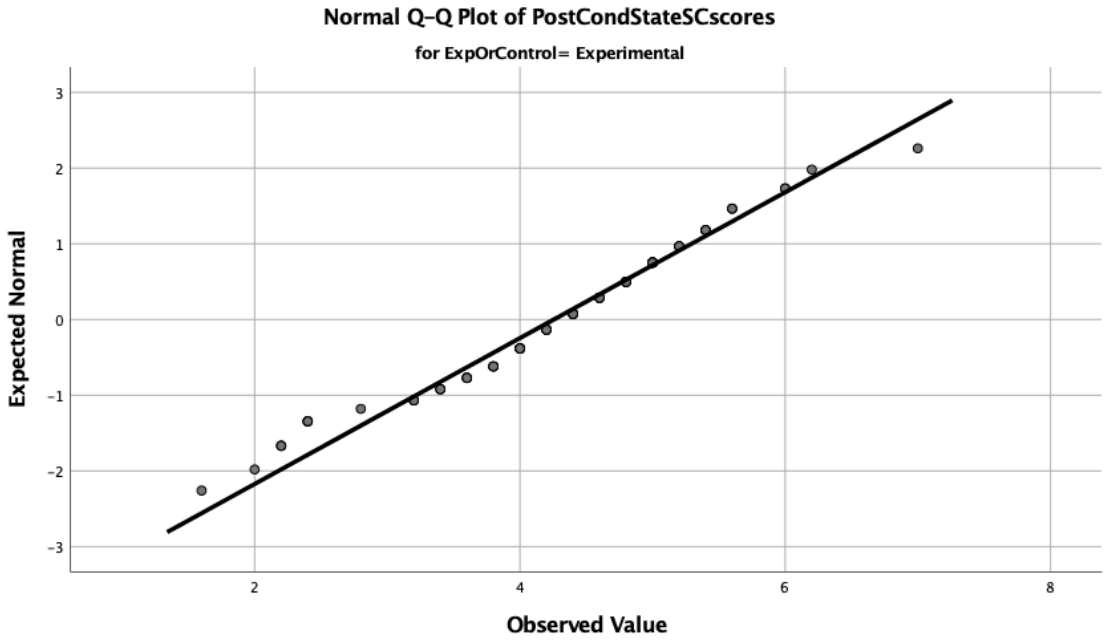

Figure A33: Post-condition state self-compassion Q-Q plot (experimental group).

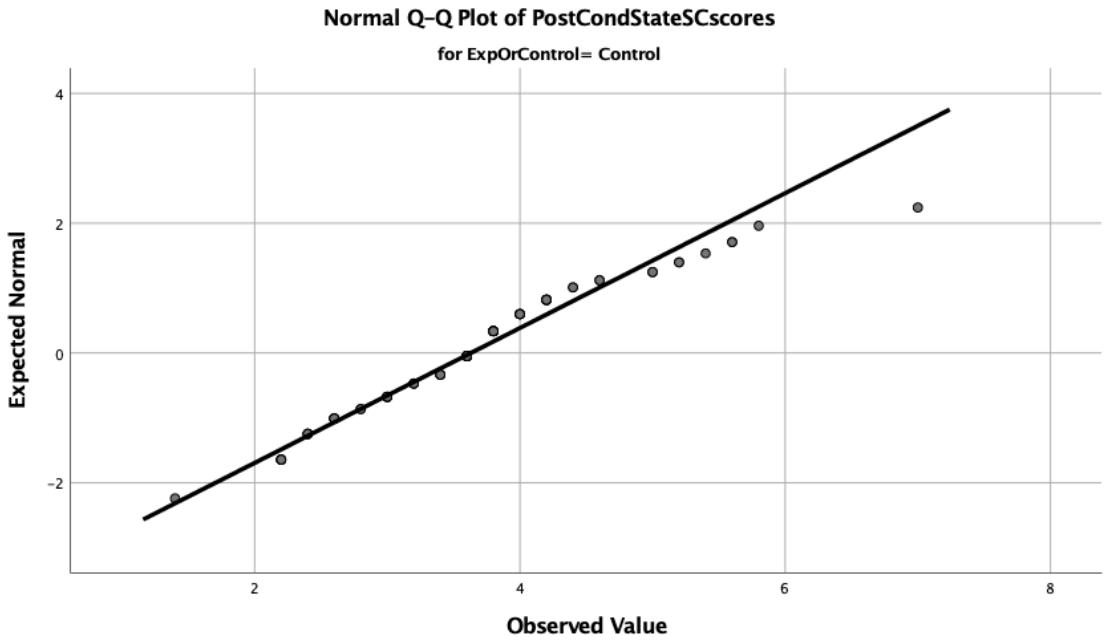

Figure A34: Post-condition state self-compassion Q-Q plot (control group).

Appendix U: Summary Statistics from ANOVAs and *t*-tests to Assess for a Relationship Between Outcome Measure Scores and Demographic Groups

Table A2.
Analysis of variance statistics to test relationship between continuous participant demographics and score on outcome measures

	Parent age				Child CHC				Child age		
	Levene statistic	Welch[5]	*F* ratio	*p*-value	Levene statistic	Welch	*F* ratio	*p*-value	Levene statistic	*F* ratio	*p*-value
Baseline SCS	1.6	N/A	.77	.55	3.34*	.67	.56	.57	.179	1.9	.09
Baseline PCI	.5	N/A	1.56	.19	1.83	N/A	.82	.44	.63	.72	.61
Baseline PANAS-X	3.56*	2.63	2.01	.17	.37	N/A	1.22	.3	1.43	.62	.69
Follow-up SCS	1.06	N/A	1.32	.27	1	N/A	.68	.51	.12	.828	.53
Follow-up PCI	.4	N/A	2.39	.05	1.89	N/A	2.41	.09	.32	1.55	.18
Follow-up PANAS-X	.03	N/A	.19	.94	.8	N/A	1.12	.33	1.3	.38	.86
Pre-condition state self-compassion	.69	N/A	.17	.95	.421*	1.3	1.04	.289	.36	.36	.87

[5] Welch is shown where the Levene statistic violated the assumption of homogeneity (i.e. $p < .05$). In such cases Welch should be consulted for *p*-value as it is a more robust test of equality of means (see Pallant, 2013).

Table A3.
Kruskall-Wallis tests carried out where homogeneity of variance was violated according to Levene statistic

	Parent age	
Baseline PANAS-X	*H*	*p*-value
	7.91	.1
	Child CHC	
Baseline SCS	*H*	*p*-value
	1.7	.43
	Child CHC	
Pre-condition state self-compassion	*H*	*p*-value
	3.64	.16

H = Kruskall-Wallis statistic

Table A4.

Independent-measures t-tests statistics to test relationship between dichotomous participant demographics and score on outcome measures

	Parent gender					
Measure	Male *M (SD)*	Female *M (SD)*	Mean difference (*SE*)	*t*	95% *CI*	*p*-value
Baseline SCS	2.55 (.65)	2.7 (.74)	-.2 (.24)	-.84	[-.67, .27]	.65
Baseline PCI	43.9 (22.93)	45.23 (20.95)	-1.623 (6.74)	-.241	[-14.88, 11.64]	.81
Baseline PANAS-X	2 (1.19)	2.05 (.95)	-.05 (.31)	-.16	[-.65, .55]	.87
	Child gender					
	Male *M (SD)*	Female *M (SD)*	Mean difference (*SE*)	*t*	95% *CI*	*p*-value
Baseline SCS	2.72 (.73)	2.77 (.76)	-.05 (.08)	-.63	[-.21, .11]	.53
Baseline PCI	44.06 (21.44)	47.32 (20.02)	-3.26 (2.3)	-1.42	[-7.78, 1.26]	.157
Baseline PANAS-X	2.08 (.97)	2.01 (.94)	.074 (.11)	.71	[.-.13, .28]	.48
	Parent gender					
	Male *M (SD)*	Female *M (SD)*	Mean difference (*SE*)	*t*	95% *CI*	*p*-value
Follow-up SCS	3.1 (.9)	2.67 (.79)	.43 (.36)	1.18	[-.29, 1.14]	.24
Follow-up PCI	36.4 (15.57)	46.3 (20.15)	-9.9 (9.11)	-1.09	[27.89, 8.09]	.28
Follow-up PANAS-X	2.67 (1.49)	2.52 (1.16)	.14 (.53)	.27	[-.9, 1.19]	.79
Pre-condition state self-compassion	3.88 (1.47)	3.5 (1.06)	.38 (.49)	.78	[-.59, 1.35)	.44
	Child gender					
	Male *M (SD)*	Female *M (SD)*	Mean difference (*SE*)	*t*	95% *CI*	*p*-value
Follow-up SCS	2.66 (.84)	2.7 (.74)	-.04 (.13)	-.312	[.29, .21]	.76
Follow-up PCI	44.38 (21.02)	48.1 (18.9)	-3.72 (3.25)	-1.14	[-10.14, 2.7]	.26
Follow-up PANAS-X	2.58 (1.2)	2.5 (1.1)	.07 (.19)	.38	[-.3, .45]	.7
Pre-condition state self-compassion	3.5 (1.06)	1.09 (3.5)	.04 (.17)	.23	[-.3, .38]	.82