Relationship between self-compassion, sense of coherence, coping strategies and perceived stress in clinical psychology trainees.

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"No one who, like me, conjures up the most evil of those half-tamed demons that inhabit the human beast, and seeks to wrestle with them, can expect to come through the struggle unscathed"

Sigmund Freud

Acknowledgements

Dedications

To the memory of my Gran, Joyce Wynn-Jones – for showing me the value of compassion

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Thesis Abstract

Individuals employed in the helping professions are vulnerable to occupational stress and burnout due to the physical and emotional challenges inherent in the work. A large body of research has focused on organisational, occupational, and demographic factors associated with these negative costs of caring. This thesis explored the influence of psychological factors on stress and burnout in formal caregivers.

Paper 1 (the literature review) examined the existing evidence base in order to determine whether burnout and compassion fatigue are associated with sense of coherence in health and social care workers. Sense of coherence relates to the extent to which a person perceives stressful life events as comprehensible, manageable and meaningful. Fourteen studies met the inclusion criteria. The findings revealed that stronger sense of coherence was consistently associated with lower levels of burnout and compassion fatigue and influenced these negative outcomes both directly and indirectly. However, methodological limitations across studies indicated that these findings should be interpreted with caution.

Paper 2 describes an empirical study that examined associations between sense of coherence, self-compassion, coping strategies, and perceived stress in clinical psychology trainees. Findings indicated that higher levels of self-compassion and sense of coherence were both associated with lower stress. Results also indicated that self-compassion was positively associated with adaptive coping strategies, and both self-compassion and sense of coherence were negatively associated with avoidance-oriented strategies. Sense of coherence and maladaptive coping emerged as significant predictors of perceived stress in subsequent regression analyses. Findings suggest that interventions or support mechanisms that enhance sense of coherence and reduce reliance on maladaptive

coping may decrease vulnerability to stress in clinical psychology trainees. Paper three provides a first person reflective account of the process of completing this thesis, and its impact on the personal and professional development of the author.

Thesis Word Count: 19,588 (excluding references and appendices).

Preface

Paper 1 of this thesis has been written in preparation for submission to the *Journal of Occupational and Organisational Psychology*. Paper 2 has been written in preparation for submission to the *Journal of Social and Clinical Psychology* (see Appendix A for author guidelines for manuscript submission). Each paper has been written in accordance with the submission guidelines provided by these respective journals (outlined below), with two exceptions:

- Where appropriate, tables and figures are included within the main text to improve readability.
- The formatting of each paper is in line with Staffordshire and Keele Universities' guidelines and will be adjusted to meet journal requirements for publication purposes at a later date.

The word count of paper 1 currently exceeds the 8,000 specified in the journal guidelines. However, when the word count excludes the abstract, tables and figures, paper 1 will meet the required word count.

Paper 3 is not intended for publication but offers a commentary and reflective review of the thesis. As such this assumes reader familiarity with the first two papers.

Paper 1: Literature Review

Is burnout or compassion fatigue in health and social care workers related to their sense of coherence?

A Review of Existing Evidence

Abstract

Health and social care workers are at increased risk of developing burnout or compassion fatigue due to the challenges inherent in their work. Sense of coherence (SOC), proposed as part of Antonovsky's theory of salutogenesis, relates to the extent to which an individual perceives stressful life events as comprehensible, manageable and meaningful. Antonovsky predicted that individuals with a strong SOC should experience reduced work-related stress compared to those with a weaker SOC. On this basis, the current review identified studies that have examined the association between sense of coherence and burnout or compassion fatigue in health and social care workers. Fourteen studies were included in the literature review synthesis. Findings revealed that higher SOC was associated with lower risk of burnout and compassion fatigue, and exerted its influence directly, in interaction with job strain, or indirectly via perceptions of job characteristics. Due to significant concerns regarding the methodological quality of the included studies, this finding should be interpreted cautiously. Implications for the selection, training and supervision of trainee and qualified clinical psychologists are discussed. Longitudinal research that adequately controls for confounding factors is needed to identify causal ordering and underlying mechanisms in the observed relationship between SOC and burnout.

Paper 1 word count: 8, 955

Practitioner Points

- The ability to perceive occupational stressors as more manageable, meaningful, and comprehensible might help to protect against burnout and compassion fatigue in formal caregivers.

- The personality construct SOC might aid decision-making during the process of recruiting both trainee and qualified clinical psychologists.

- The individual components of SOC may offer a potential target for both clinical supervision and training to prevent and/or reduce burnout and compassion fatigue in trainee and qualified clinical psychologists.

Burnout and Compassion Fatigue in Helping Professions

Over the past 25 years, professional quality of life for those engaged in formal caregiving has been the focus of increasing research interest. Burnout (Maslach & Jackson, 1982) and compassion fatigue ([CF] Figley, 1999) are two related terms that have been used to describe the negative costs of caring. Burnout is considered an affective response to prolonged exposure to work-related stress, resulting in a depletion of cognitive and emotional resources over time (Shirom, 2003). It is particularly salient among individuals employed in health care, education and human services (Schaufeli & Buunk, 1996; Schaufeli & Peeters, 2000).

Whilst defined in a number of ways, many researchers favour a multifaceted definition of burnout proposed by Maslach, Jackson and Leiter (1996). This conceptualises burnout as a psychological syndrome encompassing three inter-related dimensions: emotional exhaustion (EE), depersonalisation (DP), and reduced personal accomplishment (PA). EE represents the individual stress dimension of burnout; it refers to feelings that physical and emotional resources are depleted as a result of overload, prompting emotional and cognitive distancing from occupational demands in order to cope. Depersonalisation refers to cynical attitudes or excessively detached and impersonal responses to recipients of services. Reduced PA represents the self-evaluative dimension of burnout, referring to feelings of poor professional competence and lack of achievement.

Maslach and Jackson (1984) suggested that burnout emanates from the presence of specific demands (e.g., work overload, role conflict or ambiguity, and personal conflicts) and the absence of specific job resources (e.g., positive feedback, control, role clarity, and social support). This results in other anticipated negative outcomes, such as physical illness, turnover, absenteeism, and diminished organisational commitment (Maslach & Jackson, 1984). Studies have demonstrated that burnout is associated with alienation, depression, anxiety, loss of idealism, and loss of hope in

response to stress (Maslach & Jackson, 1982; Söderfeldt, Söderfelt, & Warg, 1995).

CF is defined as the formal caregiver's reduced capacity (or interest) in being empathic or "bearing the suffering of clients" and is "the natural consequent behaviours and emotions resulting from knowing about a traumatizing event experienced or suffered by a person" (Figley, 1995a, p. 7). A recent multi-factor model suggests that CF is composed of two components: burnout and secondary traumatic stress ([STS] Adams, Figley, & Boscarino, 2008; Stamm, 2010). The burnout component involves negative feelings of hopelessness, frustration, anger and depression typically associated with EE, which may be the result of a high workload or a non-supportive work environment. The STS component comprises negative feelings driven by fear and work-related primary trauma and/or secondary exposure to an individual's traumatic experiences (Figley, 1995b). STS is distinguished from burnout by its sudden onset and is associated with a range of symptoms, including intrusive imagery, avoidance, hyperarousal, distressing emotions, cognitive changes, and functional impairment (Figley, 1995b, 2002; Figley & Roop, 2006).

As a result of exposure to ongoing stressors, health and social care workers are vulnerable to experiencing work-related stress (Coyle, Edwards, Hannigan, Fothergill, & Burnard, 2005; Health and Safety Executive, 2016; Lloyd, King, & Chenoweth, 2002). Factors that may contribute to the experience of work-related stress include high workloads, long working hours, exposure to complex life and death crisis situations and traumatised clients, and ongoing direct contact with individuals and families experiencing a wide range of physical, social and psychological difficulties (Maslach, Schaufeli, & Leiter, 2001). Studies in the United States (US) have indicated that high levels of burnout within mental health services are associated with a range of negative outcomes at the level of the individual, organisation, and to some extent, the quality of services provided

(Morse, Salyers, Rollins, Monroe-DeVita, & Pfahler, 2012). Whilst the effects of CF appear to be less well defined, a reduction in satisfaction from clinical work and an impaired ability to help those accessing services effectively have been described (Figley, 1999). Regardless of the similarities and differences between the concepts of burnout and CF, it is reasonable to assume that both might impact on professionals' personal mental health and clinical effectiveness (Bride, Radey, & Figley, 2007).

Existing reviews highlight that job burnout research has tended to focus exclusively on organisational and occupational-level antecedents, with a lack of emphasis on individual-level factors (Cordes & Dougherty, 1993; Kahill, 1988). The observation that some professionals experience burnout whilst others do not despite exposure to similar occupational stressors (e.g., high job demands and long working hours), suggests that individual differences may exert an important influence on vulnerability to burnout (Schaufeli & Bakker, 2001). In a comprehensive meta-analysis, all of the personality traits included in the Five Factor Model of Personality (neuroticism, extraversion, agreeableness, conscientiousness, and openness) combined to explain substantial variance in the burnout levels between individuals, indicating that personality traits are a strong predictor of the level of job burnout experienced (Swider & Zimmerman, 2010). Indeed, the authors concluded "the findings of this study indicate that the source of job burnout may come as much from within individuals as from outside of them" (p. 502).

Sense of Coherence and Occupational Stress

Sense of coherence (SOC) originates from Antonovsky's (1979, 1987, 1991, 1993) theory of salutogenesis, a paradigm that focuses on factors that promote health and well-being and considers the salutary potential of stressors. SOC is a dispositional orientation that reflects an individual's capacity to cope with life stressors and comprises three components: Comprehensibility, the sense that

stimuli are predictable and structured (cognitive component); Manageability, the sense that available resources (both internal and external) are sufficient to cope with demands from the stimuli (instrumental/behavioural component); and Meaningfulness, the sense that the demands have significance and are worthy of investment in terms of personal ideals and standards (motivational component). An individual's SOC is reinforced by their "general resistance resources" (e.g., intelligence, social support, coping strategies, and preventative health orientation), which are shaped by life experiences. Antonovsky proposed that a strong SOC contributes to the maintenance of health by enabling an individual to mobilise internal resources and build up resistance against stressors. A number of studies have provided support for a relationship between SOC and lower levels of stress, distress, and symptomology (e.g., Antonovsky, 1987; Antonovsky & Sagy, 1986; Carmel & Bernstein, 1990; Flannery & Flannery, 1990; Hart, Hittner, & Paras, 1991; Nyamathi, 1991).

Antonovsky (1987) predicted that by helping people to understand and perceive stressors as more manageable and meaningful, those individuals with a strong SOC might experience reduced job stress. Equally, those individuals with high levels of burnout would be expected to exhibit lower levels of SOC. Empirical studies have provided some support for these predictions. For example, SOC mediated the effect of job stress on professional efficacy and reduced the effects of job stress on exhaustion among local government employees (Rothmann, Jackson, & Kruger, 2003). SOC also buffered against negative changes in the perceptions of psychotherapists (Linley, Joseph, & Loumidis, 2005) and was associated with less CF among the clergy (Darling, Hill, & McWay, 2004).

A recent systematic review examined the existing body of published studies related to the use of Antonovsky's (1987) "Sense of Coherence Scale" among nursing professionals (Ward, Schulz,

Bruland, & Löhr, 2014). Cross-sectional studies were reviewed for correlations between SOC and personality traits, stress, burnout, disease scales, and job satisfaction. Five studies found significant negative correlations between SOC and the burnout subscales of EE and depersonalisation, and significant positive correlations between SOC and the subscale of PA. These findings were observed in dialysis nurses in the US (Lewis, Campbell, Becktell, Cooper, Bonner, & Hunt, 1992); psychiatric nurses in South Africa (Levert, Lucas, & Ortlepp, 2000); general nurses in South Africa (Cilliers, 2003), general nurses in Greece (Tselebis, Moulou, & Ilias, 2001), older adult nurses in South Africa (Heyns, Venter, Esterhuyse, Bam, & Odendaal, 2003) and district nurses in Sweden (Pälsson, Hallberg, Norberg, & Björvell, 1996).

A further study found that nurses in Switzerland experiencing burnout had a weaker SOC and those who did not experience burnout had a higher SOC (Aries & Zuppiger-Ritter, 1999). In ther study involving dialysis nurses in the US, with increasing levels of stress, SOC also had a major effect in mediating the effect of stress on burnout (Lewis, Campbell, Becktell, Cooper, Bonner, & Hunt, 1992). Moreover, SOC and coping resources were significant predictors of personal and work-related stress and burnout in a subsequent study of dialysis nurses (Lewis, Bonner, Campbell, Cooper, & Willard, 1994). While recognising a number of study limitations relating to design, sampling, and the purpose of the SOC construct within the research process, Ward et al. (2014) concluded "…a clear understanding of an individual's SOC provides us with a robust method of establishing his/her ability to deal with stress within the psychiatric workplace" (p.70).

Aims & Scope of Current Review

Whilst a number of studies have examined organisational and occupational factors associated with burnout, fewer have explored individual correlates. The systematic review undertaken by Ward et

al. (2014) suggests that the SOC disposition may protect against the impact of burnout in nurses. The current review aims to critically appraise and synthesise findings from studies that have examined the potential association between SOC and burnout and CF among workers in a more diverse range of health and social care settings. A further objective is to outline the implications of the findings for the profession of clinical psychology, in particular how individuals are selected into the profession prior to undertaking professional training, and to provide recommendations for future research.

Method

Search Strategy

In order to explore the research question "is burnout or CF in health and social care workers related to their SOC?" two sets of search terms were developed. The search combined the terms ("sense of coherence" OR "saluto*" OR "Antonovsky") AND ("burnout" OR "emotional exhaustion" OR "compassion fatigue" OR "compassion satisfaction" OR "secondary trauma*" OR "vicarious trauma*"). The latter two search terms were incorporated due to the lack of conceptual clarity and consensus in the literature and tendency for researchers to use the terms interchangeably. No specific population of interest was defined, but where the option was available, limiters were set for English Language. An abstract search was employed across databases.

In October 2016, the host database EBSCO was used to conduct systematic online searches in the following databases: PyscINFO, Academic Search Complete, MEDLINE, CINAHL Plus with Full Text, SPORTDiscus with Full Text, PsycARTICLES, AMED, and AgeLine. Additional searches were completed in Web of Science (Core Collection), PROQUEST, the Cochrane Library (Cochrane Database of Systematic Reviews), Google Scholar, EThoS (The British Library), and Dissertation Abstracts International.

References from each database were exported to Refworks

reference management software where duplicates were removed. The remaining articles were subsequently reviewed with reference to inclusion and exclusion criteria (below). Articles were screened for inclusion initially by title or abstract and then by full text. The content and references from the eligible articles were hand searched to ensure that no relevant articles had been overlooked. Figure 1 illustrates the search and screening process, including the exclusion of studies at each stage.

English language studies published up to 15th October 2016 identified through database searching.

PsychINFO (n=55)
Academic Search Complete (n=45)
MEDLINE (n=39)
CINAHL Plus with full text (n=24)
SPORTDiscus (n=3)
PsychARTICLES (n=4)
AMED (n=2)
Ageline (n=1)
Web of Science (n=80)

138 duplicates removed

115 articles screened by title or abstract

86 articles excluded

29 full-text articles screened for eligibility

Full-text articles excluded with reasons:
Not English language (n=1)
Did not measure SOC (n=2)
Did not measure burnout or CF (n=3)
Did not measure relationship between SOC and burnout or CF (n=1)
Very small no. of health workers in sample (n=2)
Library unable to obtain article or thesis (n=5)
Same study published in different journal (n=1)

Articles meeting inclusion criteria (n=14)

Figure 1. Flow chart of study screening process.

Inclusion criteria

In order to be included, studies were required to fulfil the following criteria:

- Quantitative design that directly measured the relationship between SOC and burnout or CF in professional (or paraprofessional) health and social care workers.
- Journal articles, doctoral theses/dissertations, or conference proceedings.

Exclusion criteria

- Qualitative studies (on the basis that SOC is typically measured using a questionnaire and the current review was interested in quantifiable relationships).
- The emphasis of the research was evaluating an intervention.
- The study did not directly measure the relationship between SOC and burnout or CF.
- Meta-analyses, case studies or discussion papers.
- Studies included in the systematic review published by Ward et al. (2014).

Data Extraction and Quality Assessment

Data extraction was in two phases. As part of the initial phase, a data extraction form captured basic information about each study, including a description of the setting, study design, sample, outcomes measured, analysis, and main findings (see Appendix B). In the subsequent phase, an additional data extraction form was developed to capture more detailed information regarding the quality of each study. Following the consideration of a number of quality assessment tools, a critical appraisal checklist was devised that integrated elements of a number of tools considered most relevant to observational studies. The checklist incorporated questions from the Strengthening the Reporting of Observational of Studies in

Epidemiology (STROBE) statement (Von Elm, Altman, Egger, Pocock, Gøtzche, & Vandenbroucke, 2007), Young and Soloman (2009) guidelines, and the Critical Appraisal Skills Programme (2013) checklists (see Appendix C). As the current review was concerned specifically with the relationship between SOC and burnout or CF, in studies that explored additional topics only those findings relevant to the research question were appraised.

Results

Search Results

Database searches conducted in October 2016 identified a total of 115 potential papers after duplicates were removed. Eighty-six papers were excluded and the remaining 29 papers were obtained for full-text review. Fourteen studies were eligible for inclusion in the review.

Study Characteristics

Key characteristics of each study, including the methodologies used and main statistical findings are summarised in Table 1. All of the studies included in the review were published in different journals and represented a diverse range of disciplines within the health and social care sectors. Publication dates ranged from 1996 to 2015, reflecting the sustained empirical interest in the topics over almost two decades.

Research Designs

Thirteen studies used cross-sectional designs and one study (Nordang, Hall-Lord, & Farup, 2010) used a quasi-experimental retrospective cohort design. Two of the cross-sectional studies included a comparison group (Zerach, 2013; Zerach & Levin, 2015). Irrespective of their design, all studies measured the relationship between SOC and burnout at a single point in time, employing questionnaire measures. In one study (Gilbar, 1998) questionnaires

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were administered directly to participants and in a further study (Zerach & Levin, 2015), questionnaires were administered to some participants directly at district offices and to others (who could not attend) over the telephone. In the remaining studies, questionnaires were self-completed. Five studies administered pencil and paper questionnaires (Baker, North & Smith, 1997; Basińska, Andruszkiewicz, & Grabowska, 2011; Linley & Joseph, 2007; Ron & Shamai, 2014; Tebandeke, 2008) and one study (Zerach, 2013) administered questionnaires via email. Six studies did not report the questionnaire administration method (Fourie, Rothman, & van de Vijver, 2007; Naudé & Rothman, 2006; Nordang, Hall-Lord, & Farup, 2010; Ortlepp & Friedman, 2002; Söderfelt, Söderfelt, Ohlson, Theorell, & Jones, 2000; van der Colff & Rothmann, 2009).

Samples

In ten studies, over 70% of the sample was female precluding analysis of gender differences in the relationship between SOC and burnout or CF. In one study (Naudé & Rothman, 2006) 80% of the sample was male and in a further study (Gilbar, 1998), five male social workers were excluded to avoid skewed data. Four studies sampled hospital nurses (Basińska et al., 2011; Nordang et al., 2010; Ron & Shamai, 2014; van der Colff & Rothmann, 2009), two studies used social workers (Baker, et al., 1997; Gilbar, 1998), and two studies included para-professional counsellors (Fourie et al., 2007; Ortlepp & Friedman, 2002). The remaining studies surveyed professional therapists (Linley & Joseph, 2007), emergency medical workers (Naudé & Rothman, 2006), employees of a social welfare agency (Söderfelt et al., 2000), residential and boarding school workers (Zerach, 2013), and rescue and charity workers (Zerach & Levin, 2015). Samples were from a diverse range of countries, four from Israel (Gilbar, 1998; Ron & Shamai, 2014; Zerach, 2013; Zerach & Levin, 2015), three from South Africa (Fourie et al., 2007; Ortlepp & Friedman, 2002; van der Colff & Rothmann, 2009), one

from Sweden (Söderfelt et al., 2000), two from the United Kingdom (Baker et al., 1997; Linley & Joseph, 2007), one from Poland (Basińska et al., 2011), and one from Norway (Nordang et al., 2010).

Independent and Outcome Variables

In the current review, the primary independent variable of interest was SOC and the primary outcome of interest was burnout; CF and STS were also included as outcomes as researchers use these terms interchangeably. In order to measure SOC, 12 studies employed either the 29 or 13-item version of the Orientation to Life Questionnaire/SOC Scale (Antonovsky, 1987). One study (Basińska et al., 2011) used a Polish version of the SOC-29 (Koniarek, Myślińska, Nowacki, & Szymczak, 1992), one study (Gilbar, 1998) used a Hebrew version of the SOC-29 (Stav, Florian, & Shurka, 1986), and a further study (Zerach, 2013) used an abridged version of the longer scale comprised of ten items (Rahav, Teichman, Rosenbloom, & Bar-Hamburger, 2002). Cronbach alpha coefficients for the SOC-29 ranged from .86 to .92 in the three studies that reported this information (Naudé & Rothman, 2006; Ortlepp & Friedman, 2002; van der Colff & Rothman, 2009). In the four studies that reported internal consistency reliability for the SOC-13, Cronbach alpha coefficients ranged from .76-.87 (Linley & Joseph, 2007; Fourie et al., 2008; Ron & Shamai, 2014; Zerach & Levin, 2015). The Cronbach alpha coefficient for the 10-item scale used by Zerach (2013) was .79.

The studies measured burnout using five different instruments. Eight of the studies used different versions of the *Maslach Burnout Inventory – Human Services Survey* ([MBI-HSS] Maslach & Jackson, 1981, 1986), three used different versions of the *Professional Quality of Life Scales* (Stamm, 2002, 2010), one used a Polish translation of Schaarschmidt and Fischer's (1996) *Work Related Patterns of Behaviour and Experience Questionnaire* ([AVEM] Rogińska & Gaida,

2001), one used a revised version of the *Bergen Burnout Indicator* ([BBI] Nurmi, Salmela-Aro, Keskivaara, & Naatanen, 2008), and one used the *Compassion Satisfaction/Fatigue Test* ([CSFT] Stamm & Figley, 1998). In one study (Zerach & Levin, 2015), just the Burnout and CF subscales of the ProQOL were used. Key details on these instruments are presented in Table 2.

Table 1. *Characteristics of reviewed studies.*

Study Author(s) and year	Setting	Design	Sample	Outcomes Measured	Key statistical findings
Baker, North & Smith (1997)	UK	Cross-sectional survey design	78 field and residential Social Workers from several boroughs and a large county south-east of London.	**SOC:** Antonovsky (1987) scale, short (13-item) version. **Burnout**: The Maslach Burnout Inventory - Human Services Survey (MBI-HSS: Maslach & Jackson, 1981).	SOC negatively correlated with the burnout subscale of EE (r = -.48, $p<.005$) and Depersonalisation (r = -.25, $p<.01$) and positively correlated with PA (r = .36, $p<.01$).
Gilbar (1998)	Israel	Cross-sectional survey design	81 health social workers employed at general hospitals, mental health hospitals, clinics and rehabilitation centres.	**SOC**: Antonovsky, (1987) scale, long (29-item) version. **Burnout**: The Maslach Burnout Inventory - Human Services Survey (MBI-HSS: Maslach & Jackson, 1981).	SOC negatively correlated with the burnout subscale of EE (r = -.30, $p<.01$) and PA (r =-.34, $p<.01$). Non-significant correlation between SOC and the burnout subscale of Depersonalisation (r = -.20, $p>.05$). SOC significantly predicted EE ($ß$ = -.47, $p<.00$). SOC explained .09% of the variance (R^2) of EE. SOC significantly predicted PA ($ß$ = -.45, $p=.00$). Age and SOC explained 28% of the variance (R^2) of PA.

Söderfelt, Söderfelt, Göran Ohlson, Theorell, & Jones (2000)	Sweden	Cross-sectional survey design	103 employees of the Social Welfare Agency.	**SOC:** Antonovsky (1987) scale, short (13-item) version. **Burnout:** Swedish translation of the MBI- Human Services Survey (MBI-HSS: Maslach & Jackson, 1981; Maslach, Jackson & Leiter, 1996).	SOC negatively correlated with EE (r = -.59, p>.001) and Depersonalisation (r = -.47, p>.001) and positively correlated with PA (r = .44, p>.001). Clear effect for SOC on all components of burnout in the regression models, either directly or in interaction with emotional job strain. The interaction model (SOC x emotional job strain) explained 62% of the variance in EE (ΔR^2 = 0.62, $p \geq$ .001) and 42% of the variance in depersonalisation (ΔR^2 = .44, $p \geq$ .001).
Ortlepp & Friedman (2002)	South Africa	Cross sectional survey design	130 trauma counsellors in three major financial institutions.	**SOC:** Antonovsky, (1987) scale, long (29 item) version. **Secondary Traumatic Stress & Compassion Satisfaction:** Compassion satisfaction/Fatigue Test (Stamm & Figley, 1998)	SOC negatively correlated with CF (r = -.56, p<.001) and burnout (r = -.59, p<.001).
Naudé & Rothman (2006)	South Africa	Cross sectional survey	323 emergency workers (predominantly	**SOC:** Antonovsky, (1987) scale, long (29-item) version.	SOC negatively correlated with EE (r = -.28, p=0.01) and Depersonalisation (r = -.29, p=.01), and positively correlated with PA (r = .38, p=.01).

		design	emergency medical technicians) in the Gauteng region.	**Burnout:** The Maslach Burnout Inventory - Human Services Survey (MBI-HSS: Maslach & Jackson, 1986).	SOC predicted EE ($ß = -.07$, $p=.00$), Depersonalisation ($ß = -.06$, $p=.00$) and PA ($ß = .11$, $p=.00$). SOC was the only statistically significant predictor of PA, explaining 15% of the variance ($R^2 = .15$, $p < 0.01$).
Linley & Joseph (2007)	UK	Cross-sectional survey design	156 professional therapists.	**SOC:** Antonovsky (1987) scale, short (13-item) version. **Burnout/CS/CF:** Professional Quality of Life: Compassion Satisfaction and Fatigue Subscales– Revision (ProQOL - Version 3: Stamm, 2002).	When entered into a regression model with social support, empathy, and the therapeutic bond, SOC was the second best predictor of less burnout ($ß = -.27$, $p=<.001$) and the best predictor of CF ($ß = -.44$, $p=<.001$).
Fourie, Rothman, & van de Vijver (2008)	South Africa	Cross-sectional survey design	168 nonprofessional counsellors employed by three of the major banks.	**SOC:** Antonovsky (1987) scale, short (13-item) version. **Burnout:** The Maslach Burnout Inventory - Human Services Survey (MBI-HSS: Maslach & Jackson, 1986)	SOC negatively correlated with EE ($r = -.55$, $p<0.01$) and Depersonalisation ($r = -.45$, $p<0.01$), and positively correlated with PA ($r = .49$, $p<0.01$). A Path analysis model indicated that SOC had both a direct and indirect effect (through perceptions of job characteristics) on burnout.

Tebandeke (2008)	USA	Cross-sectional survey design	91 psychiatric nurses working on four inpatient units.	**SOC:** Antonovsky (1987) scale, long (29-item) version.	Non-significant positive correlation between total SOC and total burnout ($r = 0.08$, $p>.05$).
				Burnout: The Maslach Burnout Inventory - Human Services Survey (MBI-HSS: Maslach & Jackson, 1986).	Non-significant (weakly) positive correlations between SOC and EE ($r = .04$, $p>.05$), depersonalisation ($r = .00$, $p>.05$), and PA ($r = .09$, $p>.05$).
Van der Colff & Rothmann (2009)	South Africa	Cross-sectional survey design	818 registered nurses in private and public hospitals.	**SOC:** Antonovsky (1987) scale, long (29-item) version.	SOC negatively correlated with EE ($r = -.49$, $p<0.05$) and Depersonalisation ($r = -.47$, $p<0.05$), and positively correlated with PA ($r = .34$, $p<0.05$).
				Burnout: The Maslach Burnout Inventory - Human Services Survey (MBI-HSS: Maslach & Jackson, 1986).	SOC predicted EE ($\beta= -.42$, $p=.00$), Depersonalisation ($\beta= -.43$, $p=.00$) and PA ($\beta= .33$, $p=.00$).
					In standard multiple regression, adding SOC as an independent variable in step 2 resulted in a statistically significant increase in the prediction of the variance in EE ($\Delta R^2 = 0.16$, $p < 0.01$), Depersonalisation ($\Delta R^2 = 0.17$, $p < 0.01$) and PA ($\Delta R^2 = 0.10$, $p < 0.01$).

Nordang, Hall-Lord, & Farup (2010)	Norway	Quasi-experimental retrospective cohort study (NB. relationship between SOC and burnout measured only at final follow-up)	42 registered and auxiliary nurses working mostly with terminal cancer patients in the oncology unit of a hospital.	**SOC:** Antonovsky's (1987) scale, short (13-item) version. **Burnout:** Bergen Burnout Indicator (BBI: Nurmi, Salmela-Aro, Keskivaara & Naatanen, 2008).	Significant correlation between burnout and SOC at the final survey (r square = .33, *p*< 0.001), indicating that. 3% of the variability in burnout was shared by SOC.
Basińska, Andruszkiewicz, & Grabowska (2011)	Poland	Cross-sectional survey design	331 volunteer nurses employed in three general care hospitals.	**SOC**: Polish version of Antonovsky's (1987) scale, long (29-item) version (Koniarek, Myślińska, Nowacki, & Szymczak, 1992). **Burnout**: Polish version of Schaarschmidt and Fischer's (1996) Work-Related Behaviour and Experience Patterns	SOC negatively correlated with burnout type-B pattern of behaviour (r_s = -.57, p<0.001). SOC explained 28% of the variance of burnout pattern of behaviour (R^2 = .26, *p*=.00).

				Questionnaire [AVEM] (Rogińska & Gaida, 2001).	
Zerach (2013)	Israel	Cross-sectional survey design, including a comparison group.	212 paraprofessional residential child care and boarding school workers.	**SOC:** 10-item version of Antonovsky's (1987) scale (Rahav, Taichman, Rosenblum, & Bar-Hamburger 2002). **Burnout/Secondary Trauma/Compassion Satisfaction:** Professional Quality of Life: Compassion Satisfaction and Fatigue Subscales - Revision (ProQOL - Version 5; Stamm, 2010).	After controlling for age, gender, trauma history and work setting, SOC negatively correlated with STS (r = -.57, p <.00) and burnout (r = -.38, p < .00). SOC predicted STS (β = -.44, p < .01) and burnout (β = -.23, p <.00).
Ron & Shamai (2014)	Israel	Cross-sectional survey design.	214 nurses working in three types of health services (mainly hospital departments) providing help to victims of terror.	**SOC:** Antonovsky's (1987) scale, short (13-item) version. **Burnout:** The Maslach Burnout Inventory - Human Services Survey (MBI-HSS: Maslach & Jackson, 1986).	SOC negatively correlated with total burnout (r = -.36, p<.001). SOC was the only coping variable that contributed to professional distress (burnout).

| Zerach & Levin (2015) | Israel | Cross-sectional survey design, including a comparison group. | 192 Israeli volunteers: 102 male volunteer body handlers, and a comparison group of 90 male volunteers from four charity work organisations. | **SOC:** Antonovsky's (1987) scale, short (13-item) version.

Burnout/Secondary Trauma/Compassion Satisfaction: Professional Quality of Life: Compassion Satisfaction and Fatigue Subscales - Revision (ProQOL - Version 5; Stamm, 2010). | Among the rescue workers/body handlers, SOC did not correlate significantly with burnout. Among the comparison group of charity workers, SOC negatively correlated with burnout ($r = -.66$, $p<.001$).

SOC mediated the body handlers' vulnerability to burnout: body handlers were significantly associated with higher levels of SOC ($\beta = .29$, $z = 4.29$, $p < .00$), which in turn was associated with lower levels of burnout ($\beta = -.45$, $z = -7.0$, $p < .00$). |

Note: EE=Emotional exhaustion; PA=Personal Accomplishment; CF=Compassion Fatigue; STS=Secondary Traumatic Stress; *r=Pearson's correlation coefficient*; r_s = Spearman's correlation coefficient; *β=* standardised Beta coefficient; *b=* unstandardised Beta coefficient; ΔR^2 = change in R2.

Table 2. *Measures of Burnout and Compassion Fatigue*

Measurement Instrument	Study	Number of Items	Dimensions Measured	Reported Cronbach's Alpha (α)
Maslach Burnout Inventory-Human Services Inventory (MBI-HSS: Maslach & Jackson, 1981, 1986).	Baker et al. (1997), Gilbar (1998), Söderfelt et al. (2000), Naudé & Rothman (2006), Fourie et al. (2008), Tebandeke (2008), Van der Colff & Rothmann (2009), Ron & Shamai (2014)	1st edition (Maslach & Jackson, 1981): 22 items (NB. Fourie et al. 2008 included only 17 items based on previous factor analysis using the same sample). 2nd edition (Maslach & Jackson, 1986): 25 items.	Three subscales: *Emotional Exhaustion, Depersonalisation, Personal Accomplishment*.	Fourie et al (2008), Naudé & Rothman (2006), van der Colff & Rothman (2009), Ron & Shamai (2014): .68 to .91.
Professional Quality of Life: Compassion Satisfaction and Fatigue Subscales–Revision (ProQOL - Version 3: Stamm, 2002)	Linley & Joseph (2007)	30	Three subscales: *Compassion Fatigue/secondary trauma, Compassion Satisfaction, burnout*.	CF (.70) and burnout (.61).

Professional Quality of Life: Compassion Satisfaction and Fatigue Subscales - Revision (ProQOL -Version 5: Stamm, 2010).	Zerach (2013), Zerach & Levin (2015)	30	Three subscales: *Secondary Traumatic stress, Burnout, Compassion Satisfaction*	Zerach (2013): STS (.83) and burnout (.70). Zerach & Levin (2015): burnout (.78).
Work-Related Behaviour and Experience Patterns Questionnaire (Roginska & Gaida, 2001) [Polish translation].	Basińska et al. (2011)	66	Three domains: *Professional commitment, Resistance to stress, Emotional well-being*.	Not provided.
Bergen Burnout Indicator (BBI: Nurmi et al., 2008).	Nordang et al. (2010)	25	Three factors of job burnout: *Exhaustion at work, Cynicism about the meaning of work, Sense of inadequacy.*	Not provided.
Compassion Satisfaction/ Fatigue Test (Stamm & Figley, 1998)	Ortlepp & Friedman (2002)	66	Three subscales: *Compassion Fatigue, Burnout, Compassion Satisfaction*	Compassion Satisfaction/Fatigue Total scale (.91), CF (.84), and burnout (.83).

Data Analysis and Findings

Thirteen studies reported results from bivariate zero-order correlation analyses. In the eight studies that used the MBI-HSS to measure the three components of burnout, five studies found significant negative correlations between SOC and the burnout subscales of EE and depersonalisation, and significant positive correlations between SOC and the subscale of PA (Baker et al., 1997; Fourie et al., 2008; Naudé & Rothman, 2006; Söderfelt et al., 2000; van der Colff & Rothman, 2009). In contrast, Gilbar (1998) found a non-significant negative correlation between SOC and the burnout subscale of depersonalisation and a significant negative correlation between SOC and PA. In addition, Tebandeke (2008) found non-significant positive correlations between SOC and all three burnout subscales; the positive correlation between SOC and total burnout was also non-significant. Conversely, one study that also examined the relationship between SOC and total burnout found a significant negative correlation (Ron & Shamai, 2014). Significant effect size correlations in studies ranged from small (r = -.25) to large (r = −.59) based on Cohen's (1992) guidelines.

Comparing the results of studies that used the ProQOL Scale, three studies found significant negative correlations between global SOC and both CF (or STS) and burnout (Linley & Joseph, 2007; Ortlepp & Friedman, 2002; Zerach, 2013). In a further study (Zerach & Levin, 2015), SOC did not correlate significantly with burnout among the main group (religious rescue workers) however there was a significant negative correlation between these variables among the comparison group of religious charity workers. Arguably rescue workers may use a repressive coping strategy, cutting off emotionally and focusing cognitively focus on the task of body handling. As a result of not overly identifying with the dead they may experience less burnout over time. Significant effect size correlations in these studies ranged from small (r =.21) to large (r = −.66) based

on Cohen's (1992) guidelines. Nordang et al. (2010) found that 3.3% of the variability in burnout as measured by the Bergen Burnout Indicator was shared by SOC. In a further study (Basińska et al., 2011) there was a significant negative correlation (large effect size) between SOC and burnout pattern of behaviour as measured by the Work-Related Behaviour and Experience Patterns Questionnaire.

Eight studies reported results from multivariate analyses (Gilbar, 1998; Fourie et al., 2008; Linley & Joseph, 2007; Naudé & Rothman, 2000; Söderfelt et al., 2000; van der Colff et al., 2009; Zerach, 2013; Zerach & Levin, 2015). These analyses generated a pattern of results consistent with zero-order correlations, that is stronger SOC was generally associated with less burnout. In regression models, with the exception of Gilbar's 1998 study (which found a non-significant correlation between SOC and depersonalisation) SOC emerged as a significant predictor of EE, depersonalisation, PA, CF, and STS. In one study SOC exerted a significant indirect effect on EE and depersonalisation via its interaction with emotional job strain, explaining 62% and 44% of the variance in these components respectively (Söderfelt et al., 2000). Using a path analysis model, Fourie et al. (2008) found that SOC had both a direct and indirect effect (via perceptions of job characteristics) on burnout. Zerach and Levin (2015) also found that SOC mediated rescue workers' vulnerability to burnout. In a further study, SOC demonstrated a significant main effect on EE, depersonalisation and PA but did not moderate the effect of occupational stress on burnout (Naudé & Rothman, 2006).

Quality Assessment

Key criteria were applied to each individual study to assess its quality (see Appendix C for an overview). Limitations in methodological quality and/or reporting were evident in all studies with no studies meeting all of the criteria in the checklist that was

used to assess quality. The number of criteria that were fully met ranged from 9.5 to 19 out of the 21 key criteria. The methodological quality of individual studies is considered in more detail in the critique that follows.

Use of a Theoretical framework to Guide Research

The research question fundamental to this review was based on a hypothesis grounded in Antonovsky's (1979, 1987, 1991, 1993) salutogenesis theory and the SOC disposition, which has been postulated to be fundamental to understanding individual differences in stress reactions (Amirkhan & Greaves, 2003). All included studies defined SOC using Antonovsky's theory as a guiding framework. Söderfelt et al. (2000) also used the job demand-control model ([JDC] Karasek, 1979; Karasek & Theorell, 1992) to understand job stress among human-service workers. This model proposes that job strain, a condition characterised by high job demands in combination with low job control, is significantly associated with adverse health consequences. The JDC model was used in order to test the hypothesis that SOC exerts a protective effect by interacting with the job strain created in a high demand/low control environment.

Eight studies used the definition of burnout outlined by Maslach and Jackson (1982, 1986) and also used this as a framework for investigation. Three studies (Linley & Joseph, 2007; Zerach, 2013; Zerach & Levin, 2015) investigated CF, a concept that has been defined as the natural reaction to working with traumatised clients and the stress that emanates from needing to help (Figley,1995a, 2002). In two of these studies (Zerach 2013; Zerach & Levin, 2015), CF was conceptualised as incorporating both STS and burnout based on Stamm's (2010) definition. In a further study (Ortlepp & Friedman, 2002) CF and burnout were used as indicators of STS. One study (Basińska et al., 2011) used Schaarschmidt and Fischer's (1996) model of work related behaviours as a framework for

investigation. This model describes four work-related patterns of behaviour (including burnout type-B) in three spheres of functioning (professional commitment, resistance to stress, and emotional well-being) that are associated with a positive and negative effect on health.

Whilst all studies outlined and addressed a clearly focused issue, only eight studies pre-specified a hypothesis in relation to SOC and burnout. Hypotheses included the prediction of an inverse relationship between SOC and burnout (Tebandeke, 2008; Zerach, 2013) and between SOC and STS and burnout (Zerach & Levin, 2015). Zerach and Levin (2015) made an additional prediction that SOC would mediate the link between group (male religious rescue workers and charity workers) and CF. In contrast, van der Colff et al. (2009) hypothesised that occupational stress and a weak SOC would predict burnout, whilst Fourie et al. (2008) predicted that SOC would exert a positive main effect on "work wellness" (e.g. low burnout and high work engagement) through perceptions of reduced job demands and enhanced job resources. Naudé and Rothman (2006) hypothesised that SOC would have a main effect on EE, cynicism, PA, and work engagement and would moderate the effects of occupational stress on burnout. Ortlepp and Friedman (2002) predicted that perceived levels of SOC and self-efficacy would be inversely related to counsellors' levels of STS, and Söderfelt et al. (2000) hypothesised that SOC should interact with the job strain (pressure) that is created in a high demand/low-control work environment, and exert a protective effect.

Study Design

The use of cross-sectional data in all studies precluded causal inferences, which is a key limitation of this design. Most studies collected data locally, which limits the generalisability of the findings to health and social care workers across other geographic locations

and service systems. Two studies employed comparison groups that were matched according to socio-demographic and work-place variables (Zerach, 2013; Zerach & Levin, 2015), which can help to reduce bias associated with potential confounding variables (Greenland & Morgenstern, 2001). In one study (Gilbar, 1998) participation was restricted to women in order to prevent confounding by gender imbalance.

Samples

Variability in the quality of studies was evident in relation to sampling strategy, sample size, and sample characteristics, which creates potential threats to both internal and external validity. Non-random sampling (e.g. availability sampling) was employed in 12 of the 14 studies, increasing the risk of sampling error (e.g., non-representative samples). Only two studies (Linley & Joseph, 2007; van der Colff & Rothman, 2009) used random sampling strategies and whilst a further study (Ron & Shamai, 2014) randomly selected hospital departments from all over Israel, availability sampling was used to recruit the participants. One study (Söderfelt et al., 2000) established the representativeness of their sample by comparing demographic characteristics of the sample with those of a representative nationwide sample used in a previous study. A further study (Baker et al., 1997) did not report on the sampling strategy.

Response rates were detailed in 10 studies and ranged from 22% to 88%. In seven studies (Baker et al., 1997; Fourie et al., 2008; Linley & Joseph, 2007; Naudé & Rothman, 2006; Ortlepp & Friedman, 2002; Ron & Shamai, 2014; Söderfelt et al., 2000;) the response rates were below 65%, indicating the potential for non-response bias (Greenhalgh, 2014). There was no analysis of non-responders, which indicates that little was known about differences in characteristics between participants who completed questionnaires

and those who did not participate in studies. This highlights the need for caution in the interpretation and generalisability of findings.

Sample sizes varied considerably, ranging from 42-818 participants. Four studies had a sample size under 100 and only three studies had samples that exceeded 250. Sample size is intrinsically linked with statistical power, which is the ability to detect a particular effect size (Field, 2013). According to Cohen (1992) to detect a correlation of small effect ($r = .10$) with a power of .80 and alpha set at .05, a sample size of 738 is required. A medium effect ($r = .30$) requires a sample of 85, and a large effect ($r = .50$) requires 28. The sample size was below 100 in four studies (Baker et al., 1997; Gilbar, 1998; Nordang et al., 2010; Tebandeke, 2008) and only one study (van der Colff & Rothman, 2009) had a sample of sufficient size ($N=818$) to detect a small effect. It is evident that most studies were powered to find medium to large effect sizes and small (but potentially important) relationships may not have been demonstrable.

In one comparison study (Zerach & Levin, 2015), significant differences between the groups (male religious rescue workers and charity workers) were identified in terms of key characteristics (e.g., age, work seniority, family status, religiosity, place of birth, income, and years of education). These socio-demographic characteristics may have influenced participants' SOC and experience of burnout and therefore acted as confounding factors. As the groups were not comparable for these potential confounding factors the validity of the findings is compromised. A number of study samples were also homogenous and included predominantly middle-aged, married females. Whilst this may have controlled some potentially confounding variables such as socioeconomic status, homogenous samples can reduce the sensitivity of measurement instruments to identify small differences resulting in less variance on the variables of interest (Jonge, Dormann, Dollard, Landeweerd, & Nijhuis, 2000).

Measurement Validity and Reliability

All of the studies employed questionnaire measures to collect data and measured SOC using the short or long version of Antonovsky's (1987) "Sense of Coherence scale". A systematic review of the psychometric properties of this scale concluded "the SOC scale seems to be a reliable, valid, and cross culturally applicable instrument measuring how people manage stressful situations and stay well" (Eriksson & Lindström, 2005, p.460). All studies clearly specified the instruments used to measure burnout (or CF) and employed measures with demonstrated validity and reliability. However, whilst all of the studies used instruments with established psychometric properties, only eight studies reported internal consistency reliability coefficients for the analysed data. Measuring instruments had generally acceptable levels of internal consistency, with Cronbach alpha coefficients of at least .70 in six of the eight studies (Field, 2013). Exceptions were the depersonalisation subscale of the MBI-HSS in one study (Fourie et al., 2008) and the burnout subscale of the ProQOL in a further study (Linley & Joseph, 2007). The reliance on self-report measures in all studies increased the possibility of common method biases, such as item demand characteristics or ambiguity, or social desirability (Schaufeli, Enzmann, & Girault, 1993).

Data Analysis

All of the studies reported appropriate analysis for the stated research question or hypothesis. Studies were correlational, employing a number of techniques including Pearson or Spearman correlations, regression analysis, mediation analysis, and structural equation modelling. Whilst all studies reported some type of effect size measure (e.g. correlation, regression, or path coefficients) and significance values, only one study (Zerach & Levin, 2015) reported 95% confidence intervals for their analyses. None of the studies

reported results from a priori power analyses indicating how sample sizes were determined. One study (Tebandeke, 2008) did report the results of a linear regression indicating that the sample (of 91 psychiatric nurses) had over 90% power to detect a correlation of medium effect size at a significance level 0.5*.

Zerach (2013) controlled for specific demographic variables (e.g., age, gender and history of traumatic experience) in the regression analyses in order to strengthen internal validity. Three studies (Linley & Joseph, 2007; Ron & Shamai, 2014; van der Colff & Rothman, 2009;) included individual and occupational variables in regression models on the basis of previous research and theory related to burnout and/or CF. Gilbar (1998) included a number of potential explanatory variables (e.g. age, marital status and supervision) in a stepwise regression model. Field (2013) cautions against the use of this method (except for exploratory model building) as decisions regarding the order in which predictors are entered into the model are based purely on mathematical criterion rather than previous research. In a further study (Söderfelt et al., 2000), an interaction model was employed to test the effect of the interaction between SOC and job strain on the three burnout components. Two studies (Fourie et al., 2007; Zerach and Levin, 2015) used structural equation modelling (SEM) to test models of hypothesized relationships. Fourie et al. (2007) used path analysis to test whether perceived job characteristics (e.g., job demands and resources) mediated the relationship between SOC and burnout and work engagement. Zerach and Levin (2015) examined the mediating role of SOC (and spirituality) for the outcome variable of burnout, controlling for the shared variance among mediators. A further study (Naudé & Rothman, 2006) tested whether SOC moderated the effects of occupational stress on burnout and work engagement. In all of these studies it is likely that any unmeasured covariates were potential confounds of the outcomes under study.

Reported Limitations

An outline of limitations and sources of potential bias was included in all but two studies (Baker et al., 1997; Basińka et al., 2011). Limitations that were commonly discussed by study authors included the inherent weaknesses of a cross-sectional design (e.g., lack of causality), potential biases associated with availability sampling, low response rate, small sample size and the use of self-report measures, and limited generalisability of findings.

Discussion

The current review sought to examine the existing evidence base in order to determine whether burnout and CF are related to SOC in health and social care workers. Fourteen articles met the inclusion criteria. Limitations of the current review include the lack of piloting of inclusion and exclusion criteria, the absence of an independent review process for quality assessment, and the use of an unstandardised appraisal tool. Furthermore, the exclusion of non-English papers may have resulted in the omission of important findings. In an attempt to minimise the effects of publication bias, the review was not limited to articles published in peer-reviewed journals. However, access restrictions and financial limitations precluded inclusion of five unpublished articles.

Main Findings

Findings from the included studies revealed a significant association between SOC and burnout (and CF) among health and social care workers. Thirteen of the 14 studies found a significant negative relationship between SOC and burnout, or its specific components of EE and depersonalisation. SOC also emerged as a significant predictor of burnout and CF in most multivariate analyses, either directly, in interaction with job strain, or indirectly through perceptions of job characteristics.

Variation in the instruments used to measure burnout hindered an overall comparison of effect sizes. Moreover, lack of consensus in the literature regarding the terminology used to describe burnout made the synthesis of findings more difficult. Five out of seven studies that used the MBI-HSS (Maslach & Jackson, 1981, 1986) to measure the three components of burnout found a significant negative correlation between SOC and EE and depersonalisation, and a significant positive correlation between SOC and PA (mainly medium to large correlation effect sizes). In the four studies that used various versions of an alternative measure, the ProQOL (Stamm, 2002, 2010), to examine the relationship between SOC and burnout, or between SOC and burnout and CF, significant, negative correlations also emerged. An exception was a non-significant correlation between SOC and burnout among rescue workers in one comparison study (Zerach & Levin, 2015). Overall, higher levels of SOC were generally associated with lower levels of overall burnout, EE, depersonalisation and CF, and higher levels of PA among the health and social care workers sampled. On this basis, it appears that SOC may buffer the negative psychological effects associated with providing care in health and social care settings.

The review's findings are consistent with Antonovsky's salutogenic theory and provide further indication of the stress-buffering effects of the SOC disposition. Antonovsky's (1979) main prediction was that individuals with a strong SOC are less likely to perceive stressful situations as threatening and anxiety-provoking than individuals with lower levels of SOC. The ability to perceive occupational stressors as more manageable and comprehensible, and find more meaning in the work undertaken might help to alleviate the anxiety formal caregivers experience, mitigating the risk of burnout and CF. However, whilst Antonovsky's theory suggests a causal explanation, precise causal mechanisms underlying the relationship between SOC and burnout/CF cannot be determined

from the review's findings. Only further theoretical and empirical work can adequately explore this.

Across a number of studies significant medium to large correlation effect sizes were found between SOC and a number of additional individual and organisational variables, including social support and emotional job strain (Söderfelt et al., 2000), approach coping and avoidance (van der colff et al., 2009), work engagement (Fourie et al., 2007; Naudé & Rothman, 2006; van der colff et al., 2009), job demands and job resources (Fourie et al., 2007), relevant training, support for professional activities, and years of seniority (Ron & Shamai, 2014), exposure to stress and post-traumatic stress symptoms (Zerach & Levin, 2015), and attachment anxiety (Zerach & Levin, 2013). In a further study (Baker et al., 1997), professional and marital status contributed significantly to prediction of SOC scores. Moreover, studies that used more advanced statistical analyses (e.g., SEM and regression models with interaction terms) found that SOC exerted an effect on burnout via its interaction with or through other variables, including emotional job strain and perceived job demands and resources. Thus, it is evident that work-related well-being is influenced by a dynamic interaction between both psychological and environmental factors.

Overall Quality and Applicability of the Evidence

The review found a significant association between SOC and burnout and CF, which was robust over diverse populations, outcome measures, sampling strategies, and participant characteristics. However, potential sources of sampling and non-sampling error in a number of studies indicate that this finding should be interpreted with caution. Non-random sampling in all but three studies (Linley & Joseph, 2007; Söderfelt et al., 2000; van der colff et al., 2009) and the use of data collected locally in the majority of studies limits the generalisability of findings to larger populations. In addition, only

three studies (Gilbar, 1998; Nordang et al., 2010; Zerach & Levin, 2015) indicated that the response rate was acceptable. Therefore low (or unreported) response rates in the remaining studies highlight the potential for non-response bias. Moreover, the use of self-report measures in all studies indicates increased the risk of common method biases, including reporting bias and/or social desirability effects.

While all studies addressed a clearly focused issue and employed a study design that was appropriate for the research question, none of the studies included in the review met all of the quality criteria. This raises concerns regarding the methodological rigour of studies and thus the quality of the evidence. One study (Zerach & Levin, 2015) met all but two of the quality criteria in the checklist and therefore could be considered to provide high quality evidence. The only identified weaknesses in this study (which was common to all but three studies) related to the method of recruitment of participants (e.g., non-random sampling) and the impact of this on the representativeness of the sample and thus the generalisability of findings. Four studies (Ortlepp and Friedman, 2002; Söderfelt et al., 2000; van der colff et al., 2009; Zerach, 2013) met all but four quality criterion and four studies (Gilbar, 1998; Fourie et al., 2008; Linley & Jospeh, 2007; Naudé & Rothman, 2006) met all but five of the criteria, suggesting that the quality of evidence provided by these studies is relatively good. In contrast, the study by Baker et al. (1997) met less than half of the criteria in the checklist (nine out of 21) and demonstrated a number of weaknesses in relation to sampling strategy, efforts to identify and address potential sources of bias, and generalisability of findings.

Due to the inability to establish temporal precedence in cross-sectional studies, the evidence presented in this review does not provide confirmation of a causal relationship between SOC and burnout. As such it is unclear whether a low SOC is simply a

correlate of burnout or influences its development. Moreover, whilst findings suggest that SOC predisposes workers to greater or lesser potential for burnout and CF, this can be confounded by other factors. Findings could be influenced by other variables, such as personal or professional characteristics, which were not controlled for in statistical analyses.

Implications

Evidence that the SOC disposition is associated with susceptibility to burnout and CF has implications for the recruitment, training, and supervision of clinical psychologists. Trainee and clinical psychologists who are lower in SOC may be more vulnerable to adverse psychological effects of providing therapy, particularly when working with clients who have experienced trauma, which is potentially more stressful (Figley, 1995b). Antonovsky's SOC scale may provide a valuable contribution to decision-making during both the selection process for clinical psychology training and recruitment of qualified clinical psychologists. SOC and its individual components may also be a potential target for both clinical supervision and training to prevent and/or manage burnout and CF. It may help clinicians to explore the meaning of the work undertaken and to perceive their work as more manageable (e.g., by facilitating increased decision-making and control over work tasks) and comprehensible (e.g., by identifying and clarifying sources of uncertainty), helping to reduce work-related stress and mitigate the risk of burnout and CF.

Recommendations

Whilst an association between SOC and burnout is evident from the studies included in this review, the causal direction of this relationship is unclear based on the cross-sectional findings. As such it is unclear whether SOC influences burnout or burnout influences

SOC. While stronger SOC may buffer against burnout, it is also possible there is a reciprocal relationship between these constructs where lower levels of burnout facilitate stronger SOC. In order to explore causal relationships, longitudinal studies are needed that build on cross-sectional findings by eliminating confounding factors and methodological limitations. Longitudinal two-wave panel designs and sophisticated statistical techniques (e.g., covariance structure models) may offer more rigorous interpretation of causal and reciprocal relationships (Zapf, Doormann, & Frese, 1996). A further question raised by the findings of the current review is whether a strong SOC facilitates a more adaptive pattern of coping in formal caregivers. Further research is needed to elucidate the mechanisms underlying the association between SOC and burnout in this population, as well as the role of preventative strategies such as training and clinical supervision in reducing the risk of burnout and CF.

Conclusions

This review aimed to examine whether there is an association between the SOC personality construct and burnout (and CF) in health and social care workers. Findings from the included studies revealed that, in line with Antonovsky's theory, stronger SOC was associated with lower levels of burnout and CF. This finding was robust across diverse disciplines, occupational settings and geographic locations, and despite the use of alternative measures of burnout. Quality assessment of individual studies revealed significant concerns related to potential sampling and non-sampling error, which should be considered when interpreting the findings. Despite methodological limitations, it is evident that SOC may be a potential target for recruitment and intervention to prevent and/or manage burnout and CF in clinical psychologists and other health and social care professionals. Further longitudinal research should identify

causal ordering and underlying mechanisms in the observed

relationship between SOC and burnout and CF.

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Paper 2: Relationship between self-compassion, sense of coherence, coping strategies, and perceived stress in clinical psychology trainees

Abstract

Clinical psychology trainees are at risk of elevated stress, with potential adverse consequences for personal and professional functioning. The current study explored individual factors empirically associated with stress in previous literature in a sample of trainees. The dispositional trait sense of coherence, the self-relational construct self-compassion, and coping strategies were examined. Findings indicated that higher self-compassion and sense of coherence were both associated with lower stress. These constructs also appeared to influence the type of coping strategy employed, with higher levels of both associated with less use of self-blame and avoidant coping. More self-compassionate trainees were also more likely to respond to perceived stress with adaptive coping strategies of positive reframing and acceptance. After controlling for potential confounders, sense of coherence and maladaptive coping emerged as the only significant predictors of stress, accounting for 53% of variance in this outcome. Whilst self-compassion did not predict stress directly, this construct may influence stress indirectly through sense of coherence or coping strategies. Further research should explore the potential mediating role of these variables in the self-compassion-stress relationship. Interventions or support mechanisms that seek to increase trainees' sense of coherence and reduce reliance on avoidant coping are recommended.

Paper 2 word count: 7,214

Within the UK, clinical psychology trainees are vulnerable to experiencing elevated stress during their training, with studies indicating that as many as 36-59% experience levels of psychological distress indicative of possible psychiatric 'caseness' (e.g., Cushway, 1992; Robinson, 2015). Stress in trainees has been associated with a range of adverse outcomes, including anxiety, depression, difficulties with self-esteem and work adjustment (Kuyken, Peters, Power, & Lavender, 1998, Kuyken et al., 2003), interpersonal conflict at work (Kuyken, Peters, Power, Lavender, & Rabe-Hesketh, 2000), and substance misuse (Brooks, Holttum, & Lavender, 2002). In a review of the literature on stress in trainees, Packenham and Stafford-Brown (2012) emphasised the paucity of research in this area, arguing that this should be prioritised given the potential negative impact on personal and professional functioning. The review's broad research agenda recommended a number of topics for future research, including a focus on the individual attributes that are the most potent predictors of stress in this population. Indeed, in 2000, Kuyken et al. suggested that personality dimensions may underlie ongoing difficulties with psychological adaptation experienced by a significant proportion of trainees, and that further research on the role of personality resources was needed.

The transactional model of stress and coping (Lazarus & Folkman, 1984) proposes that the impact of any stressful experience is mediated by two interdependent appraisal processes: primary appraisal of the stressor (e.g., assessing if a demand presents a potential threat to one's well-being) and secondary appraisal of whether one has sufficient coping resources to manage the stressor. Coping involves cognitive and behavioural efforts to deal with internal and/or external demands that are appraised as taxing or exceeding resources (Folkman & Lazarus, 1991). As an individual may adopt a particular style of coping irrespective of whether or not

it elicits a positive outcome, coping may involve reliance on strategies that are considered maladaptive.

Zeidner (1995) distinguished three broad styles of coping: problem-focused (e.g., problem solving or doing something proactive to modify the source or impact of the stress); emotion-focused (e.g., managing the emotional distress that is associated with, or cued by, the stressful situation); and avoidance-oriented. Traditionally, problem-focused coping has been considered the most psychologically adaptive strategy and avoidance-oriented coping regarded as maladaptive (Carver, Scheier, & Weintraub, 1989). Whilst emotion-focused coping was seen as problematic, it is now recognised that emotion-focused strategies, involving effortful attempts to attend to and understand one's emotions, are associated with positive psychological adjustment (Pennebaker, 1993; Stanton, Kirk, Cameron, & Danoff-Burg, 2000). Skinner, Edge, Altman and Sherwood (2003) suggested that it may be most helpful to distinguish styles of coping on the basis of their links with adaptive or maladaptive processes, and a previous study has demonstrated that trainees who use more avoidant coping have greater problems with self-esteem, depression and anxiety over time (Kuyken et al., 2003).

Research attention has focused on processes that are thought to represent key individual differences in the way people appraise and manage stress. Self-compassion is an adaptive self-relational style and a key explanatory variable in understanding mental health and resilience (MacBeth & Gumley, 2012). Although there is lack of consensus on definition of this psychological construct, Neff (2003a) suggested that self-compassion involves:

> being open to and moved by one's own suffering, experiencing feelings of caring and kindness toward oneself, taking an understanding, non-judgmental attitude toward one's inadequacies and failures, and recognizing that one's own experience is part of the common human experience (Neff, 2003a, p. 224)

Self-compassion was a significant predictor of stress symptoms in trainees in Australia (Finlay-Jones, Rees, & Kane, 2015) and has been found to positively predict coping when confronted with difficult emotional experiences (Leary, Tate, Adams, Batts, Allen, & Hancock, 2007; Neff, Hsieh, & Dejitterat, 2005). Self-compassion may be particularly fundamental to students' well-being in times of elevated stress, disappointment, or failure (Neely, Schallert, Mohammed, Roberts, & Chen, 2009). Based on a review of the literature, Allen and Leary (2010) concluded that self-compassion is most strongly related to positive cognitive restructuring and negatively associated with escape-avoidance coping. Moreover, it was suggested that individuals with higher levels of self-compassion may experience lower stress as a result of their use of more adaptive coping strategies (e.g., by having a reduced tendency to catastrophise negative events, experience anxiety following a stressor, and avoid difficult tasks due to fear of failure). Of particular significance is emerging evidence indicating that self-compassion has the potential to promote resilience to occupational stress and professional well-being among health professionals (Barnett, Baker, Elman, & Schoener, 2007; Patsiopoulos & Buchanan, 2011; Wise, Hersh, & Gibson, 2012).

It has been proposed that the dispositional construct sense of coherence ([SOC] Antonovsky, 1979, 1987, 1991, 1993) is fundamental to understanding individual differences in responses to stress. SOC is defined as a "global orientation, a pervasive feeling of confidence that the life events one faces are comprehensible, that one has the resources to cope with the demands of these events, and that these demands are meaningful and worthy of engagement" (Antonovsky, 1987, p. 19). SOC has been empirically associated with stress in health professionals. For example, low SOC emerged as a risk factor for chronic work-related stress in young physicians (Buddeberg-Fischer, Stamm, Buddeberg, & Klaghofer, 2010) while a

higher SOC was found to be strongly protective against work stress in hospital employees (Höge & Büssing, 2004) and burnout in therapists (Linley & Joseph, 2007).

Antonovsky (1993) emphasised that SOC reflects a person's capacity to respond to stressful situations, influencing both cognitive appraisal of a stressful situation and the choice of coping strategies employed to manage stressors. It has been suggested that a stronger SOC facilitates a more flexible response to stress that makes optimum use of coping strategies, ameliorating the impact of stress on the individual (Antonovsky, 1987). The proposed influence of the SOC construct on successful coping "implies a differential choice of coping strategies between those with strong and weak dispositions" (Amirkhan & Greaves, 2003, p.4). This is supported by studies that have demonstrated that individuals with a stronger SOC employ more adaptive problem-focused strategies and less avoidance-oriented coping (Pallant & Lae, 2002; Amirkhan & Greaves, 2003).

Previous research indicates a number of additional, potentially confounding factors salient to an investigation of perceived stress in trainees. Firstly, neuroticism has been found to predict reactivity to daily stressors (Bolger & Schilling, 1991) and trainees who are high in neuroticism may experience enduring difficulties adjusting to the stressors of training (Kuyken et al., 2003). Furthermore, whilst Antonovsky (1987) emphasised that SOC is distinct from neuroticism, it has been argued that SOC is essentially an indirect measure of this trait that taps into aspects of emotional stability inadvertently (Gibson & Cook, 1996). However, SOC predicted variance in health-related outcomes over and above neuroticism in a ten-year longitudinal study, indicating that this trait reflects aspects of personality beyond emotional stability (Grevenstein, Bluemke, & Kroeninger-Jungaberle, 2016). A tendency to ruminate, feel isolated and criticise oneself is also characteristic of both low self-compassion

and high neuroticism (Neff, Rude, & Kilpatrick, 2007). Despite this, self-compassion predicted unique variance in positive functioning (including negative affect) over and above neuroticism (Neff et al., 2007). Taken together these findings suggest that despite being overlapping theoretical constructs, self-compassion and SOC should still predict perceived stress after accounting for their shared variance with the neuroticism construct.

Whilst age and gender have been linked with self-compassion in undergraduates (Neff, 2003b) and stress in psychotherapists (Deutsch, 1984), previous research on stress in trainees has reported mixed findings in relation to these variables. Cushway (1992) found significantly higher levels of psychological distress on the General Health Questionnaire-28 (which was used as an indicator of stress) among female compared to male trainees. A non-significant trend for older trainees to report less stress was also identified. Conversely, Kuyken et al. (1998) did not find a significant effect in relation to age, with older trainees reporting similar levels of perceived stress to their younger colleagues. Trainees in their second or third year also reported more stress than those in the first year of training (Cushway, 1992). Based on the above findings, it is evident that the variables age, gender, neuroticism and year of training should also be measured to control for their influence on perceived stress in trainees.

Rationale

Understanding the influence of individual factors on the experience of stress and coping in trainees is an important goal given the evidence that has highlighted the prevalence of stress in in this population. Identifying dispositional vulnerabilities to stress may help to guide supervisory practices, or inform the development of interventions to improve stress resilience. A recent review of stress-reduction initiatives in health professionals indicated that self-

compassion in particular may be a potential target to buffer against stress in trainees (Boellinghaus, Jones, & Hutton, 2014). This is important given that occupational stress is considered a general precursor of more severe distress, burnout and professional impairment (D'Souza, Egan, & Rees, 2011; Rosenberg & Pace, 2006).

Aims of the present study

Based on previous theory and research, the present study aimed, firstly, to explore associations between self-compassion and SOC and specific coping strategies used by trainees; and, secondly, to investigate whether self-compassion, SOC and coping strategies predicted perceived stress in this population.

Based on previous research it was hypothesised that:

(1) Both self-compassion and SOC will be associated with lower stress.

(2) Self-compassion will be positively associated with positive reframing and acceptance and negatively associated with self-blame and avoidance-oriented strategies.

(3) SOC will be positively associated with problem-focused coping strategies (active coping and planning) and negatively associated with avoidance-oriented strategies.

(4) After controlling for the potential effects of age, gender, year of training and neuroticism, lower levels of perceived stress will be predicted by higher self-compassion, stronger SOC, less use of maladaptive coping strategies, and greater use of adaptive coping strategies.

Method

Participants

A total of 229 trainee clinical psychologists completed the online survey. The sample consisted of 34 males (14.8%) and 195 females (85.2%), ranging in age from 23 to 46 years (M = 29.12, SD = 3.78). Whilst the gender distribution was skewed in the current study, comparisons with equal opportunities data published by the Clearing House for Postgraduate Courses in Clinical Psychology (CHPCCP) indicated that this was representative of the trainee population. There was a reasonably even spread of participants across all three cohorts of training. Participants' age, gender, and year of training are outlined in Table 1.

Table 1. *Participants' Age, Gender and Year of Training*

		Mean	*SD*
		29.12	3.78
		Frequency	*Percentage*
Gender			
	Male	34	14.8
	Female	195	85.2
Year of Training			
	First	61	26.6
	Second	82	35.8
	Third	86	37.6

Procedure

The study was approved by Keele University's Ethics Committee (see Appendix D). Trainees were recruited using convenience sampling via a recruitment email, completing all measures online using the web-based survey software Qualtrics

(http://www.qualtrics.com). As affiliation to a university ensures internet access and the provision of an email account, all trainees were given equal opportunity to participate in the study. The researcher identified all UK DClinPsy training programmes listed on the CHPCCP website ($N=30$). A recruitment email was sent to all Course Directors comprising a brief summary of the study, proof of ethical approval and a hyperlink to the online study (see Appendix E). In order to ensure consistency and avoid a biased sample, all course directors were emailed on the same day. Those Course Directors who did not respond were subsequently emailed two-weeks later. The study was also advertised on the social media platform 'Facebook' in a closed group for trainees. Data were collected from 1st November 2016 until 13th January 2017.

In total, 17 Course Directors responded and indicated that they had circulated the recruitment email directly to trainees across cohorts. Prohibited by their University policy from circulating the email directly, two Course Directors displayed the recruitment email on a notice board. The hyperlink directed participants to an online version of the Participant Information Form, outlining a summary of the study and a Consent Form (see Appendix F). Participants were asked to read these forms and click through to the survey if they consented to participate in the research. Clicking no to the consent question terminated the survey. The order of administration of the measures was automatically randomised in Qualtrics to reduce order effects (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

Measures

A demographic questionnaire was designed to collate information on age, gender and year of training. Five standardised questionnaires were also used, as outlined below. Measures were selected on the basis of their established psychometric properties, inclusion in previous research, and ease and speed of completion.

Where applicable, consent was sought from relevant authors. Completion of measures took approximately 15 minutes.

Self-compassion-Short Form ([SCS-SF] Raes, Pommier, Neff, & Van Gucht, 2011). (see Appendix G). The SCS-SF is a 12-item self-report scale designed to measure trait self-compassion. It is the short version of the 26-item Self-compassion Scale (Neff, 2003b), one of the most widely used scales in research conducted on self-compassion (Neff, Whittaker, & Karl, 2017). The SCS-SF measures self-compassion across three dimensions: self-kindness, common humanity, and mindfulness. The inverse of these dimensions is also measured using self-judgment, isolation, and over-identification subscales, with items from these subscales reverse scored. Items are rated on a 5-point Likert scale from 1 (*Almost Never*) to 5 (*Almost Always*). A total self-compassion score can be derived by computing a total mean, with higher scores indicating greater trait self-compassion. When examining total scores, the SCS-SF correlates strongly with the long scale (Neff, 2003a) and has demonstrated adequate internal consistency with a Cronbach's alpha coefficient (α) of .86 (Raes et al., 2011). In previous research with trainees in Australia, the reliability of the scale was α =.89 (Finlay-Jones et al., 2015). In the current study, the reliability of this scale was α
= .87.

Brief Cope (Carver, 1997). The Brief Cope is a 28-item self-report measure of the full COPE Inventory (Carver et al., 1989) designed to assess 14 conceptually differentiable strategies people typically employ to cope with a specified type of stressor (Appendix H). Each of the 14 subscales comprising two items rated on a 4-point Likert scale from 0 (*I haven't been doing this at all*) to 4 (*I've been doing this a lot*). In the current study, participants were asked to report their use of the coping strategies for managing the stress associated with clinical psychology training (see Appendix E for

specific instructions). Twelve subscales were examined that correlated in conceptually meaningful clusters in previous research (Carver, 1997), including six theoretically adaptive coping strategies (active coping, planning, positive reframing, acceptance, emotional support, and instrumental coping) and six theoretically maladaptive coping strategies (denial, behavioural disengagement, venting, substance misuse, self-blame, and mental disengagement). Previous research supports the validity of adaptive and maladaptive classifications (e.g., Meyer, 2001; Moore, Biegel & McMahon, 2011). Acceptable internal consistency using these classifications has been demonstrated in previous research, with Cronbach's alphas of .78 and .86 respectively (Kelly, Scott, & Bryan, 2014). In the current study, the reliability of the adaptive subscale scale was $\alpha = .85$ and the reliability of the maladaptive subscale was $\alpha = .72$.

Sense of Coherence Scale-short form ([SOC-13] Antonovsky, 1987). The SOC-13 is a 13-item self-report measure of an individual's orientation to life, defined as their perception of the world as comprehensible, manageable, and meaningful (Appendix I). The scale includes both positively and negatively worded items rated on a 7-point Likert scale (from 1 to 7), giving a potential range of 13 to 91. After reverse coding the five negatively worded questions a total score is derived, with higher scores indicating a stronger SOC. Test–retest reliability over six months was reported at $r = .77$ (Antonovsky, 1993). A systematic review of 127 studies indicated that the scale possesses adequate internal consistency, with Cronbach's alpha coefficients ranging from .70 to .92 (Erikkson & Lindström, 2006). In the current study, the reliability of the scale was $\alpha = .81$. Permission to use the scale was obtained from the authors (see Appendix F). As recommended by Antonovsky (1993), the total score was used in the current study.

Big Five Inventory ([BFI] John, Donahue, & Kentle, 1991). Neuroticism was measured using the Neuroticism subscale of

the BFI, a 44-item questionnaire assessing the Big Five Personality domains (see Appendix J). The neuroticism subscale includes both positively and negatively worded items rated on a 5-point Likert-type scale from 1 (*Disagree Strongly*) to 5 (*Agree Strongly*). Averaging the mean subscale score after reverse coding the negative items yields a total neuroticism score. The BFI has demonstrated good alpha reliabilities (typically ranging from .75 to .80 and averaging above .80 in U.S. and Canadian samples), a clear factor structure, convergent validity with longer Big Five measures, and adequate self-peer agreement (John & Srivastava, 1999; Soto, John, Gosling, & Potter, 2008). In the current study, the reliability of the neuroticism subscale scale was α = .77.

Perceived Stress Scale ([PSS-10] Cohen, Kamarck, & Mermelstein, 1983). The PSS-10 is one of the most widely used instruments for measuring the perception of stress and provides an indication of current levels of experienced stress (see Appendix K). The scale asks respondents to rate the perceived stressfulness of events experienced within the past month, with items rated on a 5-point Likert scale from 0 (*Never*) to 4 (*Very Often*). After reverse scoring of negatively worded items, a total perceived stress score is derived, with higher scores indicating higher perceived stress. The PSS-10 has demonstrated good internal consistency (α =.78) and moderate convergent validity with other measures of stress in a community sample (Cohen et al, 1983). It has also demonstrated good reliabilities (α =.87) with counselling psychologists (Shapiro, Brown, & Biegel, 2007) and with trainees in the UK (Robinson, 2015). In the current study, the reliability of the scale scale was α = .88.

Design

The study employed a cross-sectional design involving an online survey methodology to examine (1) the relationship between

self-compassion and SOC and coping strategies, and (2) the influence of the predictor variables self-compassion, SOC and coping strategies on the outcome of perceived stress. To account for potential confounders, age, gender, year of training, and neuroticism were also measured. The current study was embedded within a critical realist epistemological position, which acknowledges the limitations inherent in identifying and measuring constructs and the existence of subjectivity during the production of knowledge (Sellars, 2013). Findings are therefore tentative and require replication (Barker, Pistang, & Elliott 2002).

Statistical Analysis

Method of Analysis. Data analysis was conducted using the Statistical Package for the Social Sciences (SPSS) version 24 (IBM Corp, 2016). Standard multiple regression analysis was used initially, with all predictor variables and potential confounders entered at this stage. All significant predictor variables were subsequently entered in a further multiple regression to maximise precision of the model.

Power Calculation. A power calculation was undertaken to determine the required sample size for multiple regression (Soper, 2015). For multiple regression with eight variables, with power set at 0.80 (Cohen, 1992) for a medium effect size (0.15), based on previous research (Finlay-Jones et al., 2015; Robinson, 2015), and significance set at 0.05, 108 participants were required.

Statistical Assumptions. Prior to statistical analyses all variables were examined using SPSS procedures to establish that the assumptions of parametric analyses had been met. Data were examined for absence of outliers, linearity, normality, homoscedasticity, absence of multicollinearity, and independence of residuals (Field, 2013). The histograms, Kolmogorov-Smirnov statistics, and skewness and kurtosis values indicated more serious deviations from normality on the maladaptive coping and age

variables (see Appendix L). Analysis of univariate outliers also revealed three z-score outliers (one of which was an extreme score) on the maladaptive coping variable. As recommended by Tabachnick and Fiddell (2013), this variable was logarithmically transformed to reduce the influence of outliers and improve its distributional characteristics.

Examination of a histogram and normal probability plot indicated that the assumption of normality of standardised residuals had been met (see Appendix M). Homoscedasticity and linearity were assessed using a plot of standardised residuals against the standardised predicted values. The points were randomly and evenly dispersed throughout the plot indicating homoscedasticity, and the absence of a curvilinear trend confirmed the data was linear (see Appendix M). As tolerance statistics were greater than 0.2 and Variance Inflation Factor values well below 10 multicollinearity was not a cause for concern (Field, 2013). Analysis of multivariate outliers using SPSS procedures revealed three cases (just above the recommended 1%) with standardised values exceeding +/- 2.5 on the perceived stress variable. Although one of these was an extreme z-score outlier, it was established that this did not exert a significant influence on the regression model therefore it was not removed.

Results

Data Screening. Initial analyses of the original sample (*N*=269) indicated that 40 eligible participants who commenced participation in the study dropped out prior to submitting questionnaires. The remaining data set (*N*=229) cases also had missing data. However, 208 cases (90.83% of the sample) had no missing data, 21 cases had less than 10% missing data and none of the variables had more than 3.5% of values missing. Moreover, Little's (1988) Missing Completely at Random test was

non-significant (Chi-square = 42.712, DF=45, p >.05), indicating that the missing data occurred at random. As missing data were under 10% for individual cases, data was MCAR, and the number of valid cases with no missing data was sufficient for regression analysis, missing data were deleted listwise (Hair, Black, Babin, & Anderson, 2010).

Descriptive Statistics. Descriptive statistics are summarised in Table 3. Overall, participants reported moderately high levels of perceived stress (M = 18.16, SD=6.39). 1st year trainees reported the lowest perceived stress (M = 15.90, SD=5.88). 2nd year trainees reported higher perceived stress than 1st year trainees (M = 18.50, SD = 5.97) but lower perceived stress than 3rd year trainees, who reported the highest perceived stress (M=19.46, SD = 6.77). With regards to the predictor variables, participants reported moderate levels of neuroticism (M = 2.83, SD = .65), moderate levels of self-compassion (M = 3.14, SD = .70), and moderately high SOC (M = 61.63, SD = 11.23). The mean maladaptive coping score was 21.69 (SD = 4.58) and the mean adaptive coping score was 32.71 (SD = 6.24).

Initial Pearson's correlations. As the first step in conducting the analyses, correlations between the Brief COPE scales and the SCS-SF and SOC-13 measures were conducted. Table 2 displays the zero-order correlations between these measures. Self-compassion (as measured by the SCS-SF) was weakly positively correlated with the two adaptive coping strategies of positive reframing (r = .29, p < .01) and acceptance (r = .22, p < .01), and weakly negatively correlated with the maladaptive strategies of denial (r = -.17, p <.05) and substance use (r= -.16, p < .05). Self-compassion was also moderately negatively correlated with behavioural disengagement (r = -.34, p < .01) and strongly negatively correlated with self-blame (r = .61, p < .01). Non-significant associations were found between SOC (as measured by

the SOC-13) and the adaptive coping strategies. In relation to its association with maladaptive coping strategies, SOC was moderately negatively correlated with self-blame ($r = -.54$, $p < .01$), behavioural disengagement ($r = -.44$, $p < .01$) and denial ($r = -.33$, p < .01), and weakly negatively correlated with mental disengagement ($r = -.18$, $p < .01$) and substance use ($r=-.16$, $p < .05$).

Table 2. *Pearson's Correlations between the Self-compassion Scale-short form (SCS-SF), the Sense of Coherence Scale-13 (SCS-13) and Brief COPE strategies*

Coping Strategies	SCS-SF	SOC-13
Adaptive Strategies		
Active Coping	.13	.10
Planning	.00	.00
Positive Reframing	.29**	.11
Acceptance	.22**	.03
Emotional Support	.07	.11
Instrumental Support	.08	.08
Maladaptive Strategies		
Denial	-.17**	-.33**
Behavioural Disengagement	-.34**	-.44**
Venting	-.01	-.09
Substance Use	-.16*	-.16*
Self-Blame	-.61**	-.54**
Mental Disengagement	.01	-.18**

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

As the second step in conducting analyses, all study variables were inter-correlated in order to determine their associations. The zero-order correlations and descriptive statistics for all continuous variables are reported in Table 3. Reliability analyses were performed on the scales used in the analysis (these statistics are also reported in Table 3). All scales had an acceptable Cronbach's alpha coefficient,

where an acceptable value falls around .7 to .8 (Field, 2013). Pearson's correlations indicated that perceived stress was weakly positively correlated with gender (r = .13, p =.03) and year of training (r = .21, p =.001), moderately positively correlated with neuroticism (r = .52, p =.000) and maladaptive coping (r = .59, p =.000), moderately negatively correlated with self-compassion (r = -.43, p =.000), and strongly negatively correlated with SOC (r = -.62, p =.000). This indicated that trainees with higher perceived stress were higher in neuroticism, lower in self-compassion and SOC, and used more maladaptive coping strategies.

Table 3. *Means, Standard Deviations, Ranges, Internal Consistency, and Pearson's Correlations (one tailed) for all Study Variables*

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	M	SD	Min	Max	α
1.	-										18.16	6.39	3	34	.88
2.	-.43**	-									3.14	.70	2	5	.87
3	-.62**	.55**	-								61.63	11.23	30	88	.81
4.	.07	.16*	.07	-							32.71	6.24	14	46	.85
5.	.59**	-.36**	-.49**	.34**	-						21.69	4.58	13	40	.72
6.	.52**	-.62**	-.58**	.03	.41**	-					2.83	.65	1	4	.77
7.	.01	.12*	.03	-.01	.02	.01	-				-	-	-	-	-
8.	.03	.03	-.12*	.02	.16*	-.03	-.02	-			-	-	-	-	-
9.	.16*	-.02	.02	.08	.01	.05	.16*	-.56**	-		-	-	-	-	-
10.	.13*	-.09	-.01	.13*	.08	.17**	-.02	-.05	-.03	-	-	-	-	-	-

Note: 1: Perceived Stress - Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983). 2: Self-compassion - Self-compassion-Short Form (Raes, Pommier, Neff, & Van Gucht, 2011). 3: SOC - Sense of Coherence Scale-short form (Antonovsky, 1987). 4: Adaptive Coping - Brief Cope (Carver, 1997). 5: Maladaptive Coping - Brief Cope (Carver, 1997). 6: Neuroticism - Big Five Inventory John, Donahue, & Kentle, 1991). 7: Age 8: Year 2 of Training 9: Year 3 of Training 10: Gender.

*: p < .05, **: p < .01

Regression analyses. The prediction of perceived stress from self-compassion, SOC, coping strategies was analysed using initial standard multiple regression analysis. All potential predictors and potential confounders (gender, age, year of training, and neuroticism) were entered at this stage (see Table 4). Dummy coding was used for the categorical variable 'year of training' (Year 1, 2 and 3). Year 1 used as the reference category as participants in this year reported the lowest perceived stress. The regression model was significant ($F(9,198 = 26.49$, $p<.001$) explaining 55% of the variance (R^2), 53% when adjusted. Year 3 of training ($\beta = .19$, $p <.01$), neuroticism ($\beta = .16$, $p <.05$), SOC ($\beta = -.36$, $p <.001$) and maladaptive coping ($\beta = .35$, $p <.001$) were significant predictors of perceived stress. Age, gender, adaptive coping, and self-compassion did not emerge as significant predictors of perceived stress in the regression model.

In order to improve the precision of the model the regression was re-run with only significant predictors included (see Table 5). The model was significant ($F(4, 212) = 61.59$, $p <.001$) explaining 54% of the variance (R^2), 53% when adjusted. Year 3 of training ($\beta = .15$, $p <.01$), neuroticism ($\beta = .18$, $p <.01$), SOC ($\beta = -.35$, $p <.001$) and maladaptive coping ($\beta = .34$, $p <.001$) made significant unique contributions to the model. The four predictor variables in combination contributed .35 in shared variability. Altogether, 54% (53% when adjusted) of the variability in perceived stress scores was predicted by year 3 of training, neuroticism, SOC, and maladaptive coping. The size and direction of the relationships suggested that when the effects of year 3 of training and neuroticism were controlled, weaker SOC and higher use of maladaptive coping strategies were associated with higher perceived stress in trainees.

Table 4. *Summary of initial standard multiple regression analysis of age, gender, year of training, neuroticism, self-compassion, SOC, and adaptive and maladaptive coping strategies as predictors of perceived stress scores.*

	b	*SE B*	*ß*	*p*	95% CIs	
					Lower	*Upper*
Constant	-7.246	7.67	-	.346	-22.38	7.89
Age	-.04	.08	-.02	.666	-.20	.13
Gender	1.54	.90	.09	.087	-.23	3.31
Year 2 of Training	.58	.81	.04	.475	-1.01	2.17
Year 3 of Training	2.57	.81	.19	.002	.98	4.16
Neuroticism	1.53	.67	.16	.022	.22	2.85
Self-compassion	.11	.63	.01	.862	-1.13	1.35
SOC	-.21	.04	-.36	.000	-.29	-.13
Adaptive Coping	-.05	.06	-.05	.353	-.17	.06
Maladaptive Coping	25.71	4.65	.35	.000	16.54	34.88

Note. R = 739; R² = .546; Adjusted R² = .526 (p < .001)

Table 5. *Standard Multiple Regression of the Significant Predictor Variables on Perceived Stress*

	b	SE B	ß	p	sr² (unique)	95% CIs	
						Lower	Upper
Constant	-7.34	6.56	-	.264	-	-20.26	5.58
Year 3 of Training	2.02	.62	.15	.001	.02	.79	3.25
Neuroticism	1.76	.57	.18	.002	.02	.63	2.88
SOC	-.20	.04	-.35	.000	.07	-.27	-.13
Maladaptive Coping	24.22	3.94	.34	.000	.08	16.45	31.99

Note. R = .733; R² = .537a; Adjusted R² = .529 (p < .001); sr² = squared semi-partial correlation

a. Unique variability = .19; shared variability = .35

Discussion

On the basis of a research agenda outlined by Pakenham and Stafford-Brown (2012), this study explored whether specific individual factors were associated with stress and coping in UK clinical psychology trainees. Guided by previous theory and research, associations between the self-relational construct self-compassion and the dispositional trait SOC and a number of coping strategies were explored prior to investigating whether these two constructs and coping strategies predicted perceived stress.

Hypotheses regarding associations between self-compassion and SOC and specific coping strategies were partially supported. As expected, self-compassion and SOC were both associated with lower perceived stress. Higher self-compassion was significantly associated with the tendency to employ emotion-focused coping strategies of positive reframing and acceptance, and to rely less on self-blame and avoidance coping (e.g., denial, behavioural disengagement, and substance use). These findings are consistent with previous research (Allen & Leary, 2010; Neff et al., 2005) and suggest that self-compassionate trainees are more likely to employ adaptive coping strategies when confronted with the stress associated with clinical psychology training.

Hypotheses regarding associations between SOC and specific coping strategies were partially supported. As predicted, stronger SOC was associated with less reliance on self-blame and the need to avoid stress via the use of denial, physical withdrawal, substance use, or mental distraction. These findings are consistent with previous studies linking stronger SOC with less reliance on avoidant coping at times of increased stress (Amirkhan & Greaves, 2003; Pallant & Lae, 2002). In previous studies a strong SOC has also been associated with a tendency to actively resolve difficulties using problem-solving strategies when faced with a stressful situation. Against predictions, the current study did not find significant

correlations between SOC and any of the three problem-focused coping strategies (active coping, planning, and seeking instrumental social support). In the current study trainees' situation-specific coping tendencies related to clinical psychology training were assessed. In contrast, in a large community-based study that found a link between SOC and problem-focused coping strategies, participants were asked to indicate how they cope generally when they experience stressful events (Pallant & Lae, 2002). Moreover, in previous research, greater use of active coping, planning, and seeking of instrumental support has been reported by participants who perceived their situation as amenable to change (Carver et al., 1989), and SOC was only tentatively associated with problem-focused coping after controlling for locus of control and self-efficacy (Amirkhan & Greaves, 2003). Thus, it is possible that the association between SOC and problem-focused coping may vary according to the perceived controllability of the situation and individual beliefs about one's level of mastery or competence.

Based on a review of the empirical evidence to date, it was hypothesised that after controlling for the potential effects of age, gender, year of training (years 2 and 3 in comparison to year 1) and neuroticism, lower levels of perceived stress would be predicted by higher self-compassion, stronger SOC, less use of maladaptive coping strategies, and greater use of adaptive coping strategies. This hypothesis was partially supported, with findings demonstrating that SOC and the use of maladaptive coping strategies predicted perceived stress. Adaptive coping and self-compassion did not emerge as significant predictors of perceived stress in the current sample.

Maladaptive coping made the largest unique contribution to the prediction of perceived stress scores, with scores increasing (indicating more stress) as maladaptive coping increased. This is consistent with previous studies demonstrating that avoidant

strategies exacerbate stress in community samples (Aldwin & Revenson, 1987; Amirkhan, 1998), and are positively associated with stress in trainees (Cushway, 1992). This finding is important as whilst it may be effective in the short-term, avoidance coping may impede emotional processing and appropriate action in the longer term, and is therefore generally associated with poorer psychological adaptation (Roth & Cohen, 1986). Indeed, in a previous study, avoidance coping mediated the relationship between trainees' appraisals of stressors as threatening and uncontrollable and difficulties with psychological adaptation (largely in terms of anxiety, depression, and problems with self-esteem) over the duration of training (Kuyken et al., 2003).

SOC made the second largest unique contribution to the prediction of perceived stress scores, with scores increasing (indicating more stress) as SOC decreased. This finding is consistent with previous research involving medical students in Poland (Tartas, Walkiewicz, Majkowicz, & Budzinski, 2011), young physicians in Switzerland (Buddeberg-Fischer et al., 2010), health professionals in Germany (Höge & Büssing, 2004) and University academics in the US (Ryland & Greenfield, 1991). Findings from laboratory studies that have sought to identify the mechanisms underlying SOC indicate a perceptual process, one which has diffuse and subtle effects on perceptions of stressful events (Amirkhan & Greaves, 2003). Thus, consistent with Antonovsky's theory, current findings suggest that viewed through the lens of a strong SOC, the stress associated with clinical psychology training may be perceived as more manageable and less threatening, helping to alleviate perceived stress.

It is unclear why adaptive coping was not a significant predictor of lower perceived stress in the current sample. In previous research involving UK trainees (Kuyken et al., 1998) 'approach coping' (e.g., seeking social support, planful problem solving and positive reappraisal) did not predict better psychological adaptation

(e.g., less self-esteem problems, depression, and anxiety and improved work adjustment,) over the duration of clinical psychology training. The mean perceived stress score in the current sample was consistent with previous findings in UK trainees (Kuyken et al., 1998; Robinson, 2015) and indicative of relatively high levels of stress (scores of 20 or higher on the PSS-10 are considered high stress). One possibility is that when perceived stress is higher coping styles employed by trainees are less variable, with greater reliance on maladaptive coping strategies. Perceived stress correlated significantly with psychological distress in a recent study of UK trainees (Robinson, 2015) and Cushway (1992) found that trainees with higher levels of psychological distress were also more likely to employ avoidant coping. Indeed, Cushway (1997) argued:

> …covert attitudes and beliefs among qualified and trainee psychotherapists, that, for example, to show weakness is a sign of failure, combined with the trainee's uncertainty and self-doubt along with the conflicting demands for excellence, may actually encourage unhelpful denial and the use of maladaptive avoidance strategies (p. 38).

A further possibility is that the absence of a relationship between adaptive coping and perceived stress was unique to the current sample. Moreover, the finding that the combined significant predictors accounted for just over half of the variance in perceived stress indicates that other factors are influential.

Despite its significant, negative correlation with perceived stress, the finding that self-compassion did not significantly predict perceived stress in the current study is inconsistent with a growing body of research indicating that this construct is a reliable and robust negative predictor of psychological distress outcomes (for a meta-analysis see MacBeth & Gumley, 2012). The mean self-compassion score in the current sample was consistent with previous research involving trainees in the UK (Robinson, 2015) and Australia (Finlay-Jones et al., 2014; Stafford-Brown and Pakenham, 2012), and

indicative of a moderate level of self-compassion. It is possible that in the current study, the association between self-compassion and perceived stress was confounded once it was included alongside other variables within the regression model. Thus, once the model was adjusted for SOC, coping styles, neuroticism, and year of training, one of these variables (or a combination of variables) confounded the original effect. A further possibility is that the relationship between self-compassion and perceived stress in trainees is fully mediated by SOC or coping. Interestingly, while self-compassion significantly negatively predicted stress symptoms in Australian trainees, emotion regulation difficulties fully mediated this relationship (Finlay-Jones et al., 2015). It is also noteworthy that in this previous study, an alternative measure of stress was used (the Depression, Anxiety and Stress Scales-21). It is also therefore possible that self-compassion may impact on perceived stress indirectly via SOC or coping strategies.

Implications

The findings of the current study indicate that approaches that attempt to increase trainees' SOC and reduce reliance on maladaptive coping strategies may help to reduce vulnerability to stress in this population. Emotional support from friends and family, clinical supervisors, and the doctoral course (e.g., clinical tutor, personal tutor, support group, programme staff) was associated with reduced avoidant coping by trainees in a previous study (Kuyken et al., 2003). This is important, given that trainees who employed less avoidance coping also tended to adapt better over the duration of training. The findings of the current study provide further evidence that interventions, structures, or mechanisms that facilitate increased emotional support and assist trainees to develop more adaptive ways of coping with the demands of their training may help to reduce perceived stress.

Whilst originally regarded by Antonovsky as an enduring trait that develops during childhood and adulthood and becomes relatively stable by middle age, evidence now suggests that SOC tends to increase with age throughout the life span (Eriksson & Lindström, 2006). Social support has been demonstrated empirically to increase SOC (Ying, Lee, & Tsai, 2007; Nilsson et al., 2003), indicating that mechanisms that promote social support from peers and programme staff may be beneficial. Moreover, mindfulness-based stress reduction (MBSR) interventions have been found to enhance the SOC disposition in nurses and midwives (Ando, Natsume, Kukihara, Shibata, & Ito, 2011; Foureur, Besley, Burton, Yu, & Crisp, 2013). On this basis, future research should investigate whether a psychosocial intervention such as MBSR facilitates sustained increases in SOC in trainees, and results in reduced stress.

Finally, it has been suggested that the SOC construct "could be implemented as a systematic orientation and perspective in the daily activities and actions of professionals" and that there is a "need to change focus from problems and obstacles to resources" (Eriksson & Lindström, 2005, p. 464). Consistent with this recommendation, Howard (2008) proposed a framework for incorporating the specific components of SOC (meaningfulness, manageability and comprehensibility) into the process of clinical supervision in order to orient supervisors to their supervisee's well-being. It is argued that SOC may offer an important focus during clinical supervision on the basis that perceptions of experiences at work, evaluation of one's resources to cope with demands, and work goals and values are often discussed within this context. Although further research is needed to demonstrate whether such approaches are effective in reducing occupational stress and improving well-being, findings of the current study provide a rationale for embedding SOC into the clinical supervision of trainees.

Limitations and Future Directions

Due to the correlational design it was not possible to identify the direction of causality between variables in the current study. Consequently, whilst it is plausible that SOC and maladaptive coping strategies lead to greater or lesser potential for stress, it is also possible that stress may impact on these variables. As the study was cross-sectional it is also possible that other causal sequences linked the relationship between SOC, maladaptive coping, and perceived stress. Indeed, self-help (e.g., compassion or mindfulness-based practice), social support, recent stressful life events and current mood may be important confounders. Furthermore, whilst the use of a survey methodology and the time period for data collection (1st November 2016 to 13th January 2017) generated a large sample, the timing of data collection may have impacted on findings, with 1st year trainees possibly experiencing less perceived stress at this time of year. In previous research, trainees reported significant increases in work adjustment problems, depression and interpersonal conflict between year one and two of training and stressors such as academic deadlines and more challenging clinical work often increase in this period (Kuyken et al., 2000). Finally, due to the reliance on self-report measures the correlational and regression analyses may have been confounded by common method biases (Podsakoff et al., 2003). These limitations indicate the need for caution in the interpretation of findings and limit the extent to which findings can be generalised. Further longitudinal research is needed to determine the direction of causality between variables and the possible mediator role of SOC and coping strategies in the self-compassion-stress relationship.

Conclusions

Whilst acknowledging limitations inherent in the current study and the need for further research, it is evident that self-compassionate trainees are more likely to accept and positively

reframe the situation rather than rely on avoidance as a means of dealing with stress. Those trainees with a stronger SOC also appear to rely less on avoidance coping, although the tendency to actively engage in more problem-focused coping found in previous studies was not observed in the current sample. The dispositional construct SOC and the use of maladaptive coping strategies appear to predispose trainees to greater or lesser potential for perceived stress. Interventions or support mechanisms that promote SOC, reduce reliance on avoidance coping, and encourage more adaptive ways of coping may help to attenuate stress in this population. Further research is needed to determine the direction of causality between these variables and to explore the possible mediator role of coping and/or SOC in the self-compassion-stress relationship.

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Paper 3: Commentary and Reflective Review
Personal and Professional Reflections on the research process

Abstract

The final paper of this thesis provides a review and commentary on the process of completing the research component of the DClinPsy. The author's motivations for focusing on the topic of stress and burnout are outlined. Subsequently the paper is organised into three sections: (1) Reflections on undertaking a literature review of the relationship between sense of coherence and burnout in health and social care workers, (2) A reflective commentary on conducting a quantitative study exploring associations between self-compassion, sense of coherence, coping strategies, and stress in clinical psychology trainees, and (3) An account of the personal and professional learning that has occurred during the process of undertaking of this thesis. In order to provide a reflexive account of the author's subjective experiences, the paper is written in the first person.

Paper 3 word count: 3,123

Reflective practice is considered fundamental to the professional and ethical conduct of Clinical Psychologists (British Psychological Society [BPS], 2009) and has been defined by Bolton (2010) as "an in-depth consideration of events or situations…[involving] reviewing or reliving the experience to bring it into focus, and replaying from diverse points of view" (p. 19). Schön (1983) promotes both reflection in-action – making adjustments during practice and reflection on-action - exploring a situation in detail in order to develop new insights. Using the process of reflection on action, this paper will explore the experience of completing the research thesis component of the DClinPsy, involving a literature review of the relationship between sense of coherence (SOC) and burnout or compassion fatigue (CF) in health and social care workers (Paper 1) and an empirical study exploring associations between self-compassion, SOC, coping strategies, and perceived stress in clinical psychology trainees (Paper 2). In addition, I will aim to critically appraise the methodology prior to considering areas for future research. Reflections on my personal and professional development throughout the research journey will also be considered.

The process of selecting a research topic

During the second year of my clinical training I became aware that the BPS and New Savoy staff wellbeing surveys conducted in 2015 had revealed concerning findings. Essentially, psychological professionals responsible for improving the mental health of the public were reporting burnout, low morale and worrying levels of stress and depression (BPS, 2016a). Awareness of these findings prompted me to consider the well-being of clinical psychology trainees, who as part of a training course renowned for its personal and professional challenges are required to adopt the simultaneous roles of both academic and therapist. A subsequent scoping of the

literature in this area identified increased vulnerability to stress in this population and a range of documented stressors inherent in clinical psychology training. These include the ongoing academic and evaluative aspects of the training, personal characteristics (e.g., professional self-doubt and unrealistic expectations in relation to effecting change in clients), work-practice features (e.g., time constraints, long hours and caseloads), and challenges inherent in clinical work (e.g., ambiguity and ethical dilemmas). Based on a research agenda outlined in a review of stress in trainees (Pakenham & Stafford-Brown, 2012), I made the decision to investigate individual factors associated with stress in trainees in order to address gaps in the literature. Individual factors that had been theoretically and empirically associated with stress were drawn from previous literature. This seemed a feasible empirical study for a DClinPsy research project, offering the potential to reveal valuable insights that may inform interventions or mechanisms to improve the well-being of trainees.

Part 1: Literature Review

Deciding on a topic for the literature review was a challenging experience due to the vast amount of published research on occupational stress and burnout. During an initial scoping of existing literature, the role of individual factors also emerged as a potentially important area for investigation on the basis that this had been underemphasized in research on the correlates of burnout (Swider & Zimmerman, 2010). Extant literature indicated that the dispositional construct SOC may be fundamental to understanding individual differences in stress reactions. Thus, I decided that the research question fundamental to the review would be based on a hypothesis grounded in Antonovsky's salutogenesis theory and the SOC disposition. Although an existing systematic review had already

identified that SOC may protect against the impact of burnout in nurses, I was interested in whether this also extended to other professions.

Having never previously conducted a literature review, I found this paper challenging and underestimated the amount of time and effort it would take to complete it. The lack of the prescribed structure I was familiar with when writing a research article and uncertainty about the process generated a lot of anxiety at times. I sought to apply systematic processes to literature searching, quality assessment and data analysis to ensure greater clarity, internal validity and auditability. As the aim of the review was to establish whether there was a relationship between SOC and burnout or CF, I also made the decision to include only quantitative articles. Thus, a limitation of the review was the exclusion of potentially insightful articles that used a qualitative design and the richer data this would have generated. As such, future reviews in this area may wish to focus on a qualitative analysis of SOC and its impact on burnout/CF. The review's finding that the dispositional trait SOC was significantly associated with burnout in health and social care workers emphasised the scope for further research into the role of individual factors in the experience of stress in trainees.

Part 2: Research Report

Design

I used a quantitative methodology on the basis that this seemed most appropriate to answering the proposed research questions and adopted a critical realist epistemological position within the research. This stance is allied towards the positive position, which assumes that the nature of reality is quantifiable using scientific enquiry, but differs in a number of important areas (Darlaston-Jones, 2007). The use of self-report measures of specific psychological constructs in the empirical study reflected a more

positive stance. This implies that there is an objective quality that exists within research and that psychological constructs such as SOC and self-compassion exist and are quantifiable. However, it is argued that the idea of an invariant reality within the positivist position negates the proper subject matter of psychology – that of subjectivity and meaning (Jovanovic, 2010). Thus, in keeping with a more critical realist position, the empirical findings are tentative due to the imperfect nature of methods used to understand independent reality and as such require replication (Alvesson & Sköldberg, 2009). In accordance with social constructivist approaches, critical realism acknowledges that reality is shaped by contextual factors, such as gender, culture, and individual beliefs. As my research decisions and interpretations will have been influenced by my own background and experiences, a completely objective, etic perspective was not possible. Consequently, I acknowledge several sources of potential bias associated with the study design and methodology.

Recruitment and Data Collection

While the response to the online survey indicated the interest this topic held for trainees and the importance of it to them, I was not able to determine a reliable response rate to the survey or study coverage (e.g., whether survey data was obtained from a wide spread of geographic locations or concentrated in specific areas). This was in part due to the fact that not all Course Directors indicated whether they had circulated the survey. Anonymity of participants was ensured in an attempt to reduce social desirability bias. However, I was not able to complete a demographic comparison of the participants with those who had either decided not to take part in or had dropped out of the study in order to determine any significant differences. The use of a non-probability sampling strategy such as self-selection is also associated with bias, as respondents who choose to participate may not represent the entire

target population (Lavrakas, 2008). Given that the trainees who responded to the survey may not be fully representative of all trainees, any generalizations of the findings should be made with caution.

In order to ensure consistency and limit bias in the sample, all DClinPsy courses were emailed simultaneously, with a reminder email sent two weeks later following non-response. Despite this, the number of survey responses, and indeed the scoring of surveys, may have been influenced by the timing of data collection. As a trainee myself, I am aware that the demands of clinical training and the stress generated by these demands can fluctuate. Moreover, whilst I made efforts to control a number of potentially confounding variables, the influence of other unmeasured factors, such as recent stressful life events and current mood, are likely to have impacted on participants' perceived stress levels.

In line with a critical realist stance, I recognise that there are complexities and limitations associated with attempts to measure psychological constructs. Accordingly, I made significant efforts to select self-report measures with established psychometric properties. My decisions regarding the choice of measures were also influenced by the amount of time and effort demanded by their completion. Thus, the shorter versions of the Cope inventory (28 as opposed to 60 items) and Sense of Coherence Scale (13 as opposed to 29 items) were selected. Feedback from piloting of the initial online survey still indicated the potential for participant response burden. I therefore made the decision to also use the shorter version of Neff's self-compassion scale on the basis that when examining total scores, the shorter scale correlates strongly with the long scale (Raes, Pommier, Neff, & Van Gucht, 2011). Relevant data on convergent validity and test-retest reliability have not been reported for the short form and it therefore received a lower quality rating compared to the full scale in a recent systematic review (Strauss, Taylor, Gu, Kuyken, Baer, Jones

& Kavanagh, 2016). However, the review's authors concluded that despite its increasing research attention, there is currently no consensus definition or psychometrically robust self/observer-rated measure of compassion.

When used as the sole type of data as in the current study, self-report measures are associated with common method biases that can potentially threaten the validity of conclusions in psychological research (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Indeed, it is argued "method biases are likely to be particularly powerful in studies in which the data for both the predictor and criterion variable are obtained from the same person in the same measurement context using the same item context and similar item characteristics" (Podsakoff et al., 2003, p.885). When the same source provides ratings on multiple variables, the participant's characteristics may serve as confounds that bias relationships between these variables (Podsakoff et al., 2003). These characteristics include implicit theories held by the rater (e.g., respondent's beliefs about the covariation among particular traits, behaviours and/or outcomes); a variety of dispositional tendencies in their responding (e.g., response styles such as acquiescence or leniency and socially desirable responding); and both state and trait forms of positive and negative affect (Podsakoff et al., 2003). Method variance can either inflate or deflate observed relationships between constructs, leading to both Type I and Type II errors. Moreover, an online survey methodology is associated with notable strengths and limitations. While this method is less vulnerable to researcher bias, lack of direct contact with a researcher prevents clarification by participants if difficulties arise and as such may increase bias associated with item ambiguity effects (Barker & Pistrang, 2010).

The scales used to operationalise self-compassion and SOC were strongly correlated in the current study and although the

strength of this association ($r = .55$) did not indicate complete redundancy, covariance between these constructs was indicated. Visual inspection of the scales did not suggest that this covariance was artefactual due to item overlap on the measures, however this remains a possibility.

Ethical considerations

In order to assist with ethical decision-making, I consulted the BPS Code of Human Research Ethics (BPS, 2014) and the supplemental ethical guidelines for internet-mediated research (BPS, 2017). As recommended for online methodologies, I ensured participants were informed that it would not be possible to remove survey responses once submitted due to the anonymity of the data. In addition, measures were selected carefully to ensure they were appropriate for an online survey and did not pose significant risks to participants (e.g., by asking questions about suicidal thoughts). As recommended by ethical guidelines, the final page of the online survey provided website links and telephone numbers for organisations that could offer advice and support in the event of significant distress. The research project was approved by Keele University's Research Ethics Committee and no ethical issues were highlighted.

Areas for Future Research

In order to gain greater insight into causal relationships, future longitudinal research may wish to examine changes in SOC, coping strategies, and perceived stress levels over the duration of clinical psychology training. A three-wave panel design (e.g., three waves of data collection over a 12-month period) and regression analyses could be used to test a hypothesized causal sequence in which SOC influences subsequent coping, which in turn impacts later perceived stress. Intermediary coping efforts (e.g. coping scores at the second

wave of data collection) could also be tested for mediating roles in the SOC-perceived stress relationship. There is also a need to establish whether there is a relationship between stress and burnout in clinical psychology training. Future research may wish to examine the psychometric uniqueness of the scales used to measure SOC and self-compassion.

Part 3: Personal and Professional Reflections

The BPS (2016b) includes Personal and Professional Development (PPD) as one of the accreditation standards for clinical psychology training programmes in the UK. PPD has been defined as "a trainees a capability to reflect critically and systematically on the work-self interface. This process is directed towards fostering personal awareness and resilience" (Gillmer & Markus, 2003, p. 23). While undertaking the research thesis I have simultaneously had the opportunity to develop competencies in Cognitive Analytic Therapy (CAT) during a clinical placement in a community adult mental health team. This approach has provided a useful framework to reflect on the relational and emotional aspects of the experience of completing this thesis, and has provided some scaffolding for thinking about my personal and professional development.

CAT is a pragmatic, integrative psychotherapy that facilitates the processing of experience through a cognitive-procedural and relational-enactment lens (Ryle & Kerr, 2003). Central to CAT is the idea of reciprocal roles, which asserts that all that we know we have learnt in relation with another and the internalised memory of this relationship shapes how we relate to both ourselves and others. The CAT approach of mapping (written and diagrammatic reformulation) is used to identify dominant reciprocal role patterns, the feelings that occur when these are enacted, and how they are managed. By increasing recognition of unhelpful patterns, mapping provides an

opportunity to think about ways of approaching things differently. In his article on CAT and relational intelligence in Higher Education, Potter (2002) argued:

> At the heart of higher education is a criticising, exposing and demanding voice. The reciprocal response can be a feeling of inadequacy, pressure and exposure. This, in turn, is coped with by contrasting procedures of perfectionist, 'never good enough' striving, the seeking of admiring or protective care or finding ways of bypassing exposure through avoidance, denial or grandiosity. (p.8)

During my childhood a high value was placed on academic achievement and in my efforts to pursue a career in clinical psychology, I have certainly experienced the "criticising, exposing, and demanding voice" to which Potter refers. It has been suggested that the rigorous and competitive selection process for clinical psychology training may select for and reinforce competitive and perfectionist tendencies (Baker, 2002) and trainees have been described as obsessive overachievers (Pica, 1998). As a result of my relational experiences I recognise that I have internalized high, often unrealistic personal standards resulting in a tendency for self-criticism and reciprocal feelings of inadequacy. My strategy to cope has been one of continual striving for perfection in my academic work and professional conduct. Whilst this has certainly fuelled achievement over the years, it has also generated significant anxiety as a result of heightened sensitivity to criticism and fear of failure.

During the process of completing this thesis, the enactment of a self-critical to inadequate reciprocal role has continually motivated me to improve the quality of my work. However, given the competing demands of undertaking teaching, clinical placements, and empirical research, I have experienced anxiety about my inability to dedicate sufficient attention to each aspect of clinical training, feeling overwhelmed at times. Earlier on in the process I engaged in a vicious circle of working intensely for long periods of

time, being excessively conscientiousness, engaging in anxious rumination when not working, seeking temporary relief by avoiding the research process, and becoming self-critical again as a result.

Using CAT-based personal reformulation I have increasingly been able to recognise how I can be easily pulled into this self-defeating relational pattern that only increases my own vulnerability to stress. I have also developed greater awareness of the importance of addressing my personal development and self-care in order to improve my well-being and professional effectiveness. This increasing recognition has helped me to develop what I now perceive to be a healthier self, one which is more self-compassionate and can allow striving and resting in more appropriate ways. For example, being more self-compassionate and more disciplined with how I organise my workload, and resisting the tendency to work harder in response to feeling overwhelmed. The development of healthier striving and more productive working practices has ultimately enabled me to complete this research process and should help me to cope better with the professional challenges that lie ahead. Moreover, with my enriched skills and confidence in undertaking empirical research, I hope to continue to contribute to the evidence base in my important role as a scientist-practitioner.

Conclusions

Reflecting on the research process throughout this paper has enabled me to consider the strengths and limitations of my thesis in greater depth and my personal and professional development during its completion. Overall empirical findings indicate that specific individual factors such as SOC and maladaptive coping may predispose trainees to greater or lesser potential for stress, and that stress management interventions or support mechanisms that influence these factors are warranted. The empirical findings provide

a foundation from which future research in this area that addresses methodological limitations may continue.

Completing this thesis has involved a period of increased personal vulnerability to stress due to the pressure of my own expectations and the demands of clinical psychology training. Reflection on problematic self-relational patterns has helped to foster more healthy ways of coping with academic and professional challenges. As a result of the research process, I am equipped with new insights, skills and confidence that I hope will be of significant benefit to me in my professional career.

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THESIS APPENDICES
Appendix A

Author guidelines for the Journal of Occupational and Organizational Psychology. Downloaded on 10th September 2016 from: http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)2044-8325/homepage/ForAuthors.html

The Journal of Occupational and Organizational Psychology publishes empirical and conceptual papers which aim to increase understanding of people and organizations at work. Its domain is broad, covering industrial, organizational, engineering, vocational and personnel psychology, as well as behavioural and cognitive aspects of industrial relations, ergonomics, human factors and industrial sociology. Innovative or interdisciplinary approaches with a psychological emphasis are particularly welcome. So are papers which develop the links between occupational/organizational psychology and other areas of the discipline, such as social and cognitive psychology.

We welcome the following varieties of paper:

• empirical research papers, containing new quantitative or qualitative data which address significant theoretical and/or practical concerns;

• papers which offer new theory and conceptualisation, perhaps accompanied by a critique of existing approaches;

• narrative and/or quantitative reviews of existing research which lead to new conclusions or insights into a field of research and/or practice;

• prescriptive articles advocating changes in research paradigms, methods, or data analytic techniques;

• analyses of practice in occupational and organizational psychology, where such analyses are driven by theory and/or sound data.

Length

The word limit for papers submitted for consideration to JOOP is 8000 words and any papers that are over this word limit will be returned to the authors. The word limit does not include abstract, references, figures, and tables. Appendices however are included in the word limit. The Editor retains discretion to publish papers beyond this length in cases where the clear and concise expression of the scientific content requires greater length (e.g., a new theory or a new method). The authors should contact the Editor first in such a case.

Manuscript requirements

• Contributions must be typed in double spacing with wide margins. All sheets must be numbered.

• Manuscripts should be preceded by a title page which includes a full list of authors and their affiliations, as well as the corresponding author's contact details.

• All articles should be preceded by an Abstract of between 100 and 200 words, giving a concise statement of the intention, results or conclusions of the article. The abstract should not include any sub-headings.

• All articles must include Practitioner Points – these are 2-4 bullet points, following the abstract, with the heading 'Practitioner Points'. These should briefly and clearly outline the relevance of your research to professional practice. (Please include the 'Practitioner Points' in your main document but do not submit them to Editorial Manager with your abstract.)

• The main document must be anonymous. Please do not mention the authors' names or affiliations (including in the Method section) and always refer to any previous work in the third person.

• Tables should be typed in double spacing, each on a separate page with a self-explanatory title. Tables should be comprehensible

without reference to the text. They should be placed at the end of the manuscript but they must be mentioned in the text.

• Figures can be included at the end of the document or attached as separate files, carefully labelled with symbols in a form consistent with text use. Unnecessary background patterns, lines and shading should be avoided. Captions should be listed on a separate sheet. The resolution of digital images must be at least 300 dpi. All figures must be mentioned in the text.

• All articles should contain a clear statement of where and when any data were collected.

• For reference citations, please use APA style. Particular care should be taken to ensure that references are accurate and complete. Give all journal titles in full and provide doi numbers where possible for journal articles.

• SI units must be used for all measurements, rounded off to practical values if appropriate, with the imperial equivalent in parentheses.

• In normal circumstances, effect size should be incorporated.

• Authors are requested to avoid the use of sexist language.

• Authors are responsible for acquiring written permission to publish lengthy quotations, illustrations, etc. for which they do not own copyright.

For guidelines on editorial style, please consult the APA Publication Manual published by the American Psychological Association.

Author guidelines for the Journal of Social and Clinical Psychology. Downloaded on 16th January 2017 from: http://www.guilford.com/periodicals/jnscinst.pdf

The Journal of Social and Clinical Psychology is devoted to the application of theory and research from social psychology toward the better understanding of human adaptation and adjustment, including

both the alleviation of psychological problems and distress (e.g., psychopathology) and the enhancement of psychological well-being among the psychologically healthy. Topics of interest include (but are not limited to) traditionally defined psychopathology (e.g., depression), common emotional and behavioural problems in living (e.g., conflicts in close relationships), the enhancement of subjective well-being, and the processes of psychological change in everyday life (e.g., self-regulation) and professional settings (e.g., psychotherapy and counselling). Articles reporting the results of theory-driven empirical research are given priority, but theoretical and review articles are also welcome. Articles describing the development of new scales (personality or otherwise) or the revision of existing scales are not appropriate.

All submissions must be made electronically (preferably in Microsoft Word format) to Thomas E. Joiner at joiner@psy.fsu.edu. Only original articles will be considered. Articles should not exceed 8,000 words (text and references). Exceptions may be made for reports of multiple studies. Abstracts should not exceed 200 words. Authors desiring an anonymous review should request this in the submission letter. In such cases identifying information about the authors and their affiliations should appear only on a cover page.

Tables: should be submitted in Excel. Tables formatted in Microsoft Word's Table function are also acceptable. (Tables should not be submitted using tabs, returns, or spaces as formatting tools.).

Figures: must be submitted separately as graphic files (in order of preference: tif, eps, jpg, bmp, gif; note that PowerPoint is not acceptable) in the highest possible resolution. Figure caption text should be included in the article's Microsoft word file. All figures must be in black & white.

Permissions: Contributors are responsible for obtaining permission from copyright owners if they use an illustration, table, or lengthy quote (100+ words) that has been published elsewhere. Contributors should write both the publisher and author of such material, requesting nonexclusive world rights in all languages for use in the article and in all future editions of it.

References: Authors should consult the publication manual of the American Psychological Association for rules on format and style. All research papers submitted to the Journal of Social and Clinical Psychology must conform to the ethical standards of the American Psychological Association. Articles should be written in non-sexist language. Any manuscripts with references that are incorrectly formatted will be returned by the publisher for revision.

Appendix B

Initial Data Extraction Form

Study Title:
Study Authors:
Title of journal:
Study Type:
Study Design:
Study aims:
Country study undertaken:
Setting:
Sampling/how recruited:
Response rate:
Sample size:
Details of any theory/conceptual models used:
Characteristics of the participants:
Study date & duration:
Methods of data collection:
Analysis used:
Outcomes measured:
Details of key findings:

Appendix C
Critical Appraisal Checklist

1). Did the study address a clearly focused issue?	
2). Was the study design appropriate for the research question?	
3). Does the study test a stated hypothesis?	
4). Is the scientific background of the study clearly defined?	
5). Are the setting, location(s) and relevant dates, including periods of recruitment, exposure, follow-up and data collection described?	
6). Was the study sample clearly defined?	
7). Is it clear how the sample size was arrived at (a priori power analysis)?	
8). Were participants recruited in an acceptable way (sampling method)?	
9). Was a representative sample achieved (e.g. was the response rate sufficiently high)?	
10). Were all the participants accounted for in the analysis of the results (including those lost to follow-up in longitudinal studies)?	
11). Have the authors identified important confounding factors?	
12). Do the measurements truly reflect what you want them to (have they been validated)?	

13). Were efforts taken to address potential sources of bias?	
14). Have the authors taken into account the confounding factors in the design and/or analysis?	
15). What are the results of this study and are they precise?	
16). Are the results believable?	
17). Do the results of this study fit with other available evidence?	
18). Are the results generalisable?	
19). Are the limitations of the study discussed, taking in to account sources of potential bias?	
20). Does the study add anything new?	
21). Are the implications for practice clearly described?	

Appendix D

Quality Assessment Table

Table B1. Outcomes of Critical Appraisal Questions.

Study	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Total Score out of 21*
Baker et al. (1997)	Y	Y	N	Y	P	Y	N	N	N	Y	N	Y	N	N	Y	Y	N	N	N	Y	N	9.5
Gilbar (1998)	Y	Y	Y	Y	P	Y	Y	DK	Y	Y	Y	Y	Y	Y	Y	Y	DK	N	Y	Y	N	16.5
Söderfelt at al. (2000)	Y	Y	Y	Y	P	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	N	17.5
Ortlepp & Friedman (2002)	Y	Y	Y	Y	p	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	17.5
Naudé & Rothman (2006)	Y	Y	Y	Y	P	Y	Y	N	N	Y	Y	Y	N	Y	Y	Y	Y	N	Y	Y	Y	16.5
Linley & Joseph (2007)	Y	Y	N	Y	P	Y	Y	Y	N	Y	Y	P	Y	Y	Y	Y	Y	N	Y	Y	Y	17

Study																						Score
Fourie et al. (2008)	Y	Y	Y	Y	P	Y	Y	N	N	Y	Y	Y	N	Y	Y	Y	Y	N	Y	Y	Y	16.5
Tebandeke (2008)	Y	Y	Y	Y	P	Y	Y	N	DK	Y	N	Y	N	Y	Y	Y	P	N	Y	Y	Y	15
van der Colff & Rothman (2008)	Y	Y	Y	Y	P	Y	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	17.5
Nordang et al. (2010)	Y	Y	N	Y	Y	Y	Y	N	Y	Y	N	Y	Y	N	Y	Y	Y	N	Y	Y	N	15
Basińska et al. (2011)	Y	Y	N	Y	Y	Y	Y	N	DK	Y	N	Y	N	N	Y	Y	Y	N	Y	Y	Y	14
Zerach (2013)	Y	Y	Y	Y	Y	Y	N	N	DK	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	17
Ron & Shamai (2014)	Y	Y	N	Y	P	Y	Y	N	N	Y	Y	Y	N	Y	Y	Y	Y	N	Y	Y	Y	15.5
Zerach & Levin (2015)	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	19

Note. Y=Yes; N=No; DK= Don't know; P=Partially (where the author felt the question was addressed to some extent). Scoring: Yes=1 point; Partially= 0.5 points; No=0 points; Don't Know = 0 points.

Appendix E
Ethics Approval Letters

Ref: ERP2300

19th August 2016

Jenny Lloyd
10 Locko Court
Spondon
Derby
DE21 7JB

Dear Jenny,

Re: Self-compassion, stress and coping in Trainee Clinical Psychologists

Thank you for submitting your revised application for review. I am pleased to inform you that your application has been approved by the Ethics Review Panel. The following documents have been reviewed and approved by the panel as follows:

Document(s)	Version Number	Date
Draft Invitation Email to Course Directors	1	07-07-2016
Further Information for Course Leaders and Administrators	1	07-07-2016
Draft Email to Clinical Psychology Trainees	1	07-07-2016
Participant Study Information Sheet	2	18-08-2016
Consent Form	1	07-07-2016
Self-Compassion Scale (SCS; Neff, 2003a)	1	07-07-2016
The Cope Inventory (Carver et al., 1989)	1	07-07-2016
Perceived Stress Scale (Cohen & Williamson, 1988)	1	07-07-2016
General Health Questionnaire 12 (Goldberg, 1979)	1	07-07-2016
The Big Five Questionnaire - NEUROTICISM SUBSCALE (John & Srivastava, 1999)	1	07-07-2016
Demographic Questionnaire	1	07-07-2016
Final Page of Online Survey	1	07-07-2016

If the fieldwork goes beyond the date stated in your application, **30th September 2017**, or there are any other amendments to your study you must submit an 'application to amend study' form to the ERP administrator at research.erps@keele.ac.uk stating **ERP2** in the subject line of the e-mail. This form is available via http://www.keele.ac.uk/researchsupport/researchethics/

If you have any queries, please do not hesitate to contact me via the ERP administrator on research.erps@keele.ac.uk stating **ERP2** in the subject line of the e-mail.

Yours sincerely

C H Bannerman
PP

Dr Colin Rigby
Chair – Ethical Review Panel

CC   RI Manager
          Supervisor

Ref: ERP2300

21st October 2016

Jenny Lloyd
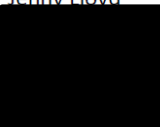
Dear Jenny,

Re: Self-compassion, stress and coping in Trainee Clinical Psychologists

Thank you for submitting your application to amend study, informing us that you will be using the Sense of Coherence scale-13 to measure perceived competence/functioning rather than the GHQ-12 to measure psychological distress. I am pleased to inform you that your application has been approved by the Ethical Review Panel.

The following documents have been reviewed and approved by the Panel as follows:-

Document	Version	Date
Participant Information Sheet	3	19-19-2016
Sense of Coherence Scale	3	19-19-2016

If the fieldwork goes beyond the date stated in your application, **30th September 2017**, or there are any other amendments to your study you must submit an 'application to amend study' form to the ERP administrator at research.erps@keele.ac.uk stating **ERP2** in the subject line of the e-mail. This form is available via http://www.keele.ac.uk/researchsupport/researchethics/

If you have any queries, please do not hesitate to contact me via the ERP administrator on research.erps@keele.ac.uk stating **ERP2** in the subject line of the e-mail.

Yours sincerely

PP *C H Bannerman*

Dr Colin Rigby
Chair – Ethical Review Panel

CC   RI Manager
       Supervisor

Appendix F

Email to Course Directors and clinical psychology trainees

Dear Professor

I am third year clinical psychology trainee undertaking my doctoral research at Staffordshire University. The aim of the research is to explore dispositional predictors of stress in trainee clinical psychologists. I would be very grateful if you could forward the following email to the trainee clinical psychologists on your programme (all cohorts). I have attached the study information sheet and proof of ethical approval.

If you have any additional questions about the study, please do not hesitate to contact me via email on l026518e@student.staffs.ac.uk.

Yours sincerely

Jenny Lloyd

Trainee Clinical Psychologist
Staffordshire & Keele Doctorate in Clinical Psychology

Dear Trainees,

I am third year trainee clinical psychologist undertaking my doctoral research at Staffordshire University. I invite you to participate in my study exploring predictors of stress in trainee clinical psychologists. This study has been reviewed and approved by Keele University Research Ethics Committee.

If you choose to participate, you will be required to complete an anonymous online survey that will take approximately 10 minutes. This will ask questions about self-compassion, coping, perceived functioning and stress. I have attached the study information sheet, where you can find out further information about what participation would involve.

If you have any further questions about the study, please contact the main researcher
Jenny Lloyd
Email:l026518e@student.staffs.ac.uk

If you wish to participate in the study, please click the following link:
(link to study)

Many thanks for your time and consideration

Yours sincerely

Jenny Lloyd
Trainee Clinical Psychologist
Staffordshire & Keele Doctorate in Clinical Psychology
Staffordshire University

Appendix G

Participant Information and Consent Form

Participant Information Sheet

You are invited to take part in a research study exploring predictors of stress in trainee clinical psychologists. This study is being undertaken by Jenny Lloyd as part of a doctorate in clinical psychology. Please consider the following information before deciding whether to participate.

Aims of and rationale for the research
Previous research has identified that trainee clinical psychologists can experience elevated levels of stress during their training. The aim of this research is to explore levels of self-compassion, coping strategies, and perceived functioning in trainee clinical psychologists, to see how this influences stress. Whilst there is no direct benefit to taking part in this study, it is hoped that the findings will provide evidence to promote effective self-care strategies and influence the support offered by UK DClinPsy courses.

What will happen if I take part?
You will be asked to complete a secure online survey. All responses to the survey will be anonymous and no identifying data will be collected. The survey should take approximately 10 minutes to complete.

Do I have to take part?
Your participation in this study is entirely voluntary and a decision to not take part will not disadvantage you in any way. You are free to withdraw at any time. As data is anonymous, it will not be possible to identify and withdraw your data after it has been entered in Qualtrics.

What are the risks of taking part?
The research has been reviewed and approved by Keele University Research Ethics Committee.
There are no known risks associated with this study. In the event that certain questions trigger distress, you are encouraged to seek support from your personal tutor, university counselling service, or your GP. A list of appropriate contact organisations is provided at the end of the online survey should you require additional support.

How will information about me be used?
The results of the study will be written up as part of a clinical psychology doctoral thesis and may be published in professional journals and/or shared at relevant conferences. You will not be identified by name in any dissemination of the results.

If you would like to receive a copy of the final report of the study when it is completed, please contact the researcher by email.

Who will have access to information about me?
Survey responses are anonymous as the Qualtrics system automatically generates numerical code for each participant. All research data will be stored in accordance with national policy and legislation (The Data Protection Act, 1998) and BPS ethics guidelines for Internet-mediated research (BPS, 2013). Any email addresses provided by participants will be stored in a separate password protected file that is not attached to their survey data. The researcher and research supervisor will have access to the electronic research data. Research data will be stored for 5 years after completion of the study for academic purposes in accordance with Keele University policy and destroyed thereafter.

What if there is a problem or you have further questions?
If you have a concern or require additional information about any aspect of this study, you may wish to speak to the researcher who will do their best to answer your questions. You should contact the researcher, **Jenny Lloyd, at l026518e@student.staffs.ac.uk**. Alternatively, you can contact the research supervisor:

Dr Helen Combes
Academic Director
Doctorate in Clinical Psychology
Faculty of Health Sciences

Staffordshire University
Science Centre, Leek Road
Stoke-on-Trent
ST4 2DF
Email: h.a.combes@staffs.ac.uk
Tel: 01782 295803

If you remain unhappy about the research and/or wish to raise a complaint about any aspect of the study, please write to Nicola Leighton at the following address:-

Nicola Leighton
Research Governance Officer
Directorate of Engagement and Partnerships
IC2 Building
Keele University
ST5 5NH
E-mail: n.leighton@ keele.ac.uk
Tel: 01782 733306

CONSENT FORM

Title of Project: Self-compassion, stress and coping in Trainee Clinical Psychologists.
Name and contact details of Principal Investigator: *Jenny Lloyd, University of Staffordshire & Keele Doctorate in Clinical Psychology, Faculty of Health Sciences, Staffordshire University, Science Centre, Leek Road, Stoke-on-Trent, ST4 2DF. Email: l026518e@student.staffs.ac.uk*

Please initial box if you agree with the statement

1. I confirm that I have read and understood the information sheet dated 2/7/16 for the above study and have had the opportunity to ask questions ☐

2. I understand that all data I provide will remain anonymous ☐

3. I understand that once my online survey responses have been submitted it will not be possible to identify and remove my data ☐

4. I understand that should I provide my email address, this will be kept separately from my data in a secure database and will be deleted following dissemination of the study findings ☐

5. I understand that my participation is voluntary and that I am free to withdraw at any time ☐

6. I agree to take part in this research ☐

_____   _____   _____
Name of participant   Date   Signature

_____   _____   _____
Researcher   Date   Signature

Appendix H

SELF-COMPASSION SCALE–Short Form (SCS–SF)

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 I

Brief COPE Scales (Carver, 1997)

The following items deal with ways you've been coping with the stress related to your training in clinical psychology. Please indicate to what extent you've been doing what the item says. How much or how frequently. Don't answer on the basis of whether it seems to be working or not – just whether or not you're trying to do it. Try to rate each item separately in your mind from others. Make your answers as true FOR YOU as you can.

 1 = I haven't been doing this at all
 2 = I've been doing this a little bit
 3 = I've been doing this a medium amount
 4 = I've been doing this a lot

1. I've been turning to work or other activities to take my mind off things.
2. I've been concentrating my efforts on doing something about the situation I'm in.
3. I've been saying to myself "this isn't real.".
4. I've been using alcohol or other drugs to make myself feel better.
5. I've been getting emotional support from others.
6. I've been giving up trying to deal with it.
7. I've been taking action to try to make the situation better.
8. I've been refusing to believe that it has happened.
9. I've been saying things to let my unpleasant feelings escape.
10. I've been getting help and advice from other people.
11. I've been using alcohol or other drugs to help me get through it.
12. I've been trying to see it in a different light, to make it seem more positive.
13. I've been criticizing myself.
14. I've been trying to come up with a strategy about what to do.
15. I've been getting comfort and understanding from someone.
16. I've been giving up the attempt to cope.
17. I've been looking for something good in what is happening.
18. I've been making jokes about it.
19. I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.
20. I've been accepting the reality of the fact that it has happened.
21. I've been expressing my negative feelings.
22. I've been trying to find comfort in my religion or spiritual beliefs.
23. I've been trying to get advice or help from other people about what to do.
24. I've been learning to live with it.
25. I've been thinking hard about what steps to take.
26. I've been blaming myself for things that happened.
27. I've been praying or meditating.
28. I've been making fun of the situation.

Sense of Coherence Scale-13 (SOC-13)

Sense of Coherence – Orientation to Life Questionnaire –
Short form 13 items
Source: Antonovsky, Aaron Unraveling the Mystery of Health. How People Manage Stress and Stay Well. San Francisco 1987.

C = comprehensibility   Ma = manageability   Me = meaning

1. Do you have the feeling that you don't really care about what goes on around you? (Me)
    | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
    Very seldom   Very often
    or never

2. Has it happened in the past that you were surprised by the behaviour of people whom you thought you knew well? (C)
    | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
    Never happened   Always happened

3. Has it happened that people whom you counted on disappointed you? (Ma)
    | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
    Never happened   Always happened

4. Until now your life has had: (Me)
    | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
    No clear goals   Very clear goals
    or purpose at all   and purpose

5. Do you have the feeling that you're being treated unfairly? (Ma)
    | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
    Very often   Very seldom or never

6. Do you have the feeling that you are in an unfamiliar situation and don't know what to do? (C)
    | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
    Very often   Very seldom or never

7. Doing the things you do every day is: (Me)
    | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
    A source of deep   A source of pain and
    pleasure and   boredom
    satisfaction

8. Do you have very mixed-up feelings and ideas? (C)
    | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
    Very often   Very seldom or never

9. Does it happen that you have feelings inside you would rather not feel? (C)
    | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
    Very often   Very seldom or never

10. Many people – even those with a strong character – sometimes feel like sad sacks (losers) in certain situations. How often have you felt this way in the past? (Ma)

1	2	3	4	5	6	7
Never						Very often

11. When something happened, have you generally found that: (C)

1	2	3	4	5	6	7
You overestimated or underestimated its importance						You saw things in the right proportion

12. How often do you have the feeling that there's little meaning in the things you do in your daily life? (Me)

1	2	3	4	5	6	7
Very often						Very seldom or never

13. How often do you have feelings that you're not sure you can keep under control? (Ma)

1	2	3	4	5	6	7
Very often						Very seldom or never

PERMISSION TO USE SOC-13

UNIVERSITY WEST
Center on Salutogenesis
Department of Health Sciences

Date

2016-10-18

Doctoral Student Jenny Lloyd
Faculty of Health Sciences
Staffordshire University
UK
(1026518e@student.staffs.ac.uk)

Dear Jenny Lloyd,

I hereby grant permission to use the 13-item version of the Sense of Coherence (Orientation to Life) Questionnaire, originally found in *Unraveling the mystery of health: How people manage stress and stay well*, by Aaron Antonovsky (Jossey-Bass Publishers, 1987), for use in your study aiming to examine whether self-compassion, coping styles and sense of coherence predicts stress, and whether sense of coherence mediates the relationship between self-compassion and stress.

The permission is granted upon fulfillment of the following conditions:

1. You may not redistribute the questionnaire (in print or electronic form) except for your own professional or academic purposes and you may not charge money for its use. **If administered online,** measures should be taken to insure that (a) access to the questionnaire be given only to participants by means of a password or a different form of limited access, (b) the questionnaire should not be downloadable, and (c) access to the questionnaire should be time-limited for the period of data collection, after which it should be taken off the server. Distributing the questionnaire to respondents via email is *not* permitted. Finally, any electronic version of the questionnaire which you may have for your research purposes (other than distribution to research participants) should be in PDF format including password protection for printing and editing

2. The questionnaire is intended for research purposes only, and may *not* be used for diagnostic or clinical use. By "diagnostic or clinical" it is meant that the SOC score cannot be the basis of any kind of physical, mental, cognitive, social or emotional diagnosis or assessment of the respondent, and cannot direct therapeutic or medical decisions of any kind.

3. In any publication in which the questionnaire is reprinted, reference to the abovementioned source should be given, and a footnote should be added saying that the questionnaire is reprinted with the permission of the copyright holder.

4. The copyright of the Sense of Coherence Questionnaire remains solely in the hands of the Executor of the Estate of Aaron Antonovsky.

If possible, I would appreciate receiving a copy of any forthcoming paper concerning a study in which the SOC questionnaire has been used, for private use in building an SOC publication database.

Sincerely,

Avishai Antonovsky, Ph.D.
Estate of Aaron Antonovsky
Department of Education and Psychology
The Open University
Israel

On behalf of Avishai Antonovsky
Monica Eriksson, PhD, Associate Professor
Department of Health Sciences
University West, Center on Salutogenesis
Trollhättan, Sweden

UNIVERSITY WEST
SE-461 86 Trollhättan
Sweden

Visiting address: Gustava Melins gata 2

Telephone + 46 520-22 30 00

www.hv.se

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Appendix K

Big Five Questionnaire – Neuroticism subscale

Downloaded from

The Big Five Inventory (BFI)

Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who likes to spend time with others? Please write a number next to each statement to indicate the extent to which you agree or disagree with that statement.

Disagree strongly	Disagree a little	Neither agree nor disagree	Agree a little	Agree Strongly
1	2	3	4	5

I see Myself as Someone Who...

____1. Is talkative

____2. Tends to find fault with others

____3. Does a thorough job

____4. Is depressed, blue

____5. Is original, comes up with new ideas

____6. Is reserved

____7. Is helpful and unselfish with others

____8. Can be somewhat careless

____9. Is relaxed, handles stress well

____10. Is curious about many different things

____11. Is full of energy

____12. Starts quarrels with others

____13. Is a reliable worker

____14. Can be tense

____15. Is ingenious, a deep thinker

____16. Generates a lot of enthusiasm

____17. Has a forgiving nature

____18. Tends to be disorganized

____19. Worries a lot

____23. Tends to be lazy

____24. Is emotionally stable, not easily upset

____25. Is inventive

____26. Has an assertive personality

____27. Can be cold and aloof

____28. Perseveres until the task is finished

____29. Can be moody

____30. Values artistic, aesthetic experiences

____31. Is sometimes shy, inhibited

____32. Is considerate and kind to almost everyone

____33. Does things efficiently

____34. Remains calm in tense situations

____35. Prefers work that is routine

____36. Is outgoing, sociable

____37. Is sometimes rude to others

____38. Makes plans and follows through with them

____39. Gets nervous easily

____40. Likes to reflect, play with ideas

____41. Has few artistic interests

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____20. Has an active imagination

____21. Tends to be quiet

____22. Is generally trusting

____42. Likes to cooperate with others

____43. Is easily distracted

____44. Is sophisticated in art, music, or
    literature

Scoring:

BFI scale scoring ("R" denotes reverse-scored items):

Extraversion: 1, 6R, 11, 16, 21R, 26, 31R, 36
Agreeableness: 2R, 7, 12R, 17, 22, 27R, 32, 37R, 42
Conscientiousness: 3, 8R, 13, 18R, 23R, 28, 33, 38, 43R
Neuroticism: 4, 9R, 14, 19, 24R, 29, 34R, 39
Openness: 5, 10, 15, 20, 25, 30, 35R, 40, 41R, 44

Appendix L

Perceived Stress Scale-10

Perceived Stress Scale

The questions in this scale ask you about your feelings and thoughts **during the last month**. In each case, you will be asked to indicate by circling *how often* you felt or thought a certain way.

Name _____ Date _____

Age _____ Gender (*Circle*): **M   F**   Other _____

0 = Never   1 = Almost Never   2 = Sometimes   3 = Fairly Often   4 = Very Often

1. In the last month, how often have you been upset because of something that happened unexpectedly?.................................. 0   1   2   3   4

2. In the last month, how often have you felt that you were unable to control the important things in your life?................................... 0   1   2   3   4

3. In the last month, how often have you felt nervous and "stressed"?............ 0   1   2   3   4

4. In the last month, how often have you felt confident about your ability to handle your personal problems? 0   1   2   3   4

5. In the last month, how often have you felt that things were going your way?... 0   1   2   3   4

6. In the last month, how often have you found that you could not cope with all the things that you had to do? 0   1   2   3   4

7. In the last month, how often have you been able to control irritations in your life?... 0   1   2   3   4

8. In the last month, how often have you felt that you were on top of things?.. 0   1   2   3   4

9. In the last month, how often have you been angered because of things that were outside of your control?.................................... 0   1   2   3   4

10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them? 0   1   2   3   4
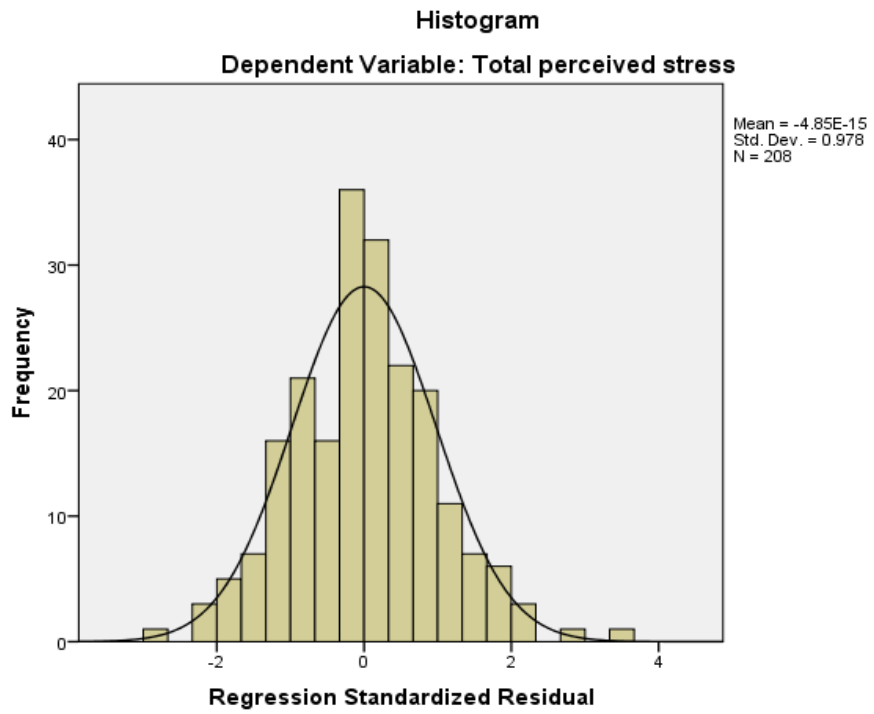
Table I1. *Skewness, Kurtosis and Kolmogorov-Smirnov Statistics for each Continuous Variable*

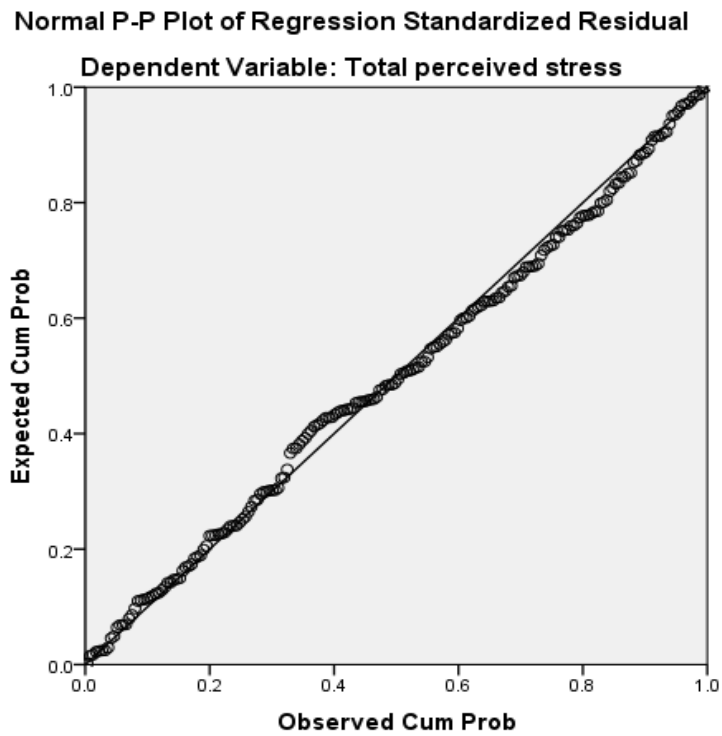|	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis	Kolmogorov-Smirnov Statistic
Age	1.60	.16	3.76	.32	.15*
Neuroticism	-.04	.16	-.29	.32	.06*
Self-compassion	.06	.16	-.63	.32	.07*
SOC	-.17	.16	-.29	.33	.05
Adaptive Coping	-.26	.16	-.42	.33	.07*
Maladaptive Coping	.85	.16	.95	.32	.11*
Perceived stress	.31	.16	-.39	.32	.09*

Note. *K-S Test is significant (*p* < .05), indicating that the assumption of normality is violated.
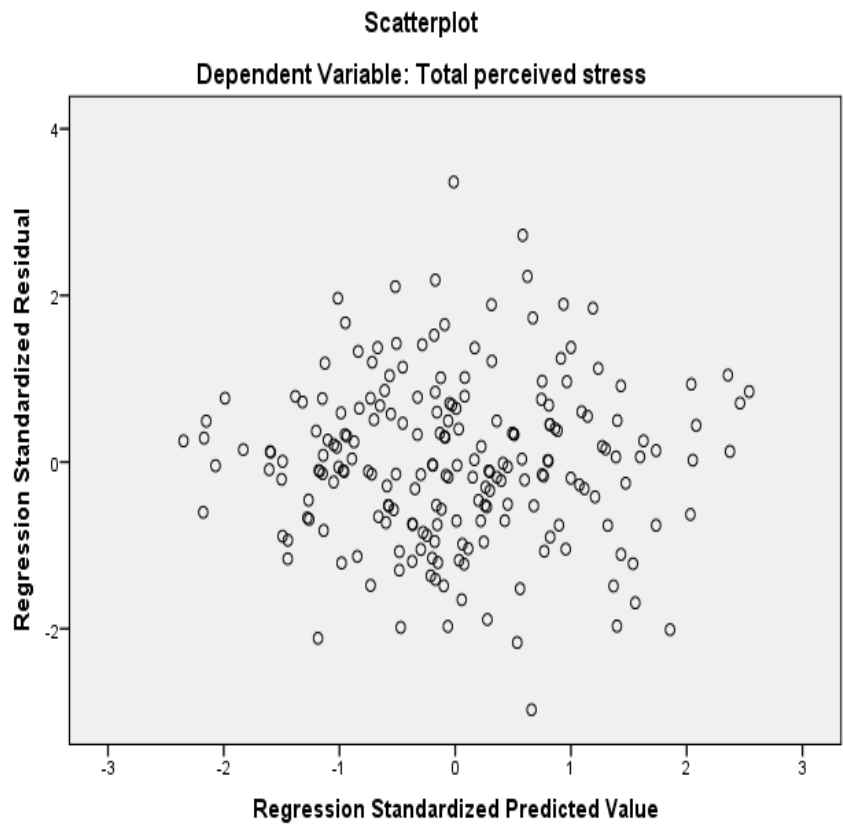
Appendix N - Statistical assumptions

Histogram of standardised residuals

Histogram
Dependent Variable: Total perceived stress

Mean = -4.85E-15
Std. Dev. = 0.978
N = 208

P-P Plot of standardised residuals

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: Total perceived stress

*ZRESID Vs *ZPRED Scatterplot

*SRESID Vs *ZPRED Scatterplot