Social Rank and Psychological Distress: Understanding the Protective Role of Compassion

being a thesis submitted in partial fulfilment of the

requirements for the degree of

Doctor of Clinical Psychology

in the University of Hull

by

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May 2024

Acknowledgements

Firstly, I would like to thank my research supervisors Philip and Tim for your guidance and grounding presence throughout the process. At times when I felt my least compassionate, you offered encouragement and reassurance. I would also like to thank you for entertaining my conversations about UK reality TV when I needed them the most.

I am grateful to my family and friends for their continuous support and inspiration that has brought me to where I am today. Thank you to my mum and Reece, my dad and Abby, without your love and belief in me I could not have achieved what I have. To my siblings, Lili, Max and Savannah, your humour and care behind the sarcasm have kept me smiling at times when I did not feel like it. To Jacob, I thank you for your kindness, patience and great cooking throughout the highs and lows of the doctorate. I may have been stressed but at least I was well fed.

Thank you to all my placement supervisors. Specifically, Emma and Nuala, thank you for the knowledge you have shared and helping me slow down during the uncertainty of final year, I appreciate you greatly.

To my peers and especially my housemate/ fellow trainee, Rachel, we made it! The experiences of the last 3-years would never have happened without each and every one of you. You have all helped shape the person I am leaving this course.

Thank you to everyone who took part in the research. Without you, my research would not have been possible… or at least it would have been underpowered (statistics joke).

Finally, as I have spent the last two weeks before hand in listening to back-to-back Gilmore Girls, it only feels right to end on a quote from the show.

"We're almost there and nowhere near it, all that matters is that we're going."

- Lorelai Gilmore, Season 2, Episode 3.

Overview

This thesis portfolio comprises three parts:

Part One: Systematic Literature Review

Part One is a systematic review of the literature regarding social rank changes following compassion-based interventions. This review contributes to the evidence supporting the potential mental health benefits of compassion-based interventions, specifically in helping reduce external shame. Limited evidence was found to support the use of compassion-based interventions in addressing unfavorable social comparisons and submissive behaviour.

Part Two: Empirical Paper

The relationship between social rank and psychological distress are explored in the empirical investigation presented in Part Two. The empirical study focuses on how components of social rank influence low mood, stress and anxiety. Specifically, the study then considers whether compassion from others and self-compassion weaken the relationships between social rank and psychological distress. The research used a quantitative, survey methodology and cross-sectional design.

Part Three: The Appendices

This includes the reflective and epistemological statements.

Total word count (excluding appendices): 18,483.

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Part One:

A systematic review and meta-analysis of the social rank related outcomes of compassion-based interventions

Tia Cheung-Cook, Dr Philip Molyneux and Dr Tim Alexander

This paper is written in the format ready for submission to the Journal of Psychology and Psychotherapy: Theory, Research and Practice. Please see Appendix C for the Guidelines for Authors.

The word count (excluding the title page, abstract, references, figures, tables, and references):

5,983

Abstract

Purpose: Social rank has been conceptualised as having three core elements: social comparisons, submissive behaviour and experiencing of external shame. These core elements have been associated with greater mental health difficulty. It has been proposed that compassion may be beneficial in addressing such social rank related distress. The current review aims to explore how social rank changes following the cultivation of compassion.

Methods: 22 studies were identified through a systematic search of the literature as measuring a social rank variable(s) during a compassion-based intervention. A meta-analysis focused on the effect of compassion-based interventions on external shame was completed. For social comparison and submissive behaviour, a narrative synthesis of available data was completed.

Results: Significant between group differences in external shame were found with a large effect size in favour of the intervention group compared to waitlist controls (d=-0.83). Preliminary evidence for the improvement of submissive behaviour following compassion-based interventions was found though there was limited evidence of changes in social comparison.

Conclusions: The research on compassion-based interventions and social rank were limited by potential risk of bias and dominance of one compassionate therapeutic approach. However, there was evidence of improvement in external shame from compassion-based interventions. Further research on the potential benefit to submissive behaviour and social comparison is required.

Keywords

compassion; social rank; intervention; review

Introduction

Compassion

The definition of compassion remains varied across the scientific community. The conceptualisation of compassion has a long history, rooted within philosophy and religions such as Buddhism (Gilbert, 2005). Importantly, research has recognised the influence of culture on how compassion is experienced and understood (Kariyawasam et al., 2023; Koopmann-Holm & Tsai, 2017).

In this literature, compassion has been argued to be an extension of pre-existing emotions such as love and empathy, a distinct affective state (Goetz et al., 2010) as well as a motivation for social relationships. Gu and colleagues (2017) found that across the definitions of compassion, there were five common components:

- Recognising suffering
- Understanding the universality of suffering
- Emotional resonance
- Tolerating uncomfortable feelings
- Motivation to alleviate suffering.

Compassion has been found to have positive effects on people's relationships, psychological distress, and wellbeing (Garcia et al., 2023; et al., 2021). Thus, the cultivation of compassion has become a core focus for psychological interventions and of interest within the clinical research community.

Compassion-based interventions.

Kirby (2016) identified six empirically supported, compassion-based interventions (Table 1).

Table 1

A Brief Description of the Six Compassion-based Interventions Identified by Kirby (2016)

Therapy	Brief overview
Cognitively Based Compassion Training (Centre for Contemplative Science and Compassion-Based Ethics, 2023)	Draws upon Tibetan Buddhist tradition of lojong and cognitive theory Originally developed for university students
Compassion Cultivation Training	Based on Indo-Tibetan Buddhist contemplative practices Originally designed for community-dwelling adults but has been applied to clients with physical health conditions and different occupational groups (Goldin & Jazaieri, 2017)
Compassion Focused Therapy (CFT) and Compassionate Mind Training (CMT; Gilbert & Simos, 2022)	An integrated approach drawing upon Buddhist Psychology, Attachment Theory, Evolutionary Psychology and Neuroscience Developed for clinical populations with high shame and self-criticism
Cultivating Emotional Balance (Goleman, 2002)	Educational training based on collaboration between the Dalai Lama and emotion-focused researchers addressing 'destructive emotions'

	Draws on meditative and contemplative practices, and regulation strategies from western science Originally designed for non-clinical populations
Compassionate and Loving-Kindness Meditation (Hofmann et al., 2011)	Derived from Buddhist and Eastern traditions (such as Theravadin and Chinese Zen) Meditation exercises based on the alleviation of suffering and upon kind concern for wellbeing of all living beings
Mindful Self-Compassion (MSC; Germer & Neff, 2019)	Draws upon Buddhist Psychology and aims to focus on learning mindfulness and self-compassionate practices Intended for both the general public and some clinical populations

Compassion-based interventions have been used to address a number of difficulties such as those relating to mood, body related shame, schizophrenia spectrum disorder and for those with long term health conditions (Austin et al., 2019; Carter et al., 2023; Ferrari et al., 2019; Mavituna et al., 2023). Evidence from randomised control trials (RCT) demonstrated the effectiveness of compassion-based interventions in increasing compassion, mindfulness, and wellbeing; whilst reducing depression, anxiety and psychological distress (Kirby et al., 2017).

Social rank

Social rank is understood as the self-evaluation of one's social desirability and is associated with three core psychological processes; engagement in social comparisons, a tendency to behave submissively and the experience of external shame (Gilbert & Procter, 2006). Social comparisons involve the processing of social information, leading to an evaluation of the self as inferior or superior to other(s). Moreover, external shame relates to the distress arising from the belief that other people hold negative perceptions of the individual, which is more likely to occur when one views themselves as inferior. Submissive behaviour is another response to low social rank evaluation, described by evolutionary approaches to be a form of social defence against threat from higher ranking others (Gilbert & Simos, 2022). Social rank judgements influence the way individuals relate to others, shaping cognitive, emotional and behavioural responses.

Social Rank Theory explains that mood and social rank are linked with negative effects when individuals consistently perceive themselves as low social rank. Higher levels of engagement with social comparisons were found in individuals with anxiety compared to control participants, and more negative self-evaluations were associated with depression and anxiety (McCarthy & Morina, 2020). External shame has been found to be positively associated with self-harm, depression and anxiety (Callow et al., 2021; Sheehy et al., 2019). Furthermore, submissive behaviour is positively correlated with social comparisons and external shame. For example, higher levels of submissive behaviour have been reported in samples of people with depression and eating disorders (O'Connor et al., 2002; Troop et al., 2003). Additionally, Pinto-Gouveia and colleagues (2014) found that shame related traumatic memories influence external shame and submissive responses, which increases experiences of paranoia. Wetherall and colleagues (2019) have suggested that social rank may act as the mechanism between social factors and mental

health. Therefore, the literature base has identified social rank variables as key factors in understanding a range of mental health difficulties.

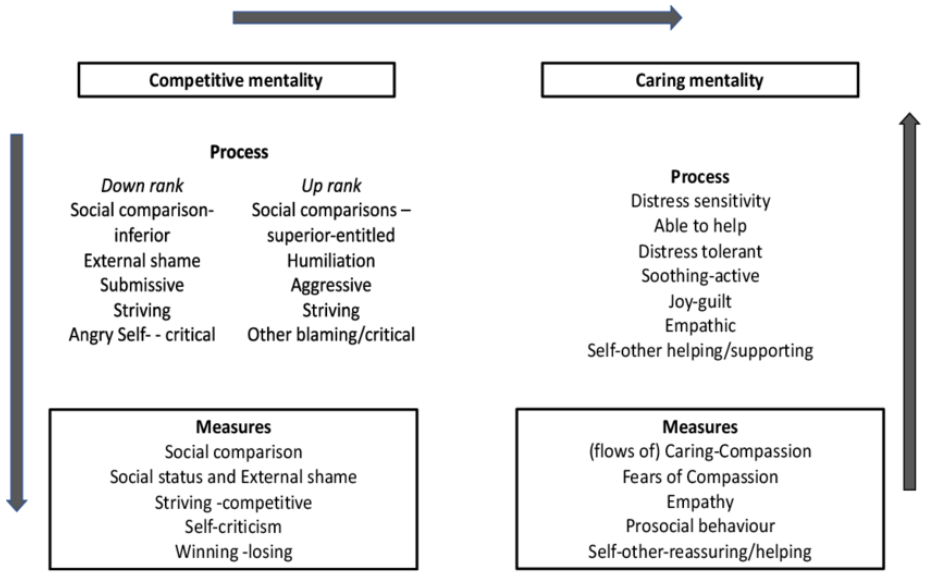
Gilbert elaborates upon this from a CFT perspective, suggesting that social rank-based processing is associated with a competitive "social mentality" focusing on relational hierarchies. Social mentalities refer to different approaches to forming reciprocal relationships, with each mentality fuelled by an evolutionary based motive (sexual, competition, caring for, seeking care and co-operation; Gilbert, 2014). Each social mentality organises a person's thinking, attention, behaviours, emotions, and physiological processes. Through the lens of the competitive mentality, the survival-based need is seeking achievement with other people either being viewed as superior or inferior to the self (Gilbert, 2010). Thus, social rank-based processing is particularly present when the competitive mentality is activated.

Social mentalities can overlap and at times multiple may be activated at once. Switching between mentalities allows for adjustment to differing social demands and environments. Concerns can occur when individuals become inflexible between switching between the mentalities or when specific mentalities are inaccessible. Distress may then arise as a conflict between the environmental demand and an individual's own needs or motives. Individuals experiencing social rank related difficulties are theorised to be persistently approaching relationships with others from a competitive social mentality. Gilbert and Simos (2022) proposed that compassion-based interventions may facilitate transition from a competitive to a caring based mentality (see Figure 1). The skills and qualities developed through compassion training align with the processes of the caring mentality such as distress sensitivity and desire to support. Given the

rationale and the reported benefits of compassion-based interventions, they may offer a viable option of support to individuals with social rank related difficulties.

Figure 1

The Transition from Competitive to Caring Mentality and the Associated Processes (Gilbert, 2019)



The current review

To the authors' knowledge, there has not been a review that has explicitly investigated how social rank changes during compassion-based interventions. The aim of the review was to address the identified gap through investigating how social rank changes during compassion-based interventions. Thus, the research question was:

'Does social rank change through compassion-based interventions?'

Method

Search strategy

The study was registered on PROSPERO (Ref.: CRD42024496479). The search was completed in February 2024 and sourced from the following databases: Academic Search Ultimate, APA PsycArticles, APA PsycInfo, CINAHL ultimate, MEDLINE. The search terms were as follows: ("intervention*” OR "training" OR "program*" OR "therapy" OR "therapies") AND ("compassion*"). The search terms of interest were limited to the title and abstract fields of searches. Limiters were used to find research available in English and that had been peer reviewed. Whilst excluding grey literature can lead to bias if the published data is not representative of all data in the area, the review did not search grey literature so that only studies of high methodological quality could be prioritised.

Studies were first screened based upon the title and abstract. The full text of studies was then read to confirm whether they met the inclusion criteria (Table 2 and 3). Studies were not excluded based on intervention length, delivery or type of compassion-based intervention. The reference lists of eligible studies were then searched to identify any additional research to be included.

The searches found 2,414 results, from which 1,306 duplicates were removed. From the remaining studies a further 992 were excluded following the initial screening. A total of 22 studies were identified as meeting the inclusion criteria for the review. Reasons for studies were deemed not eligible were inappropriate study design, not a compassion-based intervention, the full paper not available in English and the study not including a quantitative measure of social rank.

Table 2

The Inclusion Criteria for the Review

Inclusion	Rationale
A primary piece of research and empirical study, published in a peer reviewed journal	To identify research of a high methodological quality
Research includes a compassion-based intervention An intervention was considered compassion-based, if it's primary aim was to purposively cultivate compassion (Kariyawasam et al., 2022).	The interest of the current review was on compassion-based interventions. It is acknowledged that other interventions may lead to increases in compassion but would not be compassion based.
Research that reports a quantitative measure(s) of social rank; before and after intervention Measures of social rank were considered inappropriate if they were circumstantially or situationally specific e.g., relating to mothering role.	Quantitative research is particularly useful in answering the review question as it tests effects and associations, in this case changes in social rank. The review was focused on general sense of social rank due to the dynamic nature of social rank and acknowledgement that there will be natural variations in one's social rank depending on the situation.

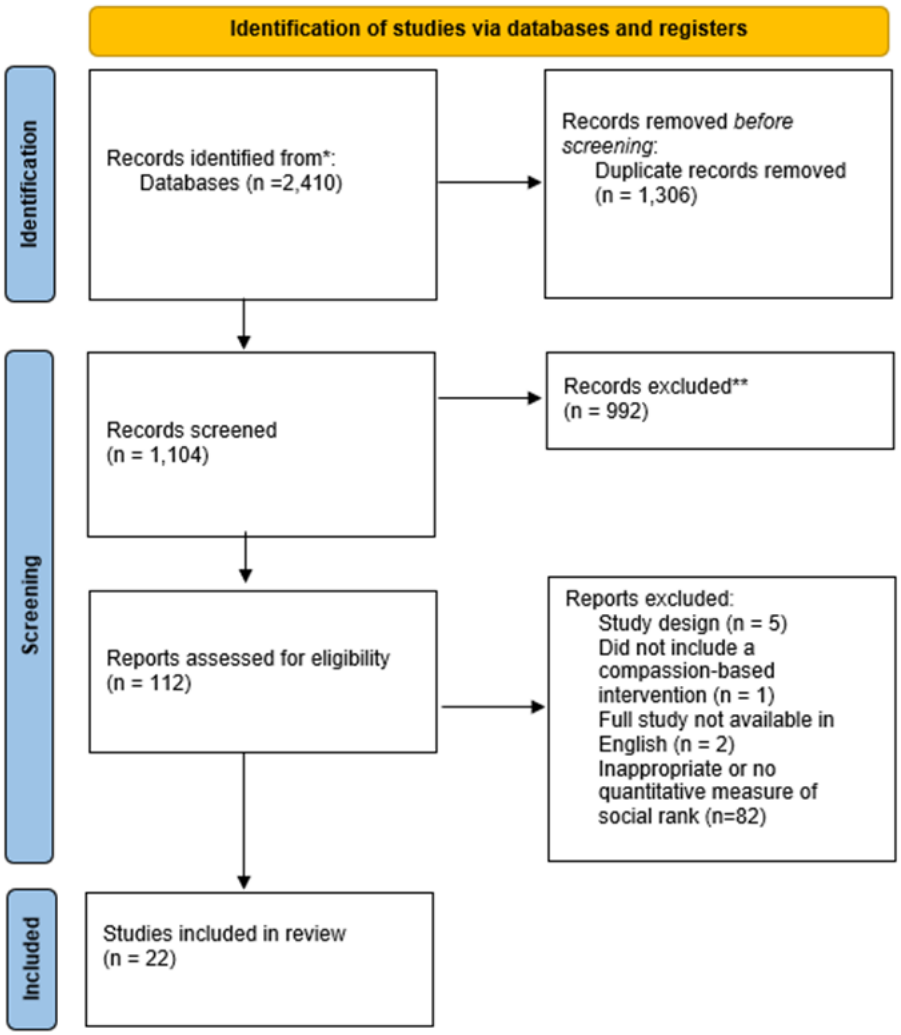
Table 3

The Exclusion Criteria for the Review

Exclusion	Rationale
Research that includes children or adolescent sample of participants (<18 years)	During childhood and adolescence there are key identity and relational development stages. Thus, data from young people were excluded due to this development potentially influencing sense of social rank.
Research is not published in English	No budget for translation
Research that uses a case study or a non-comparative study design	Studies were considered to have inappropriate study designs when they did not collect social rank data on more than one occasion e.g., cross sectional studies. Case studies were excluded due to limited generalisability.

Figure 2

PRISMA Diagram Showing the Article Selection Process of Eligible Studies (Page et al., 2021)



Quality appraisal

The quality of eligible studies was critiqued using the National Institute of Health and Care Excellence (NICE) Quality Appraisal Checklist for quantitative intervention studies (2012). The studies were assessed for quality and potential bias across four areas: population, method of allocation to intervention, outcomes and analysis. The outcome of the checklist was an overall quality grading for external and internal validity (EV, IV; Table 4). The quality assessment for studies was completed by the primary researcher. A colleague independent to the research team

completed quality appraisals for a random sample of five of the eligible studies to allow for a check of consistency between appraisers. There was an interrater reliability score of 80%; disagreements between assessors were reviewed and discussed until a resolution was achieved. Due to the limited number of studies reporting data on social rank variables, studies were not excluded on the basis of poor quality.

Table 4

NICE Quality Appraisal Checklist for Quantitative Intervention Studies Grading System

Quality grade	Interpretation
++	All or most of the checklist criteria have been fulfilled, where they have not been fulfilled the conclusions are very unlikely to alter.
+	Some of the checklist criteria have been fulfilled, where they have not been fulfilled, or not adequately described, the conclusions are unlikely to alter.
-	Few or no checklist criteria have been fulfilled and the conclusions are likely or very likely to alter.

Data extraction

Data were extracted from the eligible studies by the primary researcher. Extracted data related to the study's country, population (clinical or non-clinical, number of participants, demographic details), inclusion or exclusion criteria, design and analysis, outcome measures and key findings relating to social rank variables.

Data analysis and synthesis

The data synthesis was organised within the different variables of social rank, external shame, social comparison and submissive behaviour. Studies were discussed in groupings based on study design with findings with less risk of bias prioritised for discussion.

Meta-analysis

Meta-analysis is a useful approach to synthesising quantitative data which helps assess conflicting findings and provides greater precision than the individual studies (Deeks et al., 2023). Where appropriate a meta-analysis approach was taken to the review data to aggregate a total effect size of change in social rank following engagement in compassion-based interventions. The IBM SPSS (Version 29) was used to complete meta-analyses comparing the mean post- intervention scores between participants who received a compassion-based intervention to individuals in a control condition. A random effects model of meta-analysis was planned due to the assumption that there can be variations in observed effects reflecting differences amongst study designs as opposed to relating to random error (Riley et al., 2011). This was appropriate due to the expected variation in studies relating to the range of available compassion-based interventions and broad application of compassion-based interventions with different populations.

There were a limited number of controlled studies meeting the eligibility criteria and those included had a high level of study heterogeneity, meaning it was inappropriate to complete meta-analyses for all three variables (Deeks et al., 2023). It is recommended that non-randomised or non-controlled studies not be synthesised using meta-analysis because of the risk of bias in participant allocation and influence of confounding variables (Reeves et al., 2023). Hence, a mixed synthesis approach was taken. Six randomised controlled trials (RCTs) were identified that measured external shame, thus, a meta-analysis was conducted. The remaining studies on external shame were included in a narrative synthesis.

Narrative synthesis

Whilst there were two RCTs that measured social comparison, due to the variation in sample population and intervention it was inappropriate to complete a meta-analysis. Additionally, only one RCT used a measure of submissive behaviour; thus, it was not possible to complete a meta-analysis.

The use of a standardised metric was considered for data synthesis (McKenzie & Brennan, 2024). However, many of the eligible studies had a non-controlled design so a standardised metric relating to the effect of the intervention may have been misleading, due to lack of clarity on the true value of the intervention effect.

A narrative synthesis is an alternative approach that can be used when meta-analysis is not feasible because it allows for heterogenous research to be integrated and the use of the best available evidence (Thomson & Campbell, 2020). The four stages of narrative synthesis outlined in Popay and colleagues' (2006) guidance was followed. See Table 5 for the different stages and how they were completed in the current review.

Table 5

The Stages of the Current Review's Narrative Synthesis

Stages of narrative synthesis	Strategy for the current review's synthesis
1) Developing a theoretical model	Evidence from previous reviews on compassion-based interventions had shown the potential benefits of such interventions. Social Rank Theory and Social Mentality Theory provided a theoretical understanding for review question.
2) Developing preliminary synthesis (direction and size of effects)	Initially, tabulation of included studies was completed to present information from the data extraction stage. Textual descriptive summaries of each study were then completed with studies being group based on their social rank variable, methodology and population type (clinical vs non-clinical). Within each social rank variable, vote counting was completed to understand the number of studies identifying a change or no change in social rank.
3) Exploring relationships in the data	Subgroup analyses were then completed to identify moderating factors that contribute to understanding the similarities and differences amongst grouped studies.
4) Assessing the robustness of the synthesis	The robustness of the synthesis explored in the discussion of the literature review, where strengths and limitations of the synthesis were considered.

Results

Study characteristics

Eighteen studies measured external shame, ten included a measure of social comparison and four measured submissive behaviour. All three variables were measured using self-report measures. There were a limited number of controlled studies across the three variables. In total there were seven RCTs, a randomised controlled feasibility study, two non-randomised controlled trials, 12 before and after designed studies (see Table 6).

Eligible research for the review covered a number of different target populations. Nine of retrieved studies included non-clinical participants such as members of the general public or undergraduate students. Thirteen studies were with clinical populations. Most studies were based in the UK (*n* = 8) and Australia (*n* = 6), with the remaining based across Portugal (*n* = 3), China (*n* =1), Ireland (*n* = 1), India (*n* = 1), Iran (*n* = 1) and the United States of America (*n* = 1).

The compassion-based interventions used varied in terms of approach and delivery. Aside from interventions that were self-directed, the majority of interventions were delivered by clinical psychologists or other psychological professionals. The most common therapeutic approach in the research was CFT or CMT (*n* = 14), which was delivered in both group and individual settings ranging from one to 25 sessions of delivery (mode = 12 sessions). Four of the studies involved practice of a specific compassion-based exercise; three of which were compassionate letter writing which were predominantly self-directed occurring across 14 to 16 days. The final compassion-based exercise was the practice of compassionate imagery delivered in four weekly 1-1 sessions. Other intervention approaches included MSC (*n* = 1) or integrated approach therapy groups (*n* = 3) ranging from eight to 20 sessions. The interventions were commonly based in community settings, with one study using an intervention based in a hospital, high security setting.

Table 6

The Characteristics of Eligible Studies

Author(s) and date of publication	**Design** (design, data collection points)	**Quality assessment – risk of bias**	**Population** (clinical or non-clinical, sample size)	**Intervention** (intervention type(s), structure, facilitator)	**Social rank variable(s) and key findings.**
Randomised control trials (RCT)					
Carter et al., 2023	RCT Pre-, post-, 3- and 6-month follow up (follow up only for intervention group)	IV (++) EV (++)	Non-clinical; adults with obesity (n=55) Female (51), male (4); mean age = 45.91 (SD=12.19, range = 19-70) Researchers recorded that participants identified their ethnicity as Australian (51) or other (4)	**Intervention:** CFT group intervention. 12 sessions (2 hours), weekly Facilitator unclear **Control:** waitlist	*External shame.* A significant interaction on OAS scores ($F(1,53) = 12.78$, $p = .001$, $\eta^2 = .194$) Significant within subjects ($F(1,53) = 12.78$, $p = .001$, $\eta^2 = .195$) and between subjects main effects 2.78, $p = .001$, $\eta^2 = .195$, and between-subjects ($F(1,53) = 21.78$, $p < .001$, $\eta^2 = .291$). Intervention effect (d=-0.82, CI [32.59, 38.58])

Non-significant effect of time

Social Comparison
No significant interaction found on SocCS scores

Submissive behaviour
A significant interaction on submissiveness ($F(1,53) = 17.41$, $p < .001$, $\eta^2 = .247$)

Significant within-subjects ($F(1,53) = 17.41$, $p < .001$, $\eta^2 = .247$) and between subjects ($F(1,53) = 14.27$, $p < .001$, $\eta^2 = .212$) main effects were found

Significant effect for submissiveness across time ($F = 4.04$, $p = .023$, $d = 0.52$, CI [22.75, 27.82])

A significant increase between post- and 6-month follow up $F(1, 27) = 6.943$, $p = .014$, $\eta^2 = .205$) but not at 3-months

Gu et al., 2022	RCT Pre-, post-, 2-week follow up	IV (++) EV (+)	Non-clinical; Chinese international students based in South Korea, experiencing high self-criticism CFT group n = 10, control group (Rational emotive behavior therapy; REBT) n = 10, control group (waitlist) n = 12 Female (28), male (4); mean age = 22.50 (SD= 2.41) No data on ethnicity reported	**Intervention:** online, individual CFT Four sessions (2 hours), weekly Delivered by clinical psychologist **REBT control group:** four 2-hour lectures weekly, composed of sample cases and case analysis **Waitlist control group**	*External shame* Significant decrease in OAS scores baseline to post ($p<.01$) and at follow up ($p<.05$) Significant group x time interaction; compared to the waitlist group $F_{(2, 40)} = 7.931$, $p= .004$ $\eta^2p = 0.284$ ($d=1.26$); and compared to REBT group $F_{(2, 32)} = 3.562$ $p= .040$ $\eta^2p = 0.182$ ($d=0.95$)
Kelly and Waring, 2018	Randomised, controlled feasibility study Pre- and post-	IV (+) EV (-)	Clinical; nontreatment seeking females meeting the DSM-V criteria for Anorexia Nervosa (AN) All female; mean age= 21.6 (SD=3.97; range 18-39); 48.4% Asian, 44.1% Caucasian, and 7.5% other ethnicities Compassion group n = 20, Control group n = 20	**Intervention:** Internet based compassionate letter writing intervention Self-directed using audio guide for 2 weeks **Control group:** waitlist	*External shame* No effect of time on OAS scores A significant time x group interaction ($F_{(74)}= 8.67$, $p<.01$, $r=.32$, [CI 95%, 0.01-0.57])

Kirby et al., 2023	RCT Pre-, post- (2 weeks) and 3-month follow up (intervention group only)	IV (+) EV (-)	Non-clinical; self-critical parents Female (n=87), male (n=15); mean age = 38.31 (SD=5.10); ethnicity not reported CFT group n = 48 Control group n=52	**Intervention:** CFT, one psychoeducational session (2hours long) Home resources received Delivered in person by a clinical sychologist **Control:** waitlist	*External shame* No significant effect of intervention found post- or at follow up
Matos et al., 2017	Pilot RCT Pre- and post- (2 weeks)	IV (+) EV (-)	Non-clinical; individuals from the general public. Women (90.3%, 84), men (9.7%, 9); mean age = 23.34 (SD = 4.16, range = 18-43). Ethnicity not reported. CMT group n = 56 Control group n = 37.	**Intervention group:** CMT single, group introductory session. Self-directed resources given to practice for 2 weeks. **Control group:** waitlist.	*External shame.* No significant effect of time on OAS scores. A significant time x group interaction. (time x group effect; $F_{(1,91)} = 8.27$, $p = .005$, $\eta^2p = .08$).
Sajjadi et al., 2022	RCT Pre-, post- and 2-month follow up	IV (+) EV (-)	Non-clinical; young adults who experienced childhood maltreatment. MSC group n = 24, control group = 23 Females (26), males (21); age range for sample	**Intervention:** MSC group. 8 sessions (2 hours), across 10 weeks Delivered by the research team, professional backgrounds not reported	*External shame* A significant reduction in baseline to post OAS scores in MSC group ($M_{i-j}=9.23$, SE= 1.77, $p<.001$), not found at follow up

			unknown but is between source population aged 18-25 No data on ethnicity reported	**Control group:** waitlist	A significant group x time interaction (d = .51)
Stevenson et al., 2019	RCT Pre-, post-, 1- and 5-week follow ups	IV (+) EV (-)	Non-clinical; undergraduate students with social anxiety Compassion group n = 58, control group n = 58. Female (76.5%, 15), male (23.5%, 13); mean age = 29.04 (SD= 11.65; range = 18-71), participants identified as White (69.7%), Asian (21.8%), different ethnicities (8.5%)	**Intervention group**: self-compassionate letter writing Self-directed exercises daily (5-15 minutes) for two weeks **Control group:** cognitive restructuring, thought challenging writing exercise Self-directed exercises daily (5-15 minutes) for two weeks.	*Social comparison* Significant main effect of time on SocCS scores ($F(4, 101) = 14.05$, $p < .001$) No significant group, or group x time interaction
Swee et al., 2023	RCT Pre-, mid-, post- and 1-month follow up	IV (-) EV (-)	Non-clinical; undergraduate students with high shame Compassion group n=29, control group n= 39	**Intervention:** self-compassionate letter writing intervention 16-day intervention; two pre-recorded video	*External shame* Significant reduction in OAS scores baseline to post-, ($t(19)=2.46$, $p=0.02$), not maintained at follow up

			Compassion group: Female (15, 86.2%), male (3,) gender minority (1, 3.4%). Age mean = 20.29 (SD= 2.26) Racial identity; Black (6.9%, 2), Asian (17.2%, 5), White (58.6%, 17), other (10.3%, 3), not reported (6.9%, 2) Control group: Female (30, 76.9%), male (6,) gender minority (3, 7.7%). Age mean = 20.59 (SD= 3.62) Racial identity; Black (15.4%, 6), Asian (17.9%, 7), White (59%, 23), other (7.7%, 3)	sessions followed by self-directed practice for the remainder **Control:** waitlist	Significant group x time interaction; γ_{01}=-2.54 (1.22), t(45.58)=2.08, p=0.04
Non-randomised control trials (non-RCTs)					
Cuppage et al., 2018	Non-RCT Pre-, post- and 2-month follow up (only for	IV (-) DV (++)	Clinical; transdiagnostic. CFT group n = 58, control group n=29 CFT group	**Intervention:** CFT group, 14 sessions (3 hours)	*External shame.* A significant decrease in baseline to post OAS scores in the CFT group (p<.001). No significant

	intervention group)		Female (69%), mean age = 41.98 (SD= 12.56) Male (31%), mean age = 44.08 (SD=11.59) Control group Female (66.7%), mean age = 42.17 (SD= 13.02) Male (33.3%), mean age = 47.22 (SD= 7.42) No data on ethnicity reported	Sessions occurred twice a week for 5 weeks, then once a week for 4 weeks Monthly, individual, follow up sessions offered afterwards Delivered by counselling and clinical psychologist **Control group:** treatment as usual (TAU) from non-for-profit mental health organisation	difference between groups for post- OAS scores No significant difference found between pre- to follow up for the CFT group
Pinto-Gouveia et al., 2017	Non-randomised control trial Pre-, post-, 3- and 6-months follow up (intervention only)	IV (-) EV (+)	Clinical; females with Binge Eating Disorder (BED) BEfree group n = 19, control group n = 17 All female, mean age = 42.72 (SD=9.94; for intervention condition) Data on ethnicity not reported	**BEfree group**: integrated approach drawn from CFT, Acceptance and Commitment-based Therapy, and mindfulness 12 group sessions (2 and a half hours) delivered by three clinical psychologists **Control group:** waitlist	*External shame.* No significant effect of time on OAS scores A significant time x group interaction (F= 9.19, P=.001, η^2 = .22) Differences maintained at both follow up points; significant decrease in pre-to 3-months follow up and pre- to 6 months follow up (p=.01, d=.87;

					p=.003, d= 1.16 respectively)
Before-and-after studies without controls					
Carter et al., 2020	Before-and-after design, feasibility study Pre-, post- and 3-month follow up	IV (+) EV (+)	Non-clinical; individuals with a BMI greater than 30 (n=5) Female (80%, 4), male (20%, 1); mean age = 30.6 (SD= 6.43) No data reported on ethnicity	CFT group. 12 sessions (2hours), twice a week Delivered by a clinical Psychologist	*External shame* Significant main effect across time ($F_{(2, 8)}$ = 11.81, p = .004, η2 = .75) Significant changes pre- to post- (d= 0.94, CI [1.98, 20.43]), pre- to follow up (d= 1.01, CI [4.49, 19.11]) *Social comparison* No significant main effect found
Forkert et al., 2022	Before-and-after design, feasibility study Pre-, post- and 1-month follow up	IV (-) EV (+)	Clinical; clients experiencing 'persecutory delusions' (n=12) Female (5), male (7); mean age = 42 (13.1); participants	Compassionate imagery intervention, four sessions (1hr each), twice for two weeks Delivered by trainee clinical psychologist	*Social comparison* Increase in SocCS (change score –324.92, CI [–528.65, –121.19] , d = –1.06), maintained at follow up (change score

			identified as White British (11) or Lebanese (1)		−340.44, CI [−538.16, –142.72], d −1.11)
Gilbert and Procter, 2008	Non-controlled before and after design, feasibility study Pre- and post-. 2-month follow up planned but not completed	IV (-) EV (+)	Clinical; clients with 'major/ severe long-term and complex mental health difficulties '(n=9) Women (5), men (4); mean age = 45.2 (SD= 5.54, range =39-51; based on the 6 clients who completed the intervention) No data on ethnicity reported	CMT group, 12 sessions (2 hours), weekly Facilitator not reported	*External shame* Decrease in OAS scores post intervention (T= 0, Z-score= −2.20, p value= 0.03) *Social comparison* Increase in SocCS scores (T=0, Z=−2.21, p= 0.03) *Submissive behaviour* Reduction in SBS scores (T=1, Z—2.00, p=0.0)
Gilbert et al., 2022	Non-controlled before and after design Pre-, post- (12 sessions), follow up, additional sessions offered and post-measurement (25 sessions)	IV (+) EV (-)	Clinical; people with diagnoses of Bipolar Affective Disorder (BAD; n=10) Women (6), men (4); age range 31-60 years old No data on ethnicity reported	CFT group; 12-25 sessions, majority delivered weekly by two clinical psychologists	*Social comparisons* Descriptive statistics only, increase observed in SocCS mean scores across all time points

Irons and Heriot-Maitland, 2021	Observational, before and after study Pre-, post and 3-month follow up	IV (+) EV (+)	Non-clinical; adults from the general public (n=55) Female (67%, 37), male (33%, 18); mean age= 42 (range= 26-78) No data on ethnicity reported	CMT (training not therapy) Eight sessions (2 and half hours), weekly Delivered by two clinical Psychologists	*Social comparison* Non-significant increase in SocCS scores (t= -2.36, p<.5, d=.32, CI [-10.56, -.86]) Comparison between post- to follow up revealed significant ongoing improvement (p<.05)
Judge et al., 2012	Observational before and after study Pre- and post-intervention	IV (-) EV (+)	Clinical; transdiagnostic clients interacting with Community Mental Health Teams (n=27) Women (16), men (11); mean age = 40.85 (range =22-56, SD=8.78) No data on ethnicity reported	CFT group, 12-14 weekly sessions (2 hours) Facilitator not stated	*External shame* Significant decrease baseline to post ($F_{(1,26)}$= 15.76, p=.001, ηp^2= .377) *Social Comparison.* Significant increase in SocCS baseline to post ($F_{(1,26)}$= 10.91, p=.003, ηp^2=.296) *Submissive behaviour.* Significant decrease in SBS ($F_{(1,26)}$= 18.10, p=.00, ηp^2=.410)

Laithwaite et al., 2009	Non-controlled before and after design Pre-, mid-, post- and 6-week follow up	IV (-) EV (-)	Clinical; individuals experiencing psychosis (n = 19) All male; mean age = 36.9 (SD = 9.09) Data on ethnicity not reported	Recovery After Psychosis programme: based on CMT 20 sessions, twice weekly. Delivered by a number of psychology professionals and an advanced practitioner, in a hospital setting	*External shame* Decrease in OAS scores in baseline to post (r= 0.04), small effect at follow up (Z = .801, n-ties = 11, p> .5, r = 0.15) *Social comparison.* Significant increase at post (Z = 1.96, n-ties = 11, p < .05, r = 0.3), maintained at follow up (Z = 2.148, n-ties = 10, p < .05, r = 0.36)
Lucre and Corten (2013)	Non-controlled, before and after Pre-, post- and 1 year follow up	IV (+) EV (-)	Clinical; clients meeting the ICD-10 criteria for personality disorder and experiencing self-report self-criticism Women (7), men (2)*; age range 18-54; all participants identified as White British *Disparity in the number of reported participants	CFT group. 16-week intervention, frequency and length of sessions not reported Delivered by cognitive behavioural therapist and a band four Group Facilitator	*External shame* Significant reduction in OAS post- intervention and continued to decrease at follow up (p=.011) *Social comparison* Significant improvement in SocCS scores, which were maintained at follow up (p=.02) *Submissive behaviour*

					Non-significant improvement in SBS scores (p=.303)
McLean et al., 2022	Preliminary study, before and after design Pre-, post- and 3-month follow up	IV (+) EV (+)	Clinical; adult females who have experienced childhood sexual abuse and are experiencing related difficulties (n = 36) All women Based on those who completed the intervention, the mean age = 41.07 (SD= 13.34, range = 18 – 65); participants identified as Caucasian (27), Indigenous (1), Filipino (1) and Salvadorian (1)	CFT-SA group; combined CFT and trauma-informed programme 12 sessions (2 hours), weekly sessions	*External shame* Significant effects found baseline to post , (F= 12.88, p=.001, d = 0.56), and maintained at follow up (F= 12.88, p=.001, d = 0.55)
Patel et al., 2022	Cross-sectional, before and after study Pre-, post- and 1-month follow up	IV (+) EV (-)	Clinical; males with diagnosed OCD (n = 5) All males; mean age = 31.20 (SD= 9.14) No ethnicity data recorded	CFT group 16 sessions (2 hours), twice weekly	*External shame* Significant reduction in OAS score across all time points (F = 24.18, p=.0001, effect size = .858)

Pinto-Gouveia et al., 2019	Non-controlled before and after design Pre-, post-, 3-month and 6-month follow ups	IV (-) EV (-)	Clinical; women with BED and a body mass index ≥ 25 (n = 31) All females; mean age = 39.68 (SD=10.29) No ethnicity data reported	BEfree group intervention (see Pinto-Gouveia et al., 2017)	*External shame* Significant decrease in OAS scores from baseline to post (T=3.80, p= .001, d = 0.69) Changes maintained at follow up, no significant difference between post- and follow up scores (p=.460) External shame found to mediate changes in binge eating pre- to post-intervention
Romaniuk et al., 2023	Non-controlled before and after design Pre-, post- and 3-month follow up	IV (-) EV (+)	Clinical; ex-personnel from the Australian Defence Force and their partners (n = 24, 12 participating couples) All ex-service personnel were male (12) with female partners (12); mean age = 59 (range 45 to 76); identified as Caucasian (95%, 19) or European (5%, 1)	CMT group. 12 sessions (2 hours), twice a week Delivered by to registered Psychologists	*External shame* A significant effect of time on OAS scores ($F_{(2, 32)} = 6.68$, $p = 0.004$, $\eta p^2 = 0.295$) A significant reduction from baseline to post, and maintained at follow up (p=.024, p=.04, respectively)

Note: Other as Shamer Scale (OAS; Goss et al., 1994), Rational Emotive Behaviour Therapy (REBT), Social Comparison Scale (SocCS; Allan & Gilbert,1995), Submissive Behaviour Scale (SBS; Allan & Gilbert, 1997)

Main findings of the review

External shame

The impact of compassion-based interventions on external shame was investigated in 18 of the eligible studies. External shame was self-reported by participants using the Other As Shamer scale, where higher scores indicate greater external shame (OAS; Goss et al., 1994). The scale has demonstrated good reliability (α = .96; Callow et al., 2021). A possible limitation of the OAS is the generalisation of 'others' which assumes that the level of external shame experienced is the same across all relationships to the person. The scale potentially lacks the nuance to measure external shame that relates to specific groups or areas of a person's life.

RCTs

Seven studies with randomised controlled designs were retrieved (Carter et al., 2023; Gu et al., 2022; Kelly & Waring, 2018; Kirby et al., 2023; Matos et al., 2017; Sajjadi et al., 2022; Swee et al., 2023). Kelly and Waring's (2018) randomised, controlled feasibility study was not included in the meta-analysis due to reporting only the mean point estimates and standard errors for OAS scores. The remaining RCTs included non-clinical samples; adults with BMI's greater than 30 (Carter et al., 2023), undergraduate students with high self-criticism (Gu et al., 2022) or high shame (Swee et al., 2023), self-critical parents (Kirby et al., 2023), individuals from the general public (Matos et al., 2017) and people who had experienced childhood maltreatment (Sajjadi et al., 2022). The compassion-based intervention for four of the studies were CFT based; one of which was a group intervention, one included 1-1 sessions and two were mixed with a group psychoeducation session followed by self-directed practice. The remaining two studies involved an MSC group and self-directed compassionate letter writing intervention.

The data from 354 participants were used in the meta-analysis. Of these, 178 people completed a compassion-based intervention and 176 were assigned to a control condition. Many of the studies only reported demographic data based upon individuals who were present at the beginning of the intervention and did not account for participant drop out, therefore, caution must be taken when interpreting the demographic data (Table 5). There was a wide range in the age of participants and average age of the intervention and control groups were the same. The sample was predominantly women in both the control and intervention group. Swee and colleagues (2023) was the only RCT to accurately report ethnicity and/ or racial identity of participants. Carter and colleagues (2023) presented data on 'ethnicity', however, upon further investigation categories of 'Australian' and 'other' reflect nationality better. This meant little could be concluded regarding the representation of ethnicity across the sample.

Table 7

Summary of Meta-analysis Participant Demographic Data.

Demographic	**Review information**
Age	**Total sample** Range = 18-70 years old **Compassion-based intervention group** Mean age = 31.83 years old **Control group** Mean age = 31.83 years old
Gender	**Compassion-based intervention group** 28% men, 78.98% women and 0.72% with an alternative gender identity

Control group

15.40% were men, 82.69% were women

and 1.92% an alternative gender identity

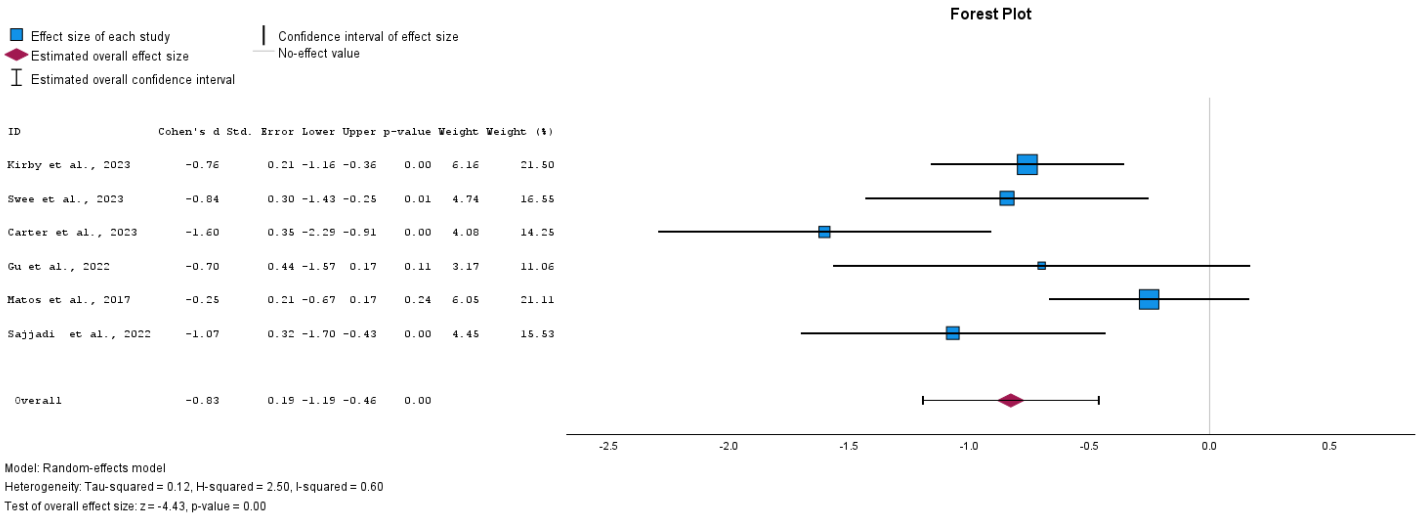
The control groups in all of the studies were in waitlist conditions. Gu and colleagues (2022) had an additional active control group undergoing a Rational Emotive Behaviour Therapy group, however, these data were not included in the meta-analysis.

The results of the meta-analysis indicated that the overall effect of compassion-based interventions led to a reduction in external shame across different populations of adults (Cohen's d from random effects model = -0.83, 95% CI [-1.19, -0.46], p =.00) (Figure 3). Similarly, Kelly and Waring (2018) reported a significant improvement in external shame, although this was of a medium effect (*r* = .32; p< .001). The difference in effect size may reflect the smaller sample size of Kelly and Waring's study.

A medium level of heterogeneity was found between the studies (I^2 = 6-%) which was statistically significant (p=.03) and expected considering the differing types of intervention and study populations. It is worth noting that two of the studies did not find statistically significant results. Additionally, four of the studies have wide observable confidence intervals suggesting that their results may be less precise which could weaken the summary of effect.

Figure 2

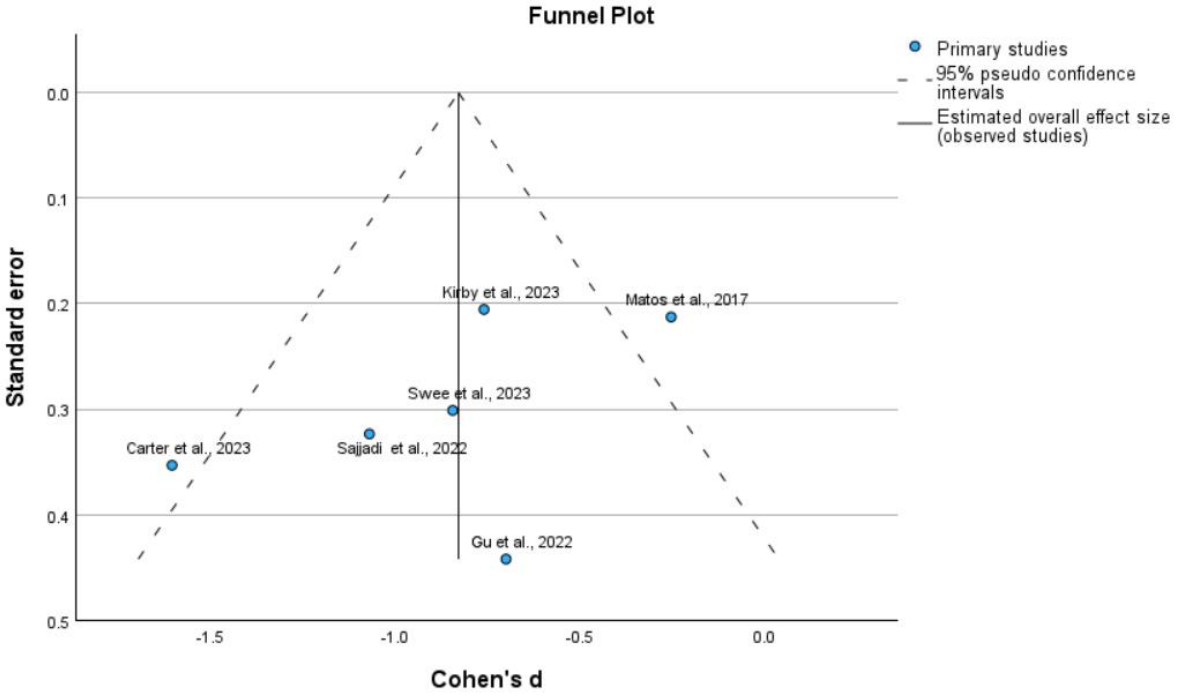
Summary of the Effect of Compassion-based Intervention on External Shame



An assessment of publication bias in Figure 3 shows relative symmetry in the meta-analysis and therefore a low risk of bias. However, the funnel plot also indicates a lack of precision in the included studies (see Figure 4).

Figure 3

Assessment of Publication Bias in RCTs Where External Shame was Measured



Non-RCTS

Two studies had control arms without randomised allocation (Cuppage et al., 2018; Pinto-Gouveia et al., 2016). The findings from the non-RCTs, showed mixed support for the outcome of the meta-analysis. There was limited evidence showing that external shame changes significantly following compassion-based interventions.

Cuppage and colleagues (2018) measured the efficacy of a CFT group in comparison to TAU from a non-for-profit, multi-disciplinary, mental health organisation for transdiagnostic clients. Whilst a significant decrease in external shame was found in recipients of group CFT ($p<.001$), there was no significant difference in the post interventions scores in comparison to the control group ($p=.13$). This was due to a non-significant decrease in external shame of the control group. The reduction in shame may be explained by the control group receiving TAU, which for some may have included psychoeducational groups and/or psychological therapy. The lack of control of possible influencing factors, such as exposure to other psychotherapies, is a limitation of the study.

Pinto-Gouveia and colleagues (2016) found that there were no changes in external shame for females with Binge Eating Disorder following an integrated CFT intervention ($p=.730$). The study did identify longer term changes with lower scores at 3 and 6 months follow ups of small to large effects ($p=.003$; $d= .47$; $d=1.16$ respectively). This may suggest participants may require time to process and consolidate the content of compassion-based interventions leading to later benefits which may not have been reflected in Cuppage and colleagues (2018) study due to no follow up data. The findings of the study may have been affected by an attrition bias in the sample with a 34.5% drop out rate and further participants completing follow up measures. Thus, the findings may not represent the changes in external shame experienced by all of the participants.

Before-and-after studies without controls

One before-and-after study (Carter et al., 2020) looked at a non-clinical population of people who were experiencing weight related shame. They found improvements in external shame for participants which were maintained 3 months post- intervention (p=.004; pre-post comparison, d=0.94; pre- follow up comparison, d=1.01). The study did rely on snowball sampling which may have limited the findings by potentially recruiting a homogenous sample.

The remaining eight before-and-after studies found significant reductions in external shame for a range of clinical populations (Gilbert & proctor, 2008; Judge et al., 2012; Laithwaite et al., 2009; Lucre & Corten, 2013l; McLean et al., 2022; Patel et al., 2022; Pinto-Gouveia et al., 2019; Romaniuk et al., 2023). A range of effect sizes were reported with one study finding a small effect (Laithwaite et al., 2009), two studies a medium effect (McLean et al.,2022; Pinto-Gouveia et al., 2019) and two studies found large effects (Judge et al., 2012; Romaniuk et al., 2023). Patel and colleagues (2022) found reduced external shame in males with OCD following group CFT however, did not state a unit of effect size making it difficult to meaningful interpret. All of the studies focused on different clinical populations, the range of effect size may reflect that compassion-based interventions are more acceptable in transdiagnostic populations (Judge et al., 2012) or ex-military personnel experiencing Posttraumatic Stress Disorder (Romaniuk et al., 2023). It may be that external shame is more relevant in the maintenance of difficulties in these populations too. Whilst all studies used some form of CFT or CMT (aside from Gilbert and Proctor, 2008), there were slight variations in the number of sessions, frequency and delivery that may explain the differences in effect sizes. These studies did not have control groups to manage the influence of bias or other influencing factors which makes it difficult to know the true effect of compassion-based interventions on external shame. Majority of the samples had risk of bias in their samples which may limit the generalisability to the wider population. This included having strict inclusion

criteria such as only recruiting people without comorbidities despite stating the high proportion of co-morbidities across people with Binge Eating Disorder (Pinto-Gouveia et al., 2019). Another example, was Romaniuk and colleagues (2023) only recruiting Caucasian, heterosexual couples.

Social comparison

Ten studies investigated the impact of compassion-based interventions on social comparison. All studies used the Social Comparison Scale (SocCS; Allan & Gilbert,1995), a self-report measure which higher scores indicate a greater sense of social belonging and rank in comparison to others. The scale has been found to have good reliability with clinical and non-clinical samples ($\alpha = 0.91$; Allan & Gilbert, 1995). Limitations of the SocCS include measuring the outcome of social comparative processes but not the frequency one engages with social comparisons and does not have standardised norms which can make interpretation misleading.

RCTs

Carter and colleagues (2023) found no evidence of change in social comparisons for adults considered clinically obese completing a CFT based group ($p= .063$). In contrast, Stevenson and colleagues (2019) demonstrated improvements in social comparison amongst individuals experiencing social anxiety undergoing a compassionate letter writing intervention ($p<.001$). Despite this, the reported changes were not specific to the compassion-based group and were similarly found in the control group completing a cognitive restructuring intervention ($p=.894$). Both groups experienced similar changes in self-compassion which may explain why a significant difference in external shame was not found. The compassion-based intervention may have lacked validity in not addressing compassion or alternatively, the cognitive restructuring task also targeted compassion.

Before-and-after studies without controls

Two studies found limited evidence for change in social comparisons in non-clinical populations following a compassion-based intervention. Carter and colleagues (2020) found no short-term improvement in social comparison across a group of people experiencing weight-related shame ($p=.776$). Despite this, all participants showed clinically significant improvement in SocCS by 3-month follow up. This may reflect a longer-term change in social comparison for non-clinical populations accessing compassion-based interventions. Similarly, Iron and Heriot-Maitland (2021) showed non-significant improvements in social comparison within the general population ($p<.5$) but did find an improvement at 3-months follow up ($p<.05$). The long-term improvement may reflect a sample bias as less than half of participants completed the follow up (40%); participants who noticed a benefit of the intervention may have been more likely to return for the research follow up.

Five out of six studies working with clinical population found significant changes in social comparison after completing a compassion-based intervention (Forkert et al., 2022; Gilbert & Proctor, 2008; Judge et al., 2012; Laithwaite et al., 2009; Lucre & Corten, 2013). Whilst the final study showed increases in SoCS, inferential testing was not completed to confirm whether the change in social comparison was significant because of the small sample size (Gilbert et al., 2022).

Group CFT and CMT were shown to be effective in reducing feelings of inferiority amongst two groups of transdiagnostic clients (Gilbert & Proctor, 2006) with Judge and colleagues (2012) reporting a large effect size ($d=-1.06$). Both studies have issues with the representation in their sample which may have influenced the findings. Only 63.3% of the people engaging in the intervention agreed to taking part in the research in Judge and colleagues (2012). Moreover, Gilbert and Proctor (2006) had a 33% drop out rate and all participants were accessing a therapeutic community which is not commonly accessible across the UK, limiting generalisability.

A large effect size of improvement of social comparison was also shown by Forkert and colleagues (2022) for clients experiencing 'persecutory delusions' following individual sessions of compassionate imagery (d = –1.06, CI [-528.65, -121.19]). Similarly, reduced feelings of inferiority post compassion-based intervention have been found amongst clients with a diagnosis of personality disorder and those experiencing psychosis (Laithwaite et al., 2009; Lucre & Corten, 2013). The three studies provided follow up measures and found the improvements were maintained, suggesting longer term changes in social comparison for some clinical populations (Forkert et al., 2022; Laithwaite et al., 2009; Lucre & Corten, 2013). None of the three studies included power calculations and relied on small sample sizes which may mean they are underpowered and increases the chance of false effects.

The mixed results between clinical and non-clinical population for changes in social comparison may be due to non-clinical population being less likely to have feelings of inferiority and thus, SocCS scores not increasing. With a lack of controlled studies investigating social comparison changes it is difficult to conclude without the risk of bias.

Submissive behaviour

Four studies included submissive behaviour as an outcome following a compassion-based intervention, all of which used the Submissive Behaviour Scale (SBS; Allan & Gilbert, 1997). The SBS has demonstrated good internal reliability across clinical and non-clinical populations (Allan & Gilbert, 2011; Kim et al., 2020). However, is limited by a lack of norms which make it difficult to meaningfully interpret the scores. Without guidance of what scores are indicative of unhelpful use of submissive behaviour, the measure is at risk of problematising a behavioural response that can be adaptive and naturally varies between individuals and situations (Gilbert, 2000).

RCT

Carter and colleagues' (2023) study found that group CFT may lead to decreased tendencies to behave submissively in a group of individuals with a BMI greater than 30, reporting a large effect ($p < .001$, $\eta 2 = .247$). Additionally, this change was not demonstrated in a waitlist control group a significant difference between post- scores for the two groups ($p < .001$, $\eta 2 = .212$). This study was of good quality and limited risk of bias as it was sufficiently powered, controlled and triangulated self-reported measures with physiological measures of heart rate variability.

Before-and-after studies without controls

Two before-and-after design studies found evidence for submissive behaviour reducing in clinical populations following compassion-based intervention. Judge and colleagues (2012) found improvements in submissive behaviour of large effect in a group of trans-diagnostic clients ($p=.000$, $\eta p^2=.410$). Similarly, Gilbert and Procter (2006) reported a reduction in submissive behaviour in clients with complex mental health difficulties ($Z=-2.00$, $p=0.05$).

Despite offering more sessions of the intervention, Lucre and Corten (2013) found no change in submissive behaviour for a group of clients meeting the criteria for personality disorders ($p=.303$). All three studies had limitations in their samples; with all having small samples sizes and two of the studies recruiting from a single, specialist service (Gilbert & Procter, 2006; Lucre & Corten, 2013). This means the studies were potentially underpowered and not representative of the source population, together with a lack of control group making it difficult to generalise the findings.

Discussion

The aim of this review was to investigate how social rank changes following compassion-based interventions. Three measures of social rank were found to be used across the literature. The strongest evidence of change was found for the reduction of external shame. There was mixed evidence of change for social comparison with a large proportion of studies having a non-controlled and non-randomised design. Before-and-after studies provided evidence for improvements in social comparison, whereas two RCTs reported no significant changes. There was a limited number of studies investigating submissive behaviour, which offered some preliminary support for the reduction of submissive behaviour.

The evidence from the meta-analysis showed a large effect size in the reduction of external shame, favouring compassion-based interventions over waitlist control groups. There was mixed support for the findings of the meta-analysis from non-controlled designed studies. This may reflect the difference in study designs, whilst typically RCTs will report smaller effect sizes than non-controlled studies they may also show no or reversed effects (Fitzpatrick-Lewis et al., 2009). Research has identified that mindfulness and compassion-based interventions are beneficial in addressing shame-based distress, and that compassion-based interventions reduce body weight shame (Carter et al., 2023; Westerman et al., 2020). The current study adds support for Social Mentality Theory (Gilbert & Simos, 2022) whereby the facilitation of compassion may activate a compassionate and caring motive, shifting away from the unhelpful activation of the competitive mentality and reducing external shame.

There were mixed results for studies assessing changes in social comparisons, with some showing evidence of improvement and others showing no significant change or no difference between the compassion-based intervention and control group. One reason for the variation in social comparison outcomes may relate to the method of measurement. As previously mentioned,

distress can arise when one is unable to flexibly switch between social mentalities and thus experience conflict between one's environment and internal processing. All included studies used the SocCS as a measure of social comparison in which participants must rate themselves compared to others. The nature of the measure means people are making rank-based judgements when this may not be typical of their social processing. Additionally, a person's SocCS score may change situationally which cannot be accurately captured by the research.

Submissive behaviour was the least used social rank variable in the review with preliminary evidence of improvement following compassion-based interventions. Gilbert and Simos (2022) identified that individuals may respond in two ways to low social rank; 1) behaving submissively to protect oneself from those of higher rank, or 2) present with dominance and/or aggression to move up rank. Both submissive and dominating behaviour have been linked with varying mental health difficulties (Johnson et al., 2021). Additionally, McEwan and colleagues (2012) found that it is the combination of feeling unable to compete and socially unsafe that provides a problematic environment for low mood to pervade. The authors highlighted the importance of facilitating social connectedness as well as developing assertiveness. The variation of behavioural responses to low rank and a prioritisation of improving social safety rather than a person's ability to respond to social unsafety may explain the limited use of submissive behaviour as an outcome measure.

Another finding of the review was that the majority of interventions used a CFT or CMT approach (*n* = 14). CFT and CMT differ from other compassion-based interventions (e.g. MSC) in that they are psychotherapies with theoretical underpinnings, which include an understanding of social rank (Gilbert, 2012). Additionally, the remaining compassion-based approaches were designed for mainly non-clinical populations which may limit their application into health care (Kirby, 2016). The prominence of CFT interventions in this area may reflect their suitability to addressing social rank distress. However, further research may wish to explore therapeutic

influences on social rank outcomes, such as the type of compassionate intervention, to see if one approach is particularly effective.

In addition, most of the studies tested group interventions (n=17). Given the relational nature of rank-based processing it would be of interest to explore how individual settings differ in outcome to group approaches. Group settings may offer additional benefits in that individuals are able to explore different social motives with others in a safe therapeutic environment. Future research would benefit to have more diversity in the representation of compassion-based interventions in understanding the effects of compassion on social rank.

Strengths and limitations of the review

A strength of the current review was the completion of the meta-analysis to summarise the effect size of compassion-based interventions for external shame. The integration of multiple studies' findings allows for greater statistical power, precision and generalisability (Lee, 2019). This is the first review to the authors knowledge providing an average effect size of external shame following compassion-based interventions.

The majority of the studies had risk of bias relating to the methodological quality, for example many being non-controlled designs or small sampled feasibility studies. Due to the lack of RCT designed studies and heterogeneity amongst the papers it was not appropriate to complete a meta-analysis for all of the included social rank variables. Whilst excluding non-controlled studies may have led to more robust findings, the current review offers a summary of the existing literature base and provides a baseline understanding for future research.

Finally, there was a notable lack of reporting data on ethnicity and culture in the research reporting data. Study samples should aim to be representative of the source population as part of

establishing external validity, however, this is difficult to evaluate if reported demographic data is limited. Moreover, people from global majority backgrounds are often underrepresented in psychological research (Hawkins et al., 2022). Research has identified that social inequality can lead to 'shame inducing' social comparisons and experiences of injustice or discrimination may therefore shape a person's sense of social rank (Peacock et al., 2013). It has been identified that income inequality and experiences of racism reduce a person's subjective social status (Obenauf et al., 2023; Paskov et al., 2013). Given that social rank may act as a mechanism between social factors and mental health (Wetherall et al., 2019), it is particularly important to ensure the inclusion of diverse study samples and collect and report sample characteristics transparently so that this link may be better understood.

Practical implications and future research

The current review showed evidence that interventions focused on the cultivation of compassion had potentially positive effects on external shame amongst a range of populations. The sample for the meta-analysis on external shame was small and only included non-clinical populations. Hence, there is a need for further research of a high quality to be conducted with clinical populations before compassion-based interventions may be recommended in guidance for clinical practice. Moreover, further research should aim to explore intervention factors that contribute to the effectiveness of reducing of external shame such as the type of compassion-based intervention.

The suitability of compassion in improving social comparisons and submissive behaviour was uncertain. Future, controlled research should aim to monitor social comparison and submissive behaviour during compassion-based interventions to confirm whether this approach is effective in reducing unfavourable comparisons and submissive behaviour. Additionally, research should consider using alternative or additional measures of social comparison from the SocCS, to

conclude whether frequency of social comparisons changes following the intervention as well as the outcome of such comparisons.

Conclusion

To conclude, this is the first systematic literature review to explore how social rank changes following compassion-based interventions. The review found a varying use of different social rank variables, with external shame being the most frequently measured. This may reflect a better understanding between shame and mental health difficulty, with shame being a measure of effectiveness in other types of intervention. Additionally, social comparison and submissive behaviour may fluctuate situationally, presenting complexity in accurate measurement. The findings of the meta-analysis suggest a positive effect of compassion-based interventions on external shame albeit in a small number of studies. There was limited evidence to show improvements in social comparisons and submissive behaviour with many of the studies not having control groups and at possible risk of bias. Future research should aim to use more robust study designs to offer better understanding of social comparison and submissive behaviour after compassion-based interventions. Additionally, researchers should aim to recruit diverse samples, including people with different ethnic identities, to increase representativeness of samples and generalisability.

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Part Two:

Does compassion moderate the relationship between social rank and psychological distress?

Tia Cheung-Cook, Dr Philip Molyneux and Dr Tim Alexander.

This paper is written in the format ready for submission to the Journal of Psychology and Psychotherapy: Theory, Research and Practice. Please see Appendix C for the Guideline for Authors.

The word count (excluding the title page, abstract, references, figures, tables, and references): 5,000.

Abstract

Objectives

Social rank theory hypothesises a relationship between social rank and psychological distress, where low social rank is associated with increased psychological distress. There has been evidence to suggest compassion may moderate social rank related distress in some circumstances. The aim of the current study is to identify whether self-compassion and compassion from others also moderates the relationship between social rank and psychological distress.

Design

The current study adopts a survey, cross-sectional design.

Methods

221 participants completed the study survey which measured self-compassion, receptiveness of compassion from others, psychological distress and social rank. A multiple regression was completed to establish a relationship between social rank variables and psychological distress. Two models of moderation were processed to test whether compassion received from self and others attenuated the relationship between social rank variables and psychological distress.

Results

Submissive behaviour was a significant predictor of psychological distress, whereas social comparison predicted low mood alone. A small moderation effect was found of self-compassion on social comparison and low mood. Greater self-compassion and lower fears of compassion from others significantly predicted lower distress.

Conclusions

The current study supports the notion that social rank may be an important factor to consider in the understanding of psychological distress in clinical practice. Although both greater self-compassion and allowing compassion from others reduce psychological distress, they may have limited helpfulness in addressing specific social rank related distress. The association between compassion to others, prosocial motives and increased social connection may explain the different findings between flows of compassion.

Practitioner points

- Submissive behaviour was positively associated with depression, stress, and anxiety. Whereas feelings of inferiority were positively correlated with low mood.
- Exploration of an individual's sense of social rank may be valuable in understanding psychological distress.
- Whilst compassion from self and others did predict psychological distress, only a small buffering effect of self-compassion was found, specifically for social comparison and low mood.
- Individual's experiencing social-rank related distress may benefit from specific interventions facilitating change relating to the competitive social mentality rather than a sole focus on improving compassion.

Keywords

Compassion, social rank, psychological distress

Introduction

Psychological distress

Psychological distress is a term used to describe 'emotional suffering' typically characterised by low mood, stress, anxiety, and a range of physiological effects e.g., headaches. Psychological distress can be experienced as a normal fluctuation in mood or a response to circumstances but can be indicative of mental health difficulty if pervasive (American Psychological Association, 2018; Drapeau et al., 2012). During the COVID-19 pandemic, psychological distress increased across most age categories in England and indicated a "growing mental health crisis" (Jackson et al., 2023, p.1). Ongoing global circumstances such as climate change, political polarisation and social injustice are expected to contribute to psychological distress (Padhy et al., 2015; Williams et al., 2023; Yousafzai, 2022).

Social rank theory

Human systems are often arranged in hierarchical structures which are competitive in nature (Redhead & Power, 2022). To navigate such systems, individuals are required to assess and respond appropriately to rank-based information. An example is the process of social comparison where one compares oneself to others, resulting in an evaluation of either superiority or inferiority (Corcoran et al., 2011; Gerber et al., 2018). From an evolutionary perspective, social comparisons and rank-based behaviour were beneficial in preventing individuals from engaging in failed competition. However, rank-based processes may become problematic and associated with mental health difficulties in modern day society (Gilbert, 2000). Considering the continued competitive and hierarchical structuring of human society, it is important to understand how the ways in which such environments are processed may assist or inhibit individuals.

Social rank theory (SRT) hypothesises that an individual's self-perceived social ranking influences their mood (Gilbert, 2016a). In turn, one's mood may shape their sense of desirability

and belonging in relation to others. Comparisons of physical traits, personal attributes and access to resources can contribute to social rank appraisal (Desmichel & Rucker, 2022). SRT explains that psychological distress may arise because of 'social defeatedness' where one feels undesirable and in involuntary submission (Gilbert, 2016b). Frequent social comparisons and low perceived social rank has been identified in several mental health difficulties such as low mood, social anxiety, psychosis and eating disorders (Berger et al., 2017; Calissano et al., 2023; Saafield et al., 2018; Wetherall et al., 2019; Wood & Irons, 2015). To summarise, the literature suggests that low social rank, determined through social comparisons, is related to the experiences of mental health difficulties.

The rapid expansion of social media may amplify the relevance of social rank in modern mental health care. Social media presents opportunities for increased social comparisons where viewers are at risk of being exposed to only idealised version of others online (Dumas et al., 2020; Verduyn et al., 2020). Rank-based processing during social media use has been associated with poorer mental health outcomes (Verduyn et al., 2020). Hence, social rank-based distress may become more prominent in mental health care due to the rise in social media use.

Compassion

Compassion is understood to be "a sensitivity to suffering in self and others with a commitment to try to alleviate and prevent it" (Gilbert et al., 2017, p.1). Compassion is described as having three flows: compassion towards others, self-compassion, and compassion from others (CFO). Compassion towards others has been found to have the least impact on mental health outcomes (Kirby et al., 2019). Self-compassion has been identified as an important factor for wellbeing; positively associated with hope, life satisfaction and adaptive coping (Ewert et al, 2021; Yang et al, 2016; Zessin et al., 2015). Moreover, self-compassion has been shown to be negatively associated with psychological distress (Macbeth & Gumley, 2012). CFO has been found to weaken

the relationship between depressive symptoms and self-criticism (Hermanto et al., 2016). Therapeutic approaches focused on cultivating compassion have been shown to be effective for a range of psychological difficulties (Craig et al., 2020). Overall, the literature suggests that compassion is associated with improvements wellbeing and a protective quality against mental health difficulties.

Compassion Focused Therapy (CFT) conceptualises compassion as a social mentality; a motive for reciprocal relationships drawing upon caring and cooperating competencies (Gilbert, 2017). This is in contrast with the competitive social mentality, which focuses on achievement and threat relative to others as assessed through social-rank processes. From this perspective, compassion may activate a caring based mentality, offering the individual movement out of the competitive mentality when no longer helpful (Gilbert & Simos, 2022).

So far, there has been mixed evidence for the protective role of compassion against social rank-related distress. Callow and colleagues (2021) found that self-compassion weakened the associations between external shame (an aspect of social rank), anxiety and low mood. Kim and colleagues (2020) looked at the influence of individual differences on social rank-based distress in university students. Contrastingly, they reported that compassion moderated the relationship between social rank and psychological distress when individuals of high social rank but not those of low social rank. Kim and colleagues' findings may suggest that individuals of self-perceived low social rank are unable to use compassion to moderate feelings of low mood.

However, Kim and colleagues (2020) identified that their measure of compassion may have influenced the findings. The compassion subscale from The Big Five Aspects Scales (DeYoung et al., 2007) was used as a measure of 'trait compassion', an awareness and concern for others, which is associated with agreeableness. As the measure was developed prior to seminal research on compassion, this definition of compassion differs to the current, western understanding of

compassion that can require strength (Gilbert & Simos, 2022). Additionally, the measure is more reflective of compassion to others, meaning that self-compassion and CFO likely were not accounted for.

Present research

The aim of the research was to contribute to the current understanding of social rank and social mentalities, key concepts of CFT. Such research investigates the validity and application of theoretical concepts which in turn can shape clinical recommendations. The identification of protective factors against social rank related distress can inform preventative and mental health interventions.

The study built upon the previous research on compassion and social rank (Callow et al.; Kim et al., 2020). The current research investigated the relationships between social rank and types of psychological distress. Furthermore, two flows of compassion (self-compassion and CFO) that were not measured by Kim and colleagues (2020) were tested as moderators. As external shame had been investigated by Callow and colleagues (2021) it was not included as a social rank variable in the current study.

The hypotheses were as follows:

1) Greater tendencies to engage in submissive behaviour and unfavourable social comparisons would be associated with greater psychological distress.
2) Higher self-compassion and acceptance of CFO would weaken the relationship between social rank (submissive behaviour and unfavourable social comparisons) and psychological distress variables (stress, anxiety and low mood).

Method

Design

A cross-sectional, correlational design was used to test the research hypotheses. A sample size calculation was completed using G*Power (Faul et al., 2009). It was estimated that a minimum of 196 participants should be recruited to observe the hypothesised effects with power of 80% at 95% significance. The calculation was based on Kim and colleagues' (2020) study, who tested a moderation regression where gender, age, social comparison, and submissive behaviour predicted psychological distress and trait compassion was a moderator.

Participants

Ethics approval was granted from the Faculty of Health and Social Care Research Ethics Committee at the University of Hull (Appendix F). Participation in the research was anonymous and voluntary. To participate, individuals had to be aged 18 or older, have access to an electronic device and be proficient in English language.

There were 221 participants in the study. The mean age of the study participants was 26.25 years old (range = 18-70). The gender identity of participants was 174 women, 40 men, five non-binary people and two people identifying with an alternative gender.

Measures

Demographic items

The age and gender of participants were collected.

Psychological distress

Depression, Anxiety and Stress Scales (DASS-21; Lovibond & Lovibond, 1995)

The DASS-21 (Appendix G) is a 21-item questionnaire consisting of three subscales measuring anxiety (DASS-A), low mood (DASS-D) and stress (DASS-S). Scores on each subscale

ranged from 0 to 21, where higher scores are indicative of greater depression, anxiety, or stress. The interpretation of DASS-21 subscale scores can be seen in Table 1.

Table 1

Interpretation of DASS-21 Subscales Scores (Gomez, n.d.)

	Depression	**Anxiety**	**Stress**
Normal	0 – 4	0 – 3	0 – 7
Mild	5 – 6	4 – 5	8 – 9
Moderate	7 – 10	6 – 7	10 – 12
Severe	11 – 13	8 – 9	13 – 16
Extremely severe	14+	10+	17+

The DASS-21 was used due to measuring three different types of psychological distress and having good reliability across subscales (α = .81-.88; Osman et al., 2012). The measure has been normed on the general adult UK population making it applicable to the current study sample (Henry & Crawford, 2005).

Social rank

Submissive Behaviour Scale (SBS ; Gilbert & Allan, 1997)

The SBS was used to measure participant's tendencies to behave submissively in social situations. Submissive behaviour is understood to be a defensive response to low social ranking (Gilbert, 2000). Scores on the SBS range from 0 to 64, with higher scores interpreted as a greater tendency to behave submissively in social situations (Appendix H). The SBS has been shown to

have satisfactory internal reliability with student samples (α = .85; Kim et al., 2020) and is a well-established instrument in the research field.

Social Comparison Scale (SocCS ; Allan & Gilbert, 1995)

The SocCS is an 11-item scale, measuring an individual's self-perception of social desirability and belongingness with others in society (Appendix I). Each item provides a scale from 1-10, where either end represents opposing traits. Participants are required to rate how they perceive themselves in comparison to others. For example:

In relation to others, I feel:

Inferior 1 2 3 4 5 6 7 8 9 10 Superior

Scores range from 11 to 110, where low scores suggest low rank self-perceptions. The SocCS was selected as it provides a general measure of social rank, has demonstrated good internal reliability with non-clinical populations (α = 0.91; Allan & Gilbert, 1995) and to remain consistent with Kim and colleagues (2020).

Compassion received

Compassionate engagement and action Scales; self-compassion subscale (CEAS; Gilbert et al., 2017)

The CEAS is comprised of three subscales, each measuring a different flow of compassion. Each subscale has eight items that measure the motivation for compassion and five items that measure active compassionate responses. Total subscale scores range from 13 to 130; scoring highly indicates both awareness and motivation for the flow of compassion, and ability to act to resolve distress.

The self-compassion subscale was used to measure compassion towards oneself (Appendix J). The inclusion of both engagement and action items in the CEAS means the scale aligns well with

the research's used definition of compassion. Furthermore, the CEAS has strong psychometric properties; the self-compassion subscale specifically has good internal consistency (α = .88), test re-test reliability (r= .82) and convergent validity (Lindsey et al., 2022).

Fears of Compassion Scale; compassion from others subscale (FoC; Gilbert et al., 2011)

The FoC are comprised of three subscales measuring an individual's attitudes and fears regarding the three flows of compassion. For the current research, scale 2: 'responding to the expression of CFO' will be used as the measure of accepting compassion from others (Appendix K).

The 'responding to the expression of CFO' scale has been shown to have good reliability (α = 0.80; Gilbert et al., 2014). Total scores range between 0-52, with higher scores interpreted as more fearful or worrying beliefs towards accepting CFO. The FoC subscale was used because it measures and centres the person's openness and engagement with CFO. In contrast, the CEAS is thought to measure perceptions of other people's motivations and efforts to be compassionate.

Procedure

Initial recruitment was advertised through Twitter, Facebook and on a PhD research recruitment site. The advertisement included a brief description of the research and what participation would involve (Appendix L). Individuals interested in taking part would then follow the advertised link to an information sheet (Appendix M) and the online questionnaire on JISC online surveys (version 2; Jisc, n.d.). If the individual wanted to participate, they consented to the research and were prompted to move onto the rest of the questionnaire.

Additional recruitment took place as part of a Psychology Undergraduate Research Participation programme at the University of Hull. The study was available through an online platform where students can select to participate in exchange for course credit. Once enrolled in the research the student would then receive the link for the study survey. Of the sample, 47.5% of

participants were recruited through social media or the PhD research recruitment site, and 52.5% of the participants were recruited through the Psychology Undergraduate Research Participation programme.

Data analysis

All statistical analyses were conducted using SPSS for Windows Version 29 (IBM Corporation, 2020). The data were initially screened for outliers using scatterplot analyses which revealed two outliers in SocCS and CEAS (Appendix N, Figure N1). The outliers remained in the analysis due to not appearing as an error and the perceived importance of representing natural variation. Transformations of the data were considered (logarithm, squared, cubed), however as they did not minimise the outliers in the data they were not undertaken. Skew and kurtosis were assessed (Appendix O, Table O1-2); all data fell within the ranges of acceptable normality, that is less than 2 and 4 respectively (Tabachnick et al., 2007). The data were bootstrapped (1000) to account for the outliers. There were no identified issues of multicollinearity across the variables following linear regression analyses, demonstrating acceptable variance inflation factors and tolerance values (<10 and >.1 respectively; Pallant, 2020; Appendix P, Table P1-3). Scatter plots were used to test for heteroscedasticity which indicated an acceptable level of variance among the dependent variables (Appendix Q, Figure Q1-3). Independence of model errors were tested using the Durbin-Watson test which revealed an acceptable level of error independence, i.e., close to 2 (Field, 2018; Appendix S, Table S1, S4 and S7). Finally, bivariate correlations were tested to measure correlations between study variables (see Table 3).

Due to the limitations of multiple regression modelling, only 2-level categorical variables can be inputted without conversion into dummy variables. For this reason, the multiple regression analyses were originally processed with data from the two most prominent gender responses (women and men). Sensitivity analyses were completed to see the effect of gender on the

regression models, the inclusion of gender was judged to have minimal impact on the models (Appendix R, Table R1-12). The regression models were then repeated using data from all participants without the inclusion of gender as covariate in the model.

The use of multiple comparisons increases the risk of type 1 errors. The current study did not use significance level corrections due to the increased risk of type 2 errors and potential to miss true moderation effects which are typically small (Hair et al., 2021).

Results

The means, standard deviations and reliability for psychological distress, social rank variables and compassion received are reported in Table 2. All measures showed good internal reliability (α> 0.7; Kline, 1999).

Table 2

Descriptive Statistics for The Continuous Variables

Measure	Mean score (+/-SD)	Reliability (α)
Depression	6.99 (4.88)	.91
Anxiety	6.40 (4.72)	.87
Stress	9.00 (4.24)	.84
Submissive behaviour	31.99 (11.73)	.90
Social comparison	53.66 (17.69)	.92
Self-compassion	74.48 (16.29)	.79
Fears of compassion from others	19.55 (11.03)	.90

Correlational analyses

Across the three psychological distress variables, greater distress was associated with participants who were younger. Additionally, those who displayed more submissive behaviours, unfavourable social comparisons and fears of CFO, and less self-compassion were likely to have greater distress. The bivariate relationships between the focal variables are displayed in Table 3.

Table 3

Bivariate Correlations for the Variables

	Age	DASS-D	DASS-A	DASS-S	SBS	SocCS	CEAS	FoC
Age	-							
DASS-D	-.152*	-						
DASS-A	-.285	.603**	-					
DASS-S	-.210**	.675**	.717**	-				
SBS	-.318**	.485**	.584**	.487**	-			
SocCS	.140*	-.397**	-.399**	-.339**	-.576**	-		
CEAS	.112	-.434**	-.388**	-.375**	-.357	.475**	-	
FoC	-.232**	.497**	.552**	.480**	.596**	-.403**	-.339**	-

** Notes p=.05 level of significance, ** denotes correlational relationship significant at p=.01*

Multiple linear regression

To first establish whether there was a relationship between psychological distress and the social rank in the data, three multiple hierarchical regressions were completed using an enter method. Depression, anxiety, and stress were entered as a dependent variable in each of the models. The first model of each regression tested age as a predictor of the respective psychological distress variable. Then the second model of each regression inputted social comparison and submissive behaviour.

Depression

The results showed that the first model was significant ($F(1, 219) = 5.18$, $p = .024$, $R^2 = .023$, $R^2_{\text{Adjusted}} = .019$). Age emerged as significantly associated with depression (β = -.67, p= .012), meaning younger age predicted greater depression. The second model, including social

comparison and submissive behaviour, continued to significantly predict depression (F(2, 217) = 33.92, p < .001, R^2 = .26, $R^2_{Adjusted}$ = .25). Social comparison and submissive behaviour were both identified as significant predictors of depression (β = -.49, p=.029; β = .16, p< .001). As such, greater unfavourable social comparisons, and tendency to behave submissively predicted greater levels of depression. In this model, age was no longer a significant predictor.

Anxiety

The results showed that the first model was significant (F(1, 219) = 19.40, p < .001, R^2 = .08, $R^2_{Adjusted}$ = .08). Age emerged as significantly associated with anxiety (β = -.12, p< .001), where younger age predicted anxiety. The second model continued to significantly predict anxiety (F(2, 217) = 47.00, p < .001, R^2 = .36, $R^2_{Adjusted}$ = .35). Submissive behaviour was identified as a significant predictor of anxiety (β = .20, p< .001), where high tendency to behave submissively predicted greater anxiety. Age and social comparison were not significant predictors.

Stress

The first model was significant (F(1, 219) = 10.14, p = .002, R^2 = .04, $R^2_{Adjusted}$ = .04). Age emerged as significantly associated with stress (β = -.8, p< .001), where younger age predicted higher stress. The second model continued to significantly predict stress (F(2, 217) = 29.18, p < .001, R^2 = .25, $R^2_{Adjusted}$ = .24). Submissive behaviour was identified as a significant predictor of stress (β = .15, p< .001); greater tendencies to behave submissively predicted greater stress. Age and social comparison were not predictors.

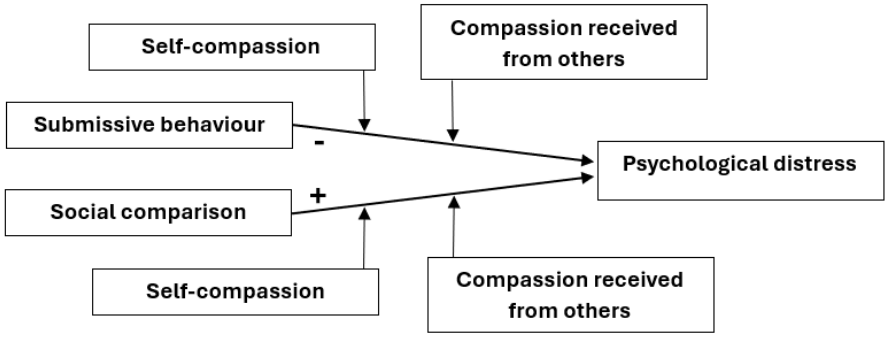
Moderation analysis

To investigate whether self-compassion and CFO moderated the relationship between social rank and psychological distress, moderation analyses were performed using PROCESS

(Version 4.3) by Hayes (2022). Four models were tested based on the significant relationships established through the multiple regression analyses. Age was a control variable, and CFO and self-compassion were the tested moderators in all models. Figure 1 displays the proposed model tested through the analyses.

Figure 1

The Proposed Model of the Conditional Effects of Self-Compassion and Compassion Received from Others



Depression

Two moderation models were completed with depression as the dependent variable. The first model, specifying social comparison, self-compassion, CFO and interaction terms as predictors of depression was significant ($F(6, 214)= 21.15$, $p< .001$, $R^2= .37$). Results showed a significant main effect of social comparison, self-compassion, CFO and the interaction effect of social comparison and self-compassion (see Table 4). Further analysis showed the change in explained variance due to the inclusion of the interaction term was significant ($F(1, 214) = 3.99$, $p= .05$, $R^2_{change} = .012$). This suggests a small moderation effect whereby self-compassion weakens the negative relationship between social comparison and depressive symptoms (see Figure 2).

Table 4

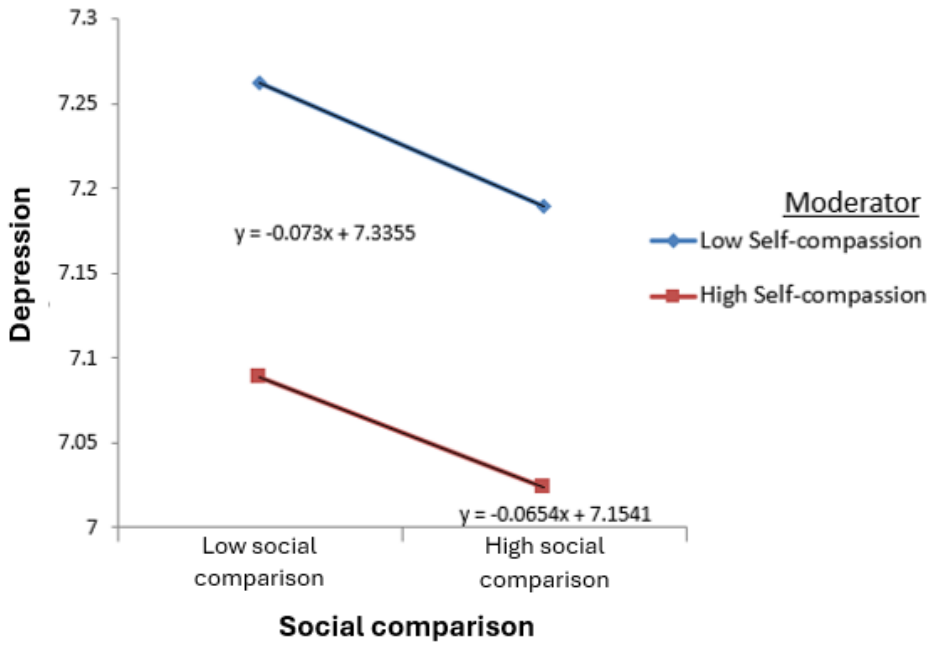
Second Model Parameter Estimates for All Independent and Interaction Terms Predicting Depression

	Coefficient (β)	*SE*	*t*	*p-value*
Intercept	7.141	.701	10.191	<.001
Age	-.022	.025	-.867	.387
Social comparison	-.034	.018	-1.944	.053
Self-compassion	-.085	.019	-4.409	<.001
Compassion from others	.156	.029	5.396	<.001
Social comparison x Self-compassion	.002	.001	1.999	.047
Social comparison x Compassion from others	-.002	.002	-1.400	.163

Note: all variables were mean centred prior to analysis.

Figure 2

The Conditional Effect of Self-compassion on the Relationship Between Social Comparison and Depressive Symptoms (Gaskin, 2016)



The second model of moderation, specifying submissive behaviour, self-compassion, CFO and interaction terms as predictors was significant ($F(6, 214)= 21.41$, $p< .001$, $R^2= .38$). Results showed a significant main effect of submissive behaviour, self-compassion and compassion from others (see Table 5). There were no significant interaction effects between submissive behaviour and the moderators.

Table 5

Second Model Parameter Estimates for All Independent and Interaction Terms Predicting Depression

	Coefficient (B)	*SE*	*t*	*p-value*
Intercept	6.792	.707	9.607	<.001
Age	-.006	.026	-.222	.825
Submissive behaviour	.089	.030	2.995	.003
Self-compassion	-.086	.018	-4.795	<.001
Compassion from others	.118	.031	3.845	<.001
Submissive behaviour x Self-compassion	.002	.001	-1.243	.215
Submissive behaviour x Compassion from others	.003	.002	1.242	.216

Note: all variables were mean centred prior to analysis.

Anxiety

The third model of moderation, specifying submissive behaviour, compassion received and interaction terms as predictors of anxiety was significant ($F(6, 214)= 21.90$, $p< .001$, $R^2= .44$). Results showed a significant main effect of submissive behaviour, self-compassion, and CFO (see Table 6). There were no significant interaction effects between submissive behaviour and the moderators.

Table 6

Third Model Parameter Estimates for All Independent and Interaction Terms Predicting Anxiety

	Coefficient (ß)	*SE*	*t*	*p-value*
Intercept	7.475	.647	11.553	<.001
Age	-.045	.024	-1.934	.054
Submissive behaviour	.129	.027	4.716	<.001
Self-compassion	-.050	.016	-3.068	.002
Compassion from others	.117	.028	4.178	<.001
Submissive behaviour x Self-compassion	-.000	.001	-0.099	.921
Submissive behaviour x Compassion from others	.001	.002	.642	.522

Note: all variables were mean centred prior to analysis.

Stress

The fourth model of moderation, specifying submissive behaviour, compassion received and interaction terms as predictors of stress was significant ($F(6, 214)= 17.56$, $p< .001$, $R^2= .33$). Results showed a significant main effect of submissive behaviour, self-compassion, and CFO (see Table 7). There were no significant interaction effects between submissive behaviour and the moderator variables.

Table 7

Fourth Model Parameter Estimates for All Independent and Interaction Terms Predicting Stress

	Coefficient (β)	*SE*	*t*	*p-value*
Intercept	9.493	.636	14.928	<.001
Age	-.022	.023	-.973	.332
Submissive behaviour	.087	.027	3.252	.001
Self-compassion	-.052	.016	-3.221	.002
Compassion from others	.094	.028	3.417	.001
Submissive behaviour x Self-compassion	.001	.001	.537	.592
Submissive behaviour x Compassion from others	.002	.002	.908	.365

Note: all variables were mean centred prior to analysis.

Discussion

The aim of the research was to explore whether self-compassion and CFO moderated the relationship between social rank and psychological distress. As hypothesised, the data in the present study also revealed a relationship between social rank and psychological distress variables. Stronger feelings of inferiority and higher levels of submissive behaviour were associated with higher levels of low mood. A tendency towards behaving submissively was positively correlated with stress and anxiety, whereas feelings of inferiority was not. The second hypothesis was that self-compassion and CFO would moderate the relationship between social rank and psychological distress variables. The current study found limited evidence to support this hypothesis, with a small conditional effect of self-compassion on social comparison and low mood identified.

The findings support previous research that has linked social rank and mental health difficulties. The current research contributes by exploring specific relationships between social rank variables and types of psychological distress. Interestingly, submissive behaviour was associated with all psychological distress variables whereas social comparison correlated only with low mood. Whilst other studies have identified a link between anxiety and social rank, the role of social rank may be more prominent in social worries or fears as opposed to the current measure of general anxiety (Berger et al., 2017). The relationship between social comparison and only low mood could be understood through SRT and the social defeat hypothesis (Gilbert, 2016b). It may be that low mood is closer associated with low social rank which is understood as a sense of involuntary submission, feelings of inferiority and entrapment. This is supported by a review which summarised that low social rank increases feelings of low mood and thoughts of self-harm (Wetherall et al., 2019). Whilst social comparison was not significantly correlated with stress or anxiety, low mood is frequently co-morbid with other mental health conditions which may explain social rank's role in several difficulties (Steffen et al., 2020). At present, an understanding of social

rank is not common practice in the field of clinical psychology and mental health. The current study strengthens the relevance of social rank in understanding mental health difficulties and the potential value of considering social rank in therapeutic processes such as formulation or intervention. For example, it may be helpful for an intervention to focus on assertiveness if an individual is presenting with high levels of submissive behaviour.

Additionally, Wetherall and colleagues (2019) proposed that social rank may act as the mechanism between social factors and mental health. Research has shown that socioeconomic factors, for example satisfaction with standard of living, influence feelings of social inferiority (Nolan & Weisstanner, 2021; Singh-Manoux et al., 2003). Factors such as gender, race, childhood adversity and experiences of discrimination effect the relationship of social rank and health outcomes (Dawson et al., 2022; Mutyambizi et al., 2019). With reported levels of social inequalities persistent in the UK and increasing levels of deprivation (Chancel et al., 2022; The Insolvency Service, 2023; YouGov UK, n.d.) social rank may become a more prominent factor in understanding mental health difficulties in the future.

Kim and colleagues' (2020) study found greater trait compassion weakened the relationship between social rank and psychological distress for high-ranked individuals. A reason for the difference between the previous and current research may relate to the flow of compassion measured. The measure used by Kim and colleagues was mainly concerned with compassion to others, whereas this study measured CFO and self-compassion. Whilst the different flows of compassion may activate similar cognitive processes (e.g., empathic engagement; Gilbert, 2015), research has found self-compassion and compassion to others as not significantly related (López et al., 2018). This supports that flows of compassion can be experienced differently and thus, have different outcomes dependent on the direction of compassion. Compassion towards others has been linked with prosociality and altruism, with researchers proposing it is a socially desirable trait

for forming sexual and co-operative relations which in turn offers evolutionary advantage (Goetz et al., 2010). Studies have shown that compassion to others facilitates stronger relationships and can encourage a sense of reciprocity and social connectedness (Allegro & Van Vliet, 2024; Crocker & Canevello, 2012). Compassion to others may have a moderating effect on the relationship between social rank and psychological distress due to the relational nature and providing a sense of belonging. Thus, peer or community-based support that facilitate exposure to care and/or cooperative based motives for relationships and build up self-efficacy may better address social rank related distress.

Contrary to the hypothesis, CFO was not found to moderate social rank and psychological distress. Although there was a buffering effect of self-compassion this was small and only for social comparison and low mood. This suggests that self-compassion and CFO were not an effective protective factor through the activation of a compassionate social mentality against social rank related distress. The implication for clinical practice may be that an alternative or additional intervention alongside the cultivation of compassion is needed to address social rank related distress. One possibility are interventions that focus on change relating to the competitive mentality, which is shaped by early experiences and attachment (Gilbert & Simos, 2022). This may involve understanding the person's competitive mentality, triggers and recognising when the activation of social rank becomes unhelpful.

Self-compassion and CFO were shown to be associated with lower psychological distress which is consistent with previous research (Kirby et al., 2019). The lack of moderation effects suggests that self-compassion and CFO are not associated with reduced psychological distress through influencing unfavourable comparisons and/or submissive behaviour. A possible explanation is that compassion does not change social rank but the engagement with or sense

made of such processes. The association of self-compassion and CFO with reduced stress, anxiety and low mood adds further support for the exploration of compassion-based interventions.

Limitations and future research

The current sample was predominantly younger aged women. Research has suggested that females and males may strive for different types of social rank (Mitchel et al., 2020). The lack of influence of gender in the sensitivity analyses may reflect the disproportionate representation of genders in the sample. Engagement in social comparisons has been found to fluctuate across the life span, with higher social comparison in young adulthood (Buunk et al., 2020). Therefore, the study findings may be less applicable to older aged adults and those who identify as male, non-binary or alternative genders. Future research may wish to utilise stratified sampling methods to represent social rank processes across genders to allow for a more proportional analysis and help identify any influence of gender on social rank. Moreover, a longitudinal approach to research would develop an understanding of age-related changes to social rank and the influence of changing life and social factors.

The use of opportunistic sampling may limit the study's generalisability and application of the findings. Relying on the researcher's networks and through a recruitment initiative at the University of Hull meant the sample is likely to lack the diversity that other recruitment methods may facilitate. Moreover, the demographic data collected about the sample was minimal. This limits knowledge about the current sample and means that factors such as ethnicity or social economic background cannot be accounted for. As previously mentioned, social rank may provide a mechanism between social factors and mental health in which case social demographics may be important to consider.

Additionally, 52.5% of the sample were recruited through Department of Psychology and were therefore undergraduate psychology students. Western academic environments are often

competitive, based upon ranking of achievement (Nordmo & Samara, 2009; Pyter et al., 2019); and there have been disproportionate levels of reported psychological distress in student populations (Habihirwe et al., 2018). The academic environment may inhibit students use of compassion. Additionally, competitive mentalities and social rank may be perceived as beneficial in navigating academic challenges (Kirby et al., 2019). Future research should investigate how social rank and social motives change alongside environmental demands to deepen the understanding of when social mentalities become unhelpful.

The survey was 30-minutes long and self-directed, thus, participant engagement and understanding of the concepts measured is unclear. Furthermore, the activation of a social mentality and/or social rank processes are dynamic and dependent on the social circumstances. Although survey design studies contribute to the understanding of the relationships between social rank, social mentalities and mental health, they may be limited in their ability to capture nuanced information about social rank and social mentality.

The current study was a non-clinical sample and scored within the 'normal' range for all types of psychological distress (Gomez, n.d.). Social rank has been shown to significantly differ between clinical and non-clinical populations (Wetherall et al., 2019), hence, the current findings could not be generalised to clinical populations. Future research should investigate whether similar relationships between social rank, compassion and psychological distress are found in clinical populations.

Conclusion

To conclude, the current study further demonstrated varying relationships between social rank and psychological distress variables, especially low mood. This reflects the previous literature base and adds strength to the consideration of social rank in working therapeutically with

psychological distress. Contrary to the hypothesis only self-compassion was found to have a small moderating effect on social comparison and low mood. Whilst compassion may be associated with lower psychological distress, it did not appear to be a protective factor against social-rank related distress in the current sample. The author proposes that the benefit of compassion to others regarding social rank and distress, may relate to its association with prosociality and sense of belonging. It may be of benefit that interventions for social-rank related distress to focus on change in the activation and understanding of an individual's competitive social mentality rather than facilitating a shift from competitive to compassionate social mentality.

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Part Three:

The Appendices

Appendix A

Reflective Statement

At the beginning of the clinical doctorate, I viewed the thesis as a (very big) task to be done. However, coming to the end of the research and looking back on the process, I see the thesis as a relationship that endured many changes and turns. This relationship was shaped by my experiences prior to the doctorate and assumptions about research. Coming from a North East, England, working class background I had assumed that in order to be accepted into the research community it would require significant transformation of myself. For example, in the way I communicated or even in my general abilities, with a common thought of mine being that I was not 'smart enough.' These preconceptions about research and my own abilities led to a sense of threat within research and a defensive or reactive approach to my relationship with the thesis. Thus, the idea of designing and implementing my own research was daunting and something I wished to 'just get through.'

However, as with all relationships, space and patience facilitated change in my relating to my thesis. I now see the purpose of the thesis as a learning opportunity, instead of viewing it as a process to create a 'perfect', publication-ready piece of research. Certainly, I have learnt a lot about myself, research and how I position myself as a researcher. Throughout this statement, I aim to reflect on some the significant changes and lessons from my time with this thesis project.

The empirical project

Attending the research fair, I felt completely overwhelmed by the potential topics to choose from. Partly, this reflected my feelings towards Clinical Psychology as a whole, as I had no idea what area I wanted to specialise in after qualifying, which I believed may have helped direct

my thesis topic. I was only beginning to become familiar with the concept of compassion and its clinical uses. From my perspective, it felt like a compassion-based project had a clear direction and structure given the recent popularity and interest in compassion-based approaches like Compassion Focused Therapy (CFT). I also found that compassion aligned with my personal values for clinical practice which added to the appeal of the research.

The indecisiveness continued into the development of research proposals, with a variety of areas within compassion being discussed. Initially, the research proposals were focused on a balance between the three systems of emotional regulation. Whilst the idea of exploring the three-system model was exciting, it had been very theoretical and left my supervisor asking the important question of 'so what?'. There was no clear clinical implication and a potentially overcomplicated and demanding method of measurement/ observation. This moment in the design process reminded me that not only interest but purpose was important in research development. In future research, I feel it would be important to continually refer to the links between theory, practice and the research aim(s).

The project then shifted to focus on social mentality theory and social rank theory. I think this reflected my developing understanding of CFT. The three-system model seemed to be relatively well understood and known across the clinical community; however, I had rarely heard or saw the use of either social mentalities or social rank. Considering the potential connection between social factors, social rank and mental health, the area has continued to feel relevant to clinical practice and understanding psychological distress.

Data collection and analysis

Completing a research project with quantitative methodology I felt my experiences differed from most of my peers who used qualitative methodology. This at times contributed to feeling frustrated and alone during this stage of my research.

Due to the survey methodology, data collection felt like a passive process. It could feel strange in research workshops to share reflections on the recruitment sessions with my peers. I found myself engaging in negative comparisons, feeling that this sense of difference meant that my research was less important or not the most suitable methodology for clinical psychology research. The frustration only worsened when I realised a large number of participant survey responses had been lost due to a website flaw in one of the recruitment platforms. I remember standing at a bus stop in the rain at the time, frantically trying to resolve the issue from my phone. Looking back on the situation now, I realise that my reactive way of responding had only intensified my feelings of annoyance and sense of failure. I learnt that taking a step back is incredibly helpful in difficult and frustrating situations. It also reminded me that mistakes and errors happen but most of the time these situations can be rectified. Despite, the loss of participant response, I still managed to recruit the needed number of people to participate in my study which was a big relief.

I would say that data analysis had been the most challenging stage of the research process, with more iterations than originally planned or hoped for. Having used a qualitative method in my dissertation, I was feeling fairly unfamiliar with quantitative statistics. I was aware that there could be an assumption from others that quantitative statistics was an 'easier' methodology compared

to that of qualitative approaches. I remember feeling defensive about this which fed into the sense of alone-ness felt about quantitative statistics. Equally, many quantitative resources comprised of in depth algebraic or coding in their explanations. This led to more confusion and activated those beliefs of not being 'smart enough' that were previously mentioned. To manage this, I would often respond with either avoidance or a 'just power through it' approach, both of which could be unhelpful at times.

A turning point amongst data collection and analysis, was connecting with the support network around me. This included the people in my immediate environment such as fellow trainees completing quantitative statistics, my supervisors and friends/ family. Some of the most helpful conversations were not those that offered solutions, but reassurance and comfort. Additionally, I paid more attention to my learning style which helped me find support resources better suited to help my understanding, with YouTube tutorials becoming common watches for me. Similar to that of my research conclusions, my experiences from data collection and analysis remind me of the power of social comparisons on our self-perceptions. In future research scenarios, I will remind myself that neither quantitative nor qualitative methodologies are better than the other but it is instead dependent on the suitability of the method to the question being answered.

Writing the research

Writing the research has felt like an enjoyable part of the research. It has offered opportunity to reconnect with the research purpose and literature base it is built upon. Also, in trying to make sense of the findings, it highlighted that my knowledge of the research area had

grown. Throughout the writing process, I have developed a greater appreciation of the earlier design stage of research and how preparation earlier on can benefit my future self.

Systematic Literature Review (SLR)

The SLR came with plenty of warnings of the lengthy process it would entail. During my undergraduate degree, one of my modules required a SLR completing which became one of my lowest graded works to date. This experience, plus the prompting that the SLR was time consuming had me striving to be as prepared as I could be. However, this process hit a challenge at the first step: finding a topic. Due to the limited research on social rank, finding a research question that would have enough literature to draw upon or had not already been addressed proved difficult. I remember being in a place of threat-based drive, reading as much of the literature as I could in hopes that a topic would come to mind. In the meantime, most of my colleagues had found a SLR topic and I felt a growing sense of falling behind. It was a huge relief when I had finally found a question from my SLR, after speaking to a member of the research team. I remember thinking that the SLR topic had been obvious given my empirical topic and asked myself why I had not thought of it sooner. Upon reflection, I think I was too immersed in the previously proposed topics and existing literature to see new ideas or possibilities. The benefit of speaking to someone who may be positioned to see the topic area differently is something I will take forward with me.

During this time, I had also started my final year placement with the Dementia UK, Research and Publications team in which one of my tasks was to complete a SLR on dementia and living alone. Overall, I found having the research on placement and my SLR ongoing alongside each other helpful, as it meant I could draw on my experiences with one review to help direct the other.

Despite the SLR being a tedious process, I found that it offered the safety of a structured, step by step approach. For example, completing the literature searches and data extraction felt easier to engage with and helped provide a sense of productivity. This was disrupted by the data synthesis stage, where I found that I was unable to complete a meta-analysis for each of my variables of interest. Alternative synthesis methods included synthesis without metanalysis (SWiM) or a narrative approach. I found myself wanting to find the 'right' answer so I could continue to progress with the review. I was greatly disgruntled to realise that there was no clear answer, and the research community remained widely undecided as to how best to synthesise results from non-randomised and non-controlled studies. Now thinking about the situation retrospectively, my desire to find the 'right' choice in online guidance or from the research team stemmed from a fear than my own reasoning and decision making may not be good enough. This has taught me about having confidence in my ability to make informed decisions and explain the rationale behind my choices.

Choice of journals

One of the journals considered for both the empirical research and SLR was Psychology and Psychotherapy: Theory, Research and Practice. A key reason for this was that the journal has published many papers relating to compassion, social rank or both, including the Kim and Colleagues (2020) paper. Publishing with Psychology and Psychotherapy: Theory, Research and Practice, would provide a sense of continuity for readers of the journal who are interested in the research area. The journal's scope focuses on research contributing to an understanding of cognitive and behavioural factors contributing to psychological distress, as well as influences of psychotherapy outcomes. The scope of the journal felt well suited to the topics of the SLR and empirical research. In addition, the journal is owned by the British Psychological Society and has a

relatively high impact factor of 3.4 which means the research would likely have a good reach to appropriate audiences.

Other journals of consideration for the empirical research included the Clinical Psychology and Psychotherapy, and Personality and Individual Differences. The Clinical Psychology and Psychotherapy journal was considered as it is similarly interested in clinically relevant topics such as processes influencing wellbeing. As it is an international journal and has a slightly higher impact factor (3.6), it has potential to reach a larger audience. However, the journal's primary focus is clinical populations and they do not often accept studies based on the general population which means reduced likelihood of acceptance.

The Personality and Individual Differences journal was considered for the journal's slightly different scope with a focus on individual differences and the practical implications of such understandings. This would make the journal a good fit with the empirical project, and it has had previous publications covering social rank.

Conclusion

To summarise, completing my thesis has not been a smooth process; instead, it has been characterised by many questions, frustrations and at times avoidance. Despite this, I have learnt so much about myself, research and the art of practicing self-compassion. I have had valuable moments of sharing knowledge with others, that I would not have experienced without the research. Looking back on my experience of completing my thesis, I realise that points of comparison with others slowed down making progress. However, connecting with my support network, seeking resources and being kind to myself about challenges in the research represented

times when I was compassionately engaging with my needs. Upon reflection, comparisons between ourselves and our colleagues or other researchers may be unhelpful and limit possibilities in research. Making unfavourable comparisons and feeling negatively about one's research potential discourages new perspectives and entering safe uncertainties with research – as we are guided by fear or threat of not being 'as good as others'. Whilst comparisons can help motivate us to be better or learn from others, it is important to notice when they become inhibitors.

Appendix B

Epistemological Statement

In order to appreciate the research presented, it is important to understand the researcher's position regarding ontology and epistemology. Ontology is the philosophical study of 'being' and 'reality'. Epistemology is concerned with the study and acquisition of 'knowledge.' Given that ontology conceptualizes the 'reality' of the world it is inherently linked to epistemology, the process of seeking to know 'reality' (Fryer, 2022). The ontological and epistemological positions shape the assumptions made by the research and thus guide the methodologies adopted.

In ontology, realism and relativism are two stances that are often thought of two alternative principles (Shantz & Seidel, 2013). Realism establishes one true, external reality and relativism proposes knowledge exists in relation to the social agents within reality, constantly in a process of co-creation. Critical realism is an ontological approach that is believed to draw on the principles of both realism and relativism in conceptualizing 'reality.' Similar to that of the realist approach, critical realism assumes that there is an external world. However, our ability to measure that knowledge is not infallible. Danermark and colleagues (2019), explain that human knowledge is acquired through perception, stored and communicated via language and often understood using pre-existing concepts, which shape the acquisition of knowledge. Furthermore, critical realism assumes links between both social structures and social agents (Brunson et al., 2023). The concept of emergence explores how social agents within reality may interact with pre-existing social structures thus leading to transformation (Kempton, 2022). Critical realism is thought to be appropriate especially for social sciences where there is the complexity of multiple causal factors and difficulty in truly isolating variables to be tested. The researcher drew upon a critical realist ontology.

The researcher took a post-positivism epistemological approach. Positivism assumes that there is a real, external world and that science (the use of experimentation and observation) can lead to complete knowing of the external world (Zhang, 2023). Importantly, positivist-oriented research would not assume that the social agents within the world have influence on the observations. Contrary to this, post-positivism responds to the critiques of positivist and 'naive realism' positions. Compatible with critical realism, post-positivism assumes that there is an external world to be measured and that knowledge should aim to be objective. Despite this, post-positivism acknowledges that truly objective research cannot be achieved (Carpiano & Daley, 2006). Instead, post-positivism follows scientific falsification, a deductive process of testing hypotheses to prove them wrong (Fox, 2008). If a hypothesis is tested under this process and not falsified, then it is deemed 'provisionally true'. This approach reflects that new knowledge may be discovered in the future, that may reveal the hypothesis to longer be 'true'.

The current research has been guided by the critical realist and post-positivist positioning of the researcher. The use of quantitative methodologies in both the empirical paper and systematic literature review shows an attempt to measure an external world. The statistical analysis of results represents whether the hypotheses of the researcher are probabilistically, 'provisionally true.' However, the researcher acknowledges the limitation of 'objectivity' in the measuring the external world. This applies firstly to the researcher's lens of a trainee clinical psychologist with an interest in the therapeutic application of compassion, specifically through Compassion Focused Therapy. As such Compassion Focused Therapy theories shape the 'knowledge' that is searched for in the research. Additionally, the concepts for the research; compassion, psychological distress and social rank are not objective experiences and are

without universal laws. All these variables differ from person to person, depending on a number of factors such as culture and past experiences.

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Appendix C

Guidelines for Authors for the Systematic Literature Review and Empirical Paper

1. SUBMISSION

Authors should kindly note that submission implies that the content has not been published or submitted for publication elsewhere except as a brief abstract in the proceedings of a scientific meeting or symposium.

New submissions should be made via the Research Exchange submission portal. You may check the status of your submission at any time by logging on to submission.wiley.com and clicking the "My Submissions" button. For technical help with the submission system, please review our FAQs or contact submissionhelp@wiley.com.

All papers published in the *Psychology and Psychotherapy: Theory Research and Practice* are eligible for Panel A: Psychology, Psychiatry and Neuroscience in the Research Excellence Framework (REF).

Data protection:

By submitting a manuscript to or reviewing for this publication, your name, email address, and affiliation, and other contact details the publication might require, will be used for the regular operations of the publication, including, when necessary, sharing with the publisher (Wiley) and partners for production and publication. The publication and the publisher recognize the importance of protecting the personal information collected from users in the operation of these services, and have practices in place to ensure that steps are taken to maintain the security, integrity, and privacy of the personal data collected and processed. You can learn more at https://authorservices.wiley.com/statements/data-protection-policy.html.

Preprint policy:

This journal will consider for review articles previously available as preprints. Authors may also post the submitted version of a manuscript to a preprint server at any time. Authors are requested to update any pre-publication versions with a link to the final published article.

2. AIMS AND SCOPE

Psychology and Psychotherapy: Theory Research and Practice (formerly The British Journal of Medical Psychology) is an international scientific journal with a focus on the psychological and social processes that underlie the development and improvement of psychological problems and mental wellbeing, including:

• theoretical and research development in the understanding of cognitive and emotional factors in psychological problems;
• behaviour and relationships; vulnerability to, adjustment to, assessment of, and recovery (assisted or otherwise) from psychological distresses;

• psychological therapies, including digital therapies, with a focus on understanding the processes which affect outcomes where mental health is concerned.

The journal places particular emphasis on the importance of theoretical advancement and we request that authors frame their empirical analysis in a wider theoretical context and present the theoretical interpretations of empirical findings.

We welcome submissions from mental health professionals and researchers from all relevant professional backgrounds both within the UK and internationally.

In addition to more traditional, empirical, clinical research we welcome the submission of

- systematic reviews following replicable protocols and established methods of synthesis
- qualitative and other research which applies rigorous methods
- high quality analogue studies where the findings have direct relevance to clinical models or practice.

Clinical or case studies will not normally be considered except where they illustrate particularly unusual forms of psychopathology or innovative forms of therapy and meet scientific criteria through appropriate use of single case experimental designs.

All papers published in *Psychology and Psychotherapy: Theory, Research and Practice* are eligible for Panel A: Psychology, Psychiatry and Neuroscience in the Research Excellence Framework (REF).

3. MANUSCRIPT CATEGORIES AND REQUIREMENTS

- Articles should adhere to the stated word limit for the particular article type. The word limit excludes the abstract, reference list, tables and figures, but includes appendices.

Word limits for specific article types are as follows:

- Research articles: 5000 words
- Qualitative papers: 8000 words
- Review papers: 6000 words
- Special Issue papers: 5000 words

In exceptional cases the Editor retains discretion to publish papers beyond this length where the clear and concise expression of the scientific content requires greater length (e.g., explanation of a new theory or a substantially new method). Authors must contact the Editor prior to submission in such a case.

Please refer to the separate guidelines for Registered Reports.

All systematic reviews must be pre-registered and an anonymous link to the pre-registration must be provided in the main document, so that it is available to reviewers. Systematic reviews without pre-registration details will be returned to the authors at submission.

Brief-Report COVID-19

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- Abstract;
- Keywords;
- Data availability statement (see Data Sharing and Data Accessibility Policy);
- Acknowledgments.

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Keywords

Please provide appropriate keywords.

Acknowledgments

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For help with submissions, please contact: Hannah Wakley, Associate Managing Editor (papt@wiley.com) or phone +44 (0) 116 252 9504.

Appendix D

Data Extraction Form

Study authors and year of publication	
Population (*recruitment method, location of study, age and gender of participants*)	
Inclusion and exclusion criteria	
Intervention *(duration, format [group or individual], delivery [in person or online], adherence, facilitator).*	
Study design and analysis. *(incl. times of data collection, missing data)*	
Outcome measure(s)	
Measures of social rank used and related findings *(before and after scores of intervention and control group [if applicable]).*	
Main conclusions:	

Appendix E

NICE (2012) Quality Checklist

Checklist

Study identification: (Include full citation details)		
Study design: Refer to the glossary of study designs (appendix D) and the algorithm for classifying experimental and observational study designs (appendix E) to best describe the paper's underpinning study design		
Guidance topic:		
Assessed by:		
Section 1: Population		
1.1 Is the source population or source area well described? Was the country (e.g. developed or non-developed, type of healthcare system), setting (primary schools, community centres etc.), location (urban, rural), population demographics etc. adequately described?	++ + – NR NA	Comments:
1.2 Is the eligible population or area representative of the source population or area? Was the recruitment of individuals, clusters or areas well defined (e.g. advertisement, birth register)? Was the eligible population representative of the source? Were important groups under-represented?	++ + – NR NA	Comments:
1.3 Do the selected participants or areas represent the eligible population or area?	++ +	Comments:

Was the method of selection of participants from the eligible population well described? What % of selected individuals or clusters agreed to participate? Were there any sources of bias? Were the inclusion or exclusion criteria explicit and appropriate?	– NR NA	
Section 2: Method of allocation to intervention (or comparison)		
2.1 Allocation to intervention (or comparison). How was selection bias minimised? Was allocation to exposure and comparison randomised? Was it truly random ++ or pseudo-randomised + (e.g. consecutive admissions)? If not randomised, was significant confounding likely (–) or not (+)? If a cross-over, was order of intervention randomised?	++ + – NR NA	Comments:
2.2 Were interventions (and comparisons) well described and appropriate? Were interventions and comparisons described in sufficient detail (i.e. enough for study to be replicated)? Was comparisons appropriate (e.g. usual practice rather than no intervention)?	++ + -– NR NA	Comments:
2.3 Was the allocation concealed? Could the person(s) determining allocation of participants or clusters to intervention or comparison groups have influenced the allocation? Adequate allocation concealment (++) would include centralised allocation or computerised allocation systems.	++ + – NR NA	Comments:
2.4 Were participants or investigators blind to exposure and comparison?	++ +	Comments:

Were participants **and** investigators – those delivering or assessing the intervention kept blind to intervention allocation? (Triple or double blinding score ++) If lack of blinding is likely to cause important bias, score –.	– NR NA	
2.5 Was the exposure to the intervention and comparison adequate? Is reduced exposure to intervention or control related to the intervention (e.g. adverse effects leading to reduced compliance) or fidelity of implementation (e.g. reduced adherence to protocol)? Was lack of exposure sufficient to cause important bias?	++ + – NR NA	Comments:
2.6 Was contamination acceptably low? Did any in the comparison group receive the intervention or vice versa? If so, was it sufficient to cause important bias? If a cross-over trial, was there a sufficient wash-out period between interventions?	++ + – NR NA	Comments:
2.7 Were other interventions similar in both groups? Did either group receive additional interventions or have services provided in a different manner? Were the groups treated equally by researchers or other professionals? Was this sufficient to cause important bias?	++ + – NR NA	Comments:
2.8 Were all participants accounted for at study conclusion? Were those lost-to-follow-up (i.e. dropped or lost pre-,during or post-intervention) acceptably low (i.e. typically <20%)? Did the proportion dropped differ by group? For example, were drop-outs related to the adverse effects of the intervention?	++ + – NR NA	Comments:

2.9 Did the setting reflect usual UK practice? Did the setting in which the intervention or comparison was delivered differ significantly from usual practice in the UK? For example, did participants receive intervention (or comparison) condition in a hospital rather than a community-based setting?	++ + – NR NA	Comments:
2.10 Did the intervention or control comparison reflect usual UK practice? Did the intervention or comparison differ significantly from usual practice in the UK? For example, did participants receive intervention (or comparison) delivered by specialists rather than GPs? Were participants monitored more closely?	++ + – NR NA	Comments:
Section 3: Outcomes		
3.1 Were outcome measures reliable? Were outcome measures subjective or objective (e.g. biochemically validated nicotine levels ++ vs self-reported smoking −)? How reliable were outcome measures (e.g. inter- or intra-rater reliability scores)? Was there any indication that measures had been validated (e.g. validated against a gold standard measure or assessed for content validity)?	++ + – NR NA	Comments:
3.2 Were all outcome measurements complete? Were all or most study participants who met the defined study outcome definitions likely to have been identified?	++ + – NR NA	Comments:
3.3 Were all important outcomes assessed?	++	Comments:

Were all important benefits and harms assessed? Was it possible to determine the overall balance of benefits and harms of the intervention versus comparison?	+ – NR NA	
3.4 Were outcomes relevant? Where surrogate outcome measures were used, did they measure what they set out to measure? (e.g. a study to assess impact on physical activity assesses gym membership – a potentially objective outcome measure – but is it a reliable predictor of physical activity?)	++ + NR NA	Comments:
3.5 Were there similar follow-up times in exposure and comparison groups? If groups are followed for different lengths of time, then more events are likely to occur in the group followed-up for longer distorting the comparison. Analyses can be adjusted to allow for differences in length of follow-up (e.g. using person-years).	++ + NR NA	Comments:
3.6 Was follow-up time meaningful? Was follow-up long enough to assess long-term benefits or harms? Was it too long, e.g. participants lost to follow-up?	++ + – NR NA	Comments:
Section 4: Analyses		
4.1 Were exposure and comparison groups similar at baseline? If not, were these adjusted? Were there any differences between groups in important confounders at baseline? If so, were these adjusted for in the analyses (e.g. multivariate analyses or stratification).	++ + – NR NA	Comments:

Were there likely to be any residual differences of relevance?		
4.2 Was intention to treat (ITT) analysis conducted? Were all participants (including those that dropped out or did not fully complete the intervention course) analysed in the groups (i.e. intervention or comparison) to which they were originally allocated?	++ + – NR NA	Comments:
4.3 Was the study sufficiently powered to detect an intervention effect (if one exists)? A power of 0.8 (that is, it is likely to see an effect of a given size if one exists, 80% of the time) is the conventionally accepted standard. Is a power calculation presented? If not, what is the expected effect size? Is the sample size adequate?	++ + – NR NA	Comments:
4.4 Were the estimates of effect size given or calculable? Were effect estimates (e.g. relative risks, absolute risks) given or possible to calculate?	++ + – NR NA	Comments:
4.5 Were the analytical methods appropriate? Were important differences in follow-up time and likely confounders adjusted for? If a cluster design, were analyses of sample size (and power), and effect size performed on clusters (and not individuals)? Were subgroup analyses pre-specified?	++ + – NR NA	Comments:
4.6 Was the precision of intervention effects given or calculable? Were they meaningful?	++ +	Comments:

Were confidence intervals or p values for effect estimates given or possible to calculate? Were CI's wide or were they sufficiently precise to aid decision-making? If precision is lacking, is this because the study is under-powered?	− NR NA	
Section 5: Summary		
5.1 Are the study results internally valid (i.e. unbiased)? How well did the study minimise sources of bias (i.e. adjusting for potential confounders)? Were there significant flaws in the study design?	++ + −	Comments:
5.2 Are the findings generalisable to the source population (i.e. externally valid)? Are there sufficient details given about the study to determine if the findings are generalisable to the source population? Consider: participants, interventions and comparisons, outcomes, resource and policy implications.	++ + −	Comments:

Appendix F

Ethical Approval

[Removed for digital archiving]

Appendix G

Depression, Anxiety and Stress Scales (DASS-21; Lovibond & Lovibond, 1995)

DASS21

Name: Date:

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you **over the past week**. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0 Did not apply to me at all
1 Applied to me to some degree, or some of the time
2 Applied to me to a considerable degree or a good part of time
3 Applied to me very much or most of the time

1 (s)	I found it hard to wind down	0	1	2	3
2 (a)	I was aware of dryness of my mouth	0	1	2	3
3 (d)	I couldn't seem to experience any positive feeling at all	0	1	2	3
4 (a)	I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5 (d)	I found it difficult to work up the initiative to do things	0	1	2	3
6 (s)	I tended to over-react to situations	0	1	2	3
7 (a)	I experienced trembling (e.g. in the hands)	0	1	2	3
8 (s)	I felt that I was using a lot of nervous energy	0	1	2	3
9 (a)	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10 (d)	I felt that I had nothing to look forward to	0	1	2	3
11 (s)	I found myself getting agitated	0	1	2	3
12 (s)	I found it difficult to relax	0	1	2	3
13 (d)	I felt down-hearted and blue	0	1	2	3
14 (s)	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
15 (a)	I felt I was close to panic	0	1	2	3
16 (d)	I was unable to become enthusiastic about anything	0	1	2	3
17 (d)	I felt I wasn't worth much as a person	0	1	2	3
18 (s)	I felt that I was rather touchy	0	1	2	3
19 (a)	I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat)	0	1	2	3
20 (a)	I felt scared without any good reason	0	1	2	3
21 (d)	I felt that life was meaningless	0	1	2	3

DASS-21 Scoring Instructions

The DASS-21 should not be used to replace a face to face clinical interview. If you are experiencing significant emotional difficulties you should contact your GP for a referral to a qualified professional.

Depression, Anxiety and Stress Scale - 21 Items (DASS-21)

The Depression, Anxiety and Stress Scale - 21 Items (DASS-21) is a set of three self-report scales designed to measure the emotional states of depression, anxiety and stress.

Each of the three DASS-21 scales contains 7 items, divided into subscales with similar content. The depression scale assesses dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest / involvement, anhedonia and inertia. The anxiety scale assesses autonomic arousal, skeletal muscle effects, situational anxiety, and subjective experience of anxious affect. The stress scale is sensitive to levels of chronic non-specific arousal. It assesses difficulty relaxing, nervous arousal, and being easily upset / agitated, irritable / over-reactive and impatient. Scores for depression, anxiety and stress are calculated by summing the scores for the relevant items.

The DASS-21 is based on a dimensional rather than a categorical conception of psychological disorder. The assumption on which the DASS-21 development was based (and which was confirmed by the research data) is that the differences between the depression, anxiety and the stress experienced by normal subjects and clinical populations are essentially differences of degree. The DASS-21 therefore has no direct implications for the allocation of patients to discrete diagnostic categories postulated in classificatory systems such as the DSM and ICD.

Recommended cut-off scores for conventional severity labels (normal, moderate, severe) are as follows:

NB Scores on the DASS-21 will need to be multiplied by 2 to calculate the final score.

	Depression	Anxiety	Stress
Normal	0-9	0-7	0-14
Mild	10-13	8-9	15-18
Moderate	14-20	10-14	19-25
Severe	21-27	15-19	26-33
Extremely Severe	28+	20+	34+

Lovibond, S.H. & Lovibond, P.F. (1995). Manual for the Depression Anxiety & Stress Scales. (2nd Ed.)Sydney: Psychology Foundation.

Appendix H

Submissive Behaviour Scale (Allan & Gilbert, 1997)

[Removed for digital archiving]

[Removed for digital archiving]

Appendix I

Social Comparison Scale (Allan & Gilbert, 1995)

[Removed for digital archiving]

[Removed for digital archiving]

Appendix J

Compassionate Engagement and Action Scales; Self-compassion subscales (Gilbert et al., 2016)

[Removed for digital archiving]

[Removed for digital archiving]

[Removed for digital archiving]

Appendix K

Fears of Compassion Scales; Responding to the Expression of Compassion from Others scale (Gilbert et al., 2014)

[Removed for digital archiving]

[Removed for digital archiving]

Appendix L

Research Recruitment Poster

Appendix M

Information Sheet and Consent Form

A Survey Exploring Social Comparison, Mood and Compassion Received (manuscript)

Participant information sheet

Thank you for showing interest in my research!

I would like to invite you to participate in a research project which forms part of my doctoral research. Before you decide whether you want to take part, it is important for you to understand why the research is being done and what your participation will involve. Please take time to read the following information carefully and discuss it with others if you wish. Please ask me if there is anything that is not clear or if you would like more information.

Title of study: Does compassion received moderate the relationship between social rank and depressive symptomatology?

The purpose of the study:

The research aims to help develop a better understanding of the relationship between how individual's evaluate themselves in comparison to others and how this might affect their mood. Specifically, what might protect individuals against low mood and anxiety. The current understanding is that people who have poorer perceptions of themselves or more frequent negative comparisons to others are more likely to experience low mood, anxiety and stress. We are interested in whether compassion acts as a protective quality for individuals.

Improving our understanding of the relationship between people's self-evaluations and low mood, will help inform what interventions might be most beneficial for individuals experiencing both mental health difficulties and negative comparisons to others. For example, whether therapies focusing on building compassion would be suitable or not.

Why have I been invited to take part?

You are being invited to participate in this study because the researcher is looking to recruit people who are aged 18 years or older and are interested in taking part in the study.

What will happen if I take part?

If you choose to take part in the study you will be asked to complete an online survey which will take between 15 to 30 minutes to complete. Participation will be self-directed, so you are able to complete the survey at your own pace.

If once reading through the research information you would like to participate then you will be asked to provide your consent at the bottom of the page. Following this you will be asked a series of questions covering the following topics:

- Your age and gender identity
- Your experiences of compassion
- Your experiences of low mood, anxiety and stress
- Your self-perceptions in comparison to others and how you might behave in social situations

The survey is presented across multiple pages. You will be required to answer all the questions on the page before moving onto the next page. On the final page of questions, you will be asked to submit your responses. Your data will remain anonymous and stored in the database to be analysed and included in the research report at a later stage. Due to the anonymisation of your data, once you have submitted your survey responses **you will not be able to withdraw your information** from the research.

Do I have to take part?

Participation is completely voluntary. You should only take part if you want to and choosing not to take part will not disadvantage you in any way. Once you have read the information sheet, please contact us if you have any questions that will help you make a decision about taking part. If you decide to take part we will ask you to provide a statement of consent.

What are the possible risks of taking part?

The questions in the survey cover sensitive and personal topics such as self-perception and experiences of mood. You may find that following these questions difficult thoughts, memories or feelings might arise. If you feel distressed or too uncomfortable with the questions included, you do not have to continue with the questionnaire. Furthermore, resources and support services will be highlighted at the end of the questionnaire if you feel you would like extra support. If you further questions or concerns, you can also contact the research team.

What are the possible benefits of taking part?

There are no personal benefits to taking part in the research. However, participation in the research will contribute to developing a better understanding of the relationship between an individual's self-perception and mood. This understanding could help identify beneficial interventions for individuals experiencing mental health difficulties and low self-evaluations.

Data handling and confidentiality

- Your data will be processed in accordance with the UK-GDPR and the Data Protection Act 2018:
- No personal or identifiable information will be asked from you.
- Your data it will be stored for 10 years in line with university policy.
- Access to the research data will be shared with members of the research team; the researcher and research supervisors.

Where can you find out more about how your information is used?

You can find out more about how we use your information:

- By asking one of the research team
- By contacting the University of Hull Data Protection Officer by emailing dataprotection@hull.ac.uk or by calling 01482 466594 or by writing to the Data Protection Officer at University of Hull, Cottingham Road, Hull, HU6 7RX
- By reviewing the University of Hull Research Participant privacy notice: https://www.hull.ac.uk/choose-hull/university-and-region/key- documents/docs/quality/research-participant-privacy-notice.pdf

What will happen to the results of the study?

The results of the study will be summarised in a written report. Additionally, the results will also be written up in a research paper that might be published in a scientific journal and/or presented at conferences.

Who has reviewed this study?

Research studies are reviewed by an independent group of people, called a Research Ethics Committee, to protect your interests. This study has been reviewed and been given a favourable opinion by the Faculty of Health Sciences Ethics Committee, University of Hull.

Who should I contact for further information?

If you have any questions or require more information about this study, please contact me using the following contact details:

- T.Cheung-Cook-2021@hull.ac.uk

What if I have further questions, or if something goes wrong?

If you wish to make a complaint about the conduct of the study, you can contact the University of Hull using the details below for further advice and information:

- Dr Philip Molyneux; p.molyneux@hull.ac.uk
- Dr Tim Alexander; t.alexander@hull.ac.uk

Sources of Support (included on the same page as PIS and consent)

We understand that the topics covered in the research can be sensitive and might stir difficult emotions for people. You are able to exit the survey at any point if you become upset or do not wish to continue.There are services available to access if you are experiencing difficulties in managing how you are feeling, would like more support or simply somebody to talk to. Please see below for some services that might be helpful to access:

- Mind - offer mental health information and support services. They have a network of local services that provide support to their community. Their 'info line' can be accessed on 0300 123 3393 or access their website and resources here.
- Shout - is a 24/7, free and confidential text support service with trained volunteers. To access this service and start a conversation text 'SHOUT' to 85258. For further information access their website here.
- The Samaritans - offer support to people experiencing difficulties and who would like someone to talk to. Their helpline can be accessed on 116 123 at 24/7, for free. For more information, their website can be accessed here.
- Students from the University of Hull can also access mental health and wellbeing support from the university. Please see their website for more information.

Alternatively, if you are concerned you could speak with your GP and they could offer further guidance.

Thank you for reading this information sheet and for considering taking part in this research.

I have read and understood the participant information, and consent to taking part in the research

- Yes
- No

*Participants who select no are directed to ‘participants not given consent - redirect pag

Appendix N

Boxplots Displaying Outliers

Figure N1

Distribution of Total SocCS Scores

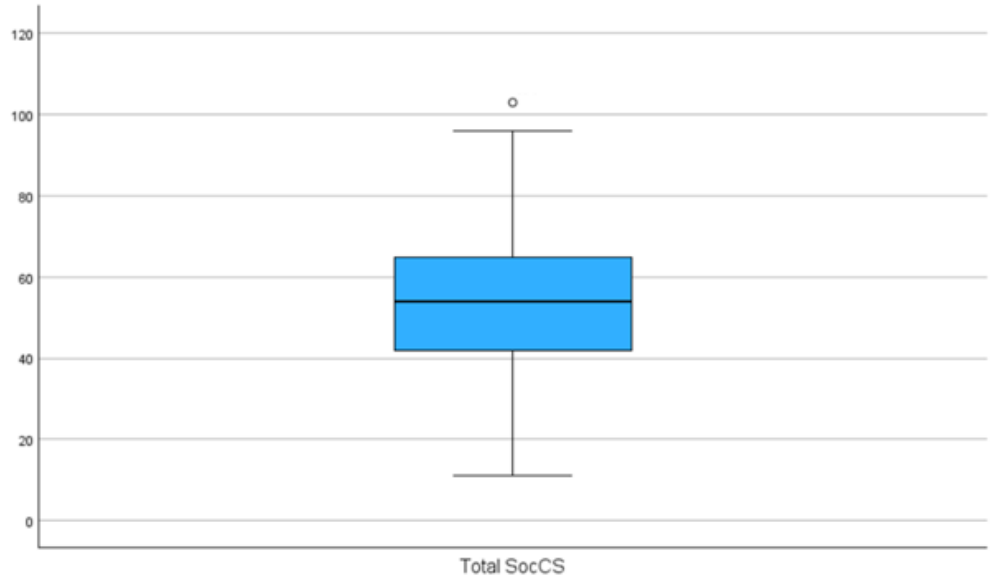
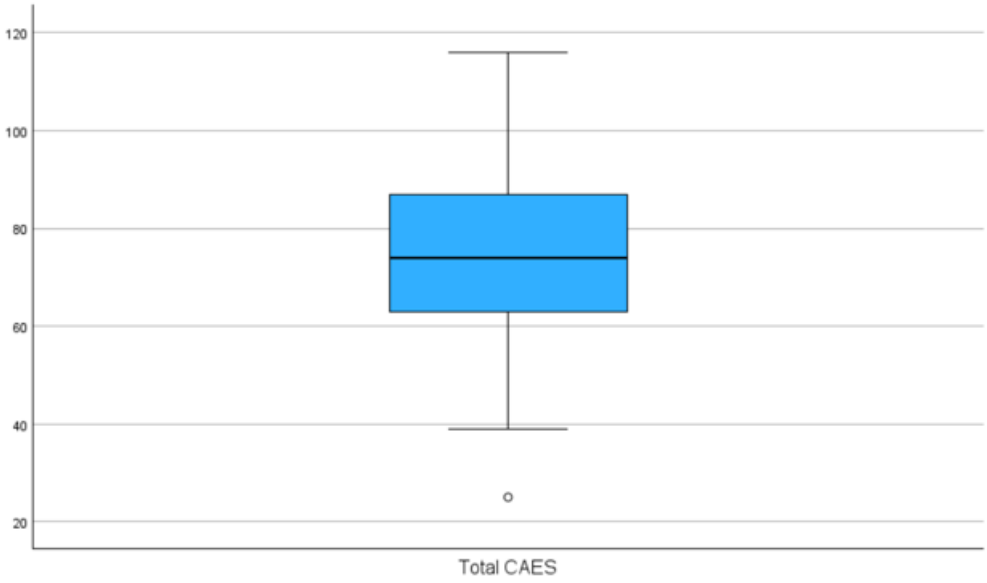


Figure N2

Distribution of Total CEAS Scores



Appendix O

Assessment of Normality of Data

Table O1

Skew and Kurtosis Values for DASS-21 Subscales

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
DASS_d	214	.00	20.00	6.9112	4.87944	.745	.166	.106	.331
DASS_S	214	.00	19.00	8.8645	4.19762	.129	.166	-.426	.331
DASS_A	214	.00	20.00	6.2523	4.66652	.515	.166	-.571	.331
Valid N (listwise)	214								

Table O2

Skew and Kurtosis Values for Study Variables

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Total DASS-21	221	0	55	22.39	12.190	.406	.164	-.212	.326
Total SBS	221	4	61	31.99	11.729	.100	.164	-.799	.326
Total SocCS	221	11	103	53.66	17.689	.022	.164	-.015	.326
Total CAES	221	25	116	74.48	16.285	.034	.164	-.208	.326
Total FOCS	221	0	47	19.55	11.029	.188	.164	-.734	.326
Valid N (listwise)	221								

Appendix P

Assessment of Multicollinearity

Table P1

VIF and Tolerance Values Assessing Multicollinearity in DASS-D Model

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	8.732	.834		10.475	<.001					
	Age	-.067	.029	-.152	-2.275	.024	-.152	-.152	-.152	1.000	1.000
2	(Constant)	4.586	2.100		2.184	.030					
	Age	-.003	.027	-.006	-.097	.923	-.152	-.007	-.006	.896	1.116
	Total SBS	.159	.031	.381	5.093	<.001	.485	.327	.298	.611	1.636
	Total SocCS	-.049	.020	-.176	-2.458	.015	-.397	-.165	-.144	.667	1.500

a. Dependent Variable: DASS_D

Table P2

VIF and Tolerance Values Assessing Multicollinearity in DASS-A Model

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	9.564	.781		12.249	<.001	8.025	11.103					
	Age	-.121	.027	-.285	-4.404	<.001	-.175	-.067	-.285	-.285	-.285	1.000	1.000
2	(Constant)	2.846	1.882		1.512	.132	-.864	6.556					
	Age	-.049	.024	-.116	-2.015	.045	-.097	-.001	-.285	-.136	-.110	.896	1.116
	Total SBS	.197	.028	.489	7.032	<.001	.142	.252	.584	.431	.382	.611	1.636
	Total SocCS	-.027	.018	-.102	-1.525	.129	-.062	.008	-.399	-.103	-.083	.667	1.500

a. Dependent Variable: DASS_A

Table P3

VIF and Tolerance Values Assessing Multicollinearity in DASS-S Model

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	11.104	.716		15.503	<.001	9.692	12.516					
	Age	-.080	.025	-.210	-3.184	.002	-.129	-.030	-.210	-.210	-.210	1.000	1.000
2	(Constant)	6.048	1.836		3.295	.001	2.430	9.665					
	Age	-.025	.024	-.066	-1.061	.290	-.072	.022	-.210	-.072	-.063	.896	1.116
	Total SBS	.150	.027	.414	5.491	<.001	.096	.203	.487	.349	.324	.611	1.636
	Total SocCS	-.022	.017	-.091	-1.263	.208	-.056	.012	-.339	-.085	-.074	.667	1.500

a. Dependent Variable: DASS_S

Appendix Q

Assessment of Heteroscedasticity

Figure Q1

Scatterplot Used to Determine Heteroscedasticity for DASS-D

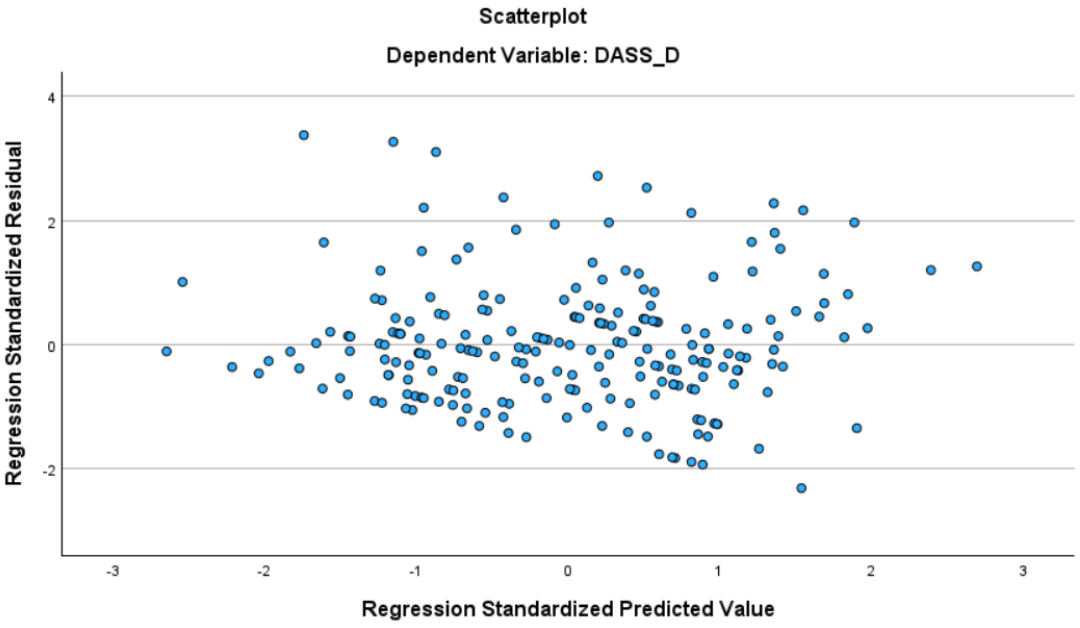


Figure Q2.

Scatterplot Used to Determine Heteroscedasticity for DASS-A

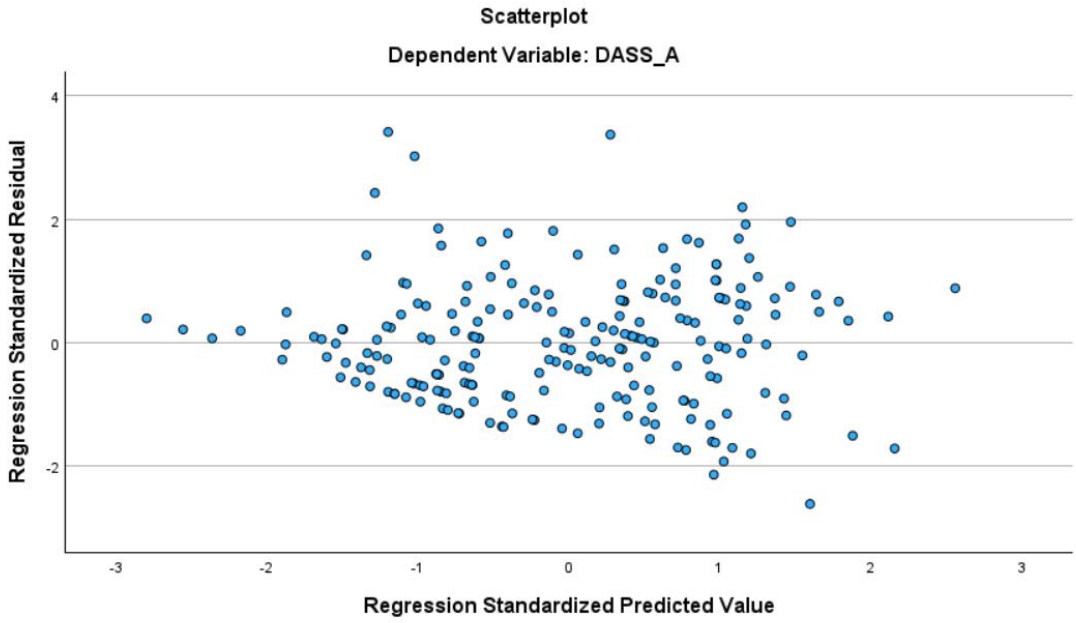
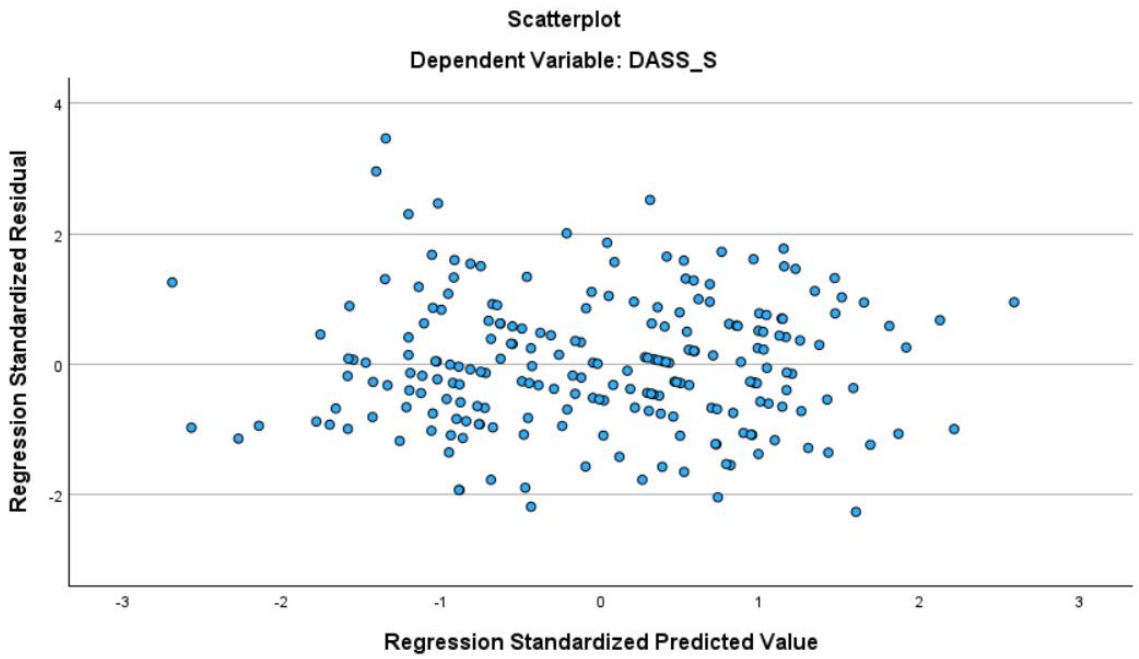


Figure Q3

Scatterplot Used to Determine Heteroscedasticity for DASS-S



Appendix R

Sensitivity Analyses

Table R1

Model Summary of Hierarchical Regression with DASS-D Including Gender

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.163[a]	.027	.017	4.82436	.027	2.861	2	210	.059	
2	.512[b]	.262	.248	4.22105	.235	33.160	2	208	<.001	1.913

a. Predictors: (Constant), Gender, Age

b. Predictors: (Constant), Gender, Age, Total SocCS, Total SBS

c. Dependent Variable: DASS-D

Table R2

Bootstrapped Coefficients for Multiple Hierarchical Regression with DASS-D Including Gender

Bootstrap for Coefficients

Model		B	Bootstrap[a]				
			Bias	Std. Error	Sig. (2-tailed)	95% Confidence Interval	
						Lower	Upper
1	(Constant)	9.556	.006	1.228	<.001	7.174	11.852
	Age	-.061	-.002	.028	.020	-.116	-.007
	Gender	-.899	.036	.923	.331	-2.593	1.071
2	(Constant)	2.921	.317	2.559	.256	-1.508	8.304
	Age	.000	-.002	.024	.997	-.046	.047
	Gender	1.103	-.010	.812	.175	-.586	2.692
	Total SBS	.168	-.005	.037	<.001	.088	.231
	Total SocCS	-.050	-.002	.023	.029	-.096	-.008

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

Table R3

Model Summary of Hierarchical Regression with DASS-D not Including Gender

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.146[a]	.021	.017	4.82577	.021	4.597	1	211	.033	
2	.505[b]	.255	.244	4.23104	.233	32.743	2	209	<.001	1.914

a. Predictors: (Constant), Age

b. Predictors: (Constant), Age, Total SocCS, Total SBS

c. Dependent Variable: DASS-D

Table R4

Bootstrapped Coefficients for Multiple Hierarchical Regression with DASS-D Not Including Gender

Bootstrap for Coefficients

Model		B	Bootstrap[a] Bias	Std. Error	Sig. (2-tailed)	95% Confidence Interval Lower	Upper
1	(Constant)	8.545	.013	.825	<.001	6.931	10.048
	Age	-.063	6.707E-5	.029	.030	-.115	-.004
2	(Constant)	4.346	.009	2.260	.052	-.041	8.834
	Age	-.001	.000	.024	.982	-.043	.048
	Total SBS	.160	.000	.036	<.001	.086	.226
	Total SocCS	-.047	-8.370E-5	.022	.035	-.088	.000

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

Table R5

Model Summary of Hierarchical Regression with DASS-A Including Gender

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.349[a]	.122	.113	4.38303	.122	14.532	2	210	<.001	
2	.595[b]	.354	.342	3.77548	.233	37.512	2	208	<.001	1.881

a. Predictors: (Constant), Gender, Age

b. Predictors: (Constant), Gender, Age, Total SocCS, Total SBS

c. Dependent Variable: DASS-A

Table R6

Bootstrapped Coefficients for Multiple Hierarchical Regression with DASS-A Including Gender

Bootstrap for Coefficients

Model		B	Bootstrap[a] Bias	Std. Error	Sig. (2-tailed)	95% Confidence Interval Lower	Upper
1	(Constant)	12.082	.017	1.054	<.001	9.980	14.136
	Age	-.108	.000	.030	<.001	-.166	-.045
	Gender	-2.520	-.018	.685	<.001	-3.803	-1.213
2	(Constant)	3.165	-.024	2.263	.164	-1.111	7.754
	Age	-.046	6.199E-5	.023	.041	-.091	-.001
	Gender	-.670	.008	.593	.276	-1.828	.546
	Total SBS	.192	.001	.034	<.001	.126	.260
	Total SocCS	-.019	.000	.020	.319	-.057	.022

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

Table R7

Model Summary of Hierarchical Regression with DASS-A not Including Gender

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.277[a]	.077	.072	4.48252	.077	17.569	1	211	<.001	
2	.593[b]	.352	.342	3.77474	.275	44.273	2	209	<.001	1.893

a. Predictors: (Constant), Age

b. Predictors: (Constant), Age, Total SocCS, Total SBS

c. Dependent Variable: DASS-A

Table R8

Bootstrapped Coefficients for Multiple Hierarchical Regression with DASS-A not Including Gender

Bootstrap for Coefficients

Model		B	Bootstrap[a]				
			Bias	Std. Error	Sig. (2-tailed)	95% Confidence Interval	
						Lower	Upper
1	(Constant)	9.248	.012	.794	<.001	7.626	10.746
	Age	-.114	-.001	.028	<.001	-.165	-.056
2	(Constant)	2.298	.084	2.127	.271	-2.198	6.529
	Age	-.045	-.001	.022	.042	-.087	-.002
	Total SBS	.197	-.001	.032	<.001	.131	.259
	Total SocCS	-.021	.000	.018	.250	-.059	.014

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

Table R9

Model Summary of Hierarchical Regression with DASS-S Including Gender

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.259[a]	.067	.058	4.08291	.067	7.530	2	210	<.001	
2	.484[b]	.234	.219	3.71680	.167	22.704	2	208	<.001	2.028

a. Predictors: (Constant), Gender, Age

b. Predictors: (Constant), Gender, Age, Total SocCS, Total SBS

c. Dependent Variable: DASS-S

Table R10

Bootstrapped Coefficients for Multiple Hierarchical Regression with DASS-S Including Gender

Bootstrap for Coefficients

Model		B	Bootstrap[a] Bias	Std. Error	Sig. (2-tailed)	95% Confidence Interval Lower	Upper
1	(Constant)	12.814	.022	1.033	<.001	10.882	14.915
	Age	-.071	-.001	.023	.003	-.120	-.025
	Gender	-1.749	.011	.787	.030	-3.331	-.159
2	(Constant)	5.980	.065	2.189	.008	2.089	10.469
	Age	-.023	-.001	.021	.266	-.066	.020
	Gender	-.332	-.004	.775	.668	-1.983	1.209
	Total SBS	.147	-.001	.030	<.001	.086	.200
	Total SocCS	-.015	.000	.020	.471	-.054	.026

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

Table R11

Model Summary of Hierarchical Regression with DASS-S not Including Gender

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.201[a]	.041	.036	4.13034	.041	8.920	1	211	.003	
2	.483[b]	.233	.222	3.70998	.193	26.262	2	209	<.001	2.030

a. Predictors: (Constant), Age

b. Predictors: (Constant), Age, Total SocCS, Total SBS

c. Dependent Variable: DASS-S

Table R12

Bootstrapped Coefficients for Multiple Hierarchical Regression with DASS-S not Including Gender

Bootstrap for Coefficients

Model		B	Bootstrap[a] Bias	Std. Error	Sig. (2-tailed)	95% Confidence Interval Lower	Upper
1	(Constant)	10.847	.007	.679	<.001	9.490	12.129
	Age	-.075	-9.011E-5	.023	.002	-.117	-.029
2	(Constant)	5.550	.060	1.804	.005	2.143	9.186
	Age	-.023	.000	.021	.273	-.063	.018
	Total SBS	.149	-.001	.027	<.001	.096	.199
	Total SocCS	-.016	.000	.019	.420	-.052	.021

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

Appendix S

Hierarchical Regression Outputs

Table S1

Multiple Hierarchical Regression Model Summary with DASS-D as the Dependent Variable

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.152[a]	.023	.019	4.83885	.023	5.175	1	219	.024	
2	.506[b]	.256	.245	4.24285	.233	33.924	2	217	<.001	1.933

a. Predictors: (Constant), Age

b. Predictors: (Constant), Age, Total SocCS, Total SBS

c. Dependent Variable: DASS_D

Table S2

Analysis of Variance Used to Measure the Fit of the Model for DASS-D

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	121.180	1	121.180	5.175	.024[b]
	Residual	5127.779	219	23.415		
	Total	5248.959	220			
2	Regression	1342.576	3	447.525	24.860	<.001[c]
	Residual	3906.384	217	18.002		
	Total	5248.959	220			

a. Dependent Variable: DASS_D

b. Predictors: (Constant), Age

c. Predictors: (Constant), Age, Total SocCS, Total SBS

Table S3

Bootstrapped Coefficients for Multiple Hierarchical Regression Model Summary with DASS-A

Bootstrap for Coefficients

Model		B	Bootstrap[a]				
			Bias	Std. Error	Sig. (2-tailed)	95% Confidence Interval	
						Lower	Upper
1	(Constant)	8.732	-.002	.791	<.001	7.222	10.332
	Age	-.067	.000	.028	.012	-.118	-.011
2	(Constant)	4.586	.119	2.231	.040	.237	9.061
	Age	-.003	-.001	.023	.906	-.049	.043
	Total SBS	.159	-.002	.035	<.001	.091	.226
	Total SocCS	-.049	-.001	.022	.029	-.093	-.004

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

Table S4

Multiple Hierarchical Regression Model Summary with DASS-A as the Dependent Variable

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.285[a]	.081	.077	4.53223	.081	19.398	1	219	<.001	
2	.599[b]	.359	.350	3.80329	.278	46.996	2	217	<.001	1.850

a. Predictors: (Constant), Age

b. Predictors: (Constant), Age, Total SocCS, Total SBS

c. Dependent Variable: DASS_A

Table S5

Analysis of Variance Used to Measure the Fit of the Model for DASS-A

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	398.455	1	398.455	19.398	<.001[b]
	Residual	4498.504	219	20.541		
	Total	4896.959	220			
2	Regression	1758.053	3	586.018	40.513	<.001[c]
	Residual	3138.906	217	14.465		
	Total	4896.959	220			

a. Dependent Variable: DASS_A

b. Predictors: (Constant), Age

c. Predictors: (Constant), Age, Total SocCS, Total SBS

Table S6

Bootstrapped Coefficients for Multiple Hierarchical Regression Model Summary with DASS-A

Bootstrap for Coefficients

Model		B	Bootstrap[a]				
			Bias	Std. Error	Sig. (2-tailed)	95% Confidence Interval	
						Lower	Upper
1	(Constant)	9.564	-.007	.801	<.001	7.957	11.069
	Age	-.121	-5.749E-5	.029	<.001	-.174	-.061
2	(Constant)	2.846	.008	2.109	.190	-1.534	6.858
	Age	-.049	-.001	.023	.026	-.095	-.003
	Total SBS	.197	-.001	.032	<.001	.135	.260
	Total SocCS	-.027	.000	.019	.160	-.062	.010

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

Table S7

Multiple Hierarchical Regression Model Summary with DASS-S as the Dependent Variable

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.210[a]	.044	.040	4.15772	.044	10.137	1	219	.002	
2	.496[b]	.246	.236	3.70873	.202	29.117	2	217	<.001	2.000

a. Predictors: (Constant), Age

b. Predictors: (Constant), Age, Total SocCS, Total SBS

c. Dependent Variable: DASS_S

Table S8

Analysis of Variance Used to Measure the Fit of the Model for DASS-S

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	175.229	1	175.229	10.137	.002[b]
	Residual	3785.766	219	17.287		
	Total	3960.995	220			
2	Regression	976.231	3	325.410	23.658	<.001[c]
	Residual	2984.764	217	13.755		
	Total	3960.995	220			

a. Dependent Variable: DASS_S

b. Predictors: (Constant), Age

c. Predictors: (Constant), Age, Total SocCS, Total SBS

Table S9

Bootstrapped Coefficients for Multiple Hierarchical Regression Model Summary with DASS-S

Bootstrap for Coefficients

Model		B	Bootstrap[a]				
			Bias	Std. Error	Sig. (2-tailed)	95% Confidence Interval	
						Lower	Upper
1	(Constant)	11.104	.030	.723	<.001	9.705	12.521
	Age	-.080	.000	.024	<.001	-.127	-.034
2	(Constant)	6.048	.149	1.843	.002	2.536	9.945
	Age	-.025	.000	.021	.227	-.066	.014
	Total SBS	.150	-.001	.028	<.001	.091	.202
	Total SocCS	-.022	-.001	.019	.260	-.061	.016

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

Appendix T

Moderation Analyses Output

Table T1

Moderation Analysis with Social Comparison, Compassion Received and DASS-D

OUTCOME VARIABLE:
DASS_D

Model Summary

R	R-sq	MSE	F	df1	df2	p
.6101	.3722	15.3985	21.1456	6.0000	214.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	7.1410	.7007	10.1912	.0000	5.7599	8.5222
SocCS	-.0346	.0178	-1.9440	.0532	-.0698	.0005
CEAS	-.0850	.0193	-4.4099	.0000	-.1230	-.0470
Int_1	.0019	.0009	1.9985	.0469	.0000	.0037
FOCS	.1561	.0289	5.3959	.0000	.0991	.2131
Int_2	-.0020	.0015	-1.3999	.1630	-.0049	.0008
Age	-.0216	.0249	-.8674	.3867	-.0708	.0275

Product terms key:
Int_1 : SocCS x CEAS
Int_2 : SocCS x FOCS

Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	.0117	3.9939	1.0000	214.0000	.0469
X*Z	.0057	1.9597	1.0000	214.0000	.1630
BOTH	.0325	5.5408	2.0000	214.0000	.0045

Table T2

Moderation Analysis with Submissive Behaviour, Compassion Received and DASS-D

OUTCOME VARIABLE:
DASS_D

Model Summary

R	R-sq	MSE	F	df1	df2	p
.6124	.3751	15.3278	21.4078	6.0000	214.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	6.7915	.7070	9.6067	.0000	5.3980	8.1850
SBS	.0893	.0298	2.9954	.0031	.0305	.1481
CEAS	-.0861	.0180	-4.7954	.0000	-.1216	-.0507
Int_1	-.0018	.0014	-1.2430	.2152	-.0046	.0010
FOCS	.1176	.0306	3.8454	.0002	.0573	.1779
Int_2	.0029	.0024	1.2420	.2156	-.0017	.0076
Age	-.0057	.0256	-.2217	.8247	-.0562	.0449

Product terms key:
Int_1 : SBS x CEAS
Int_2 : SBS x FOCS

Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	.0045	1.5451	1.0000	214.0000	.2152
X*Z	.0045	1.5425	1.0000	214.0000	.2156
BOTH	.0157	2.6859	2.0000	214.0000	.0705

Table T3

Moderation Analysis with Submissive Behaviour, Compassion Received and DASS-A

OUTCOME VARIABLE:
DASS_A

Model Summary

R	R-sq	MSE	F	df1	df2	p
.6625	.4389	12.8399	27.8977	6.0000	214.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	7.4753	.6470	11.5531	.0000	6.2000	8.7507
SBS	.1287	.0273	4.7158	.0000	.0749	.1825
CEAS	-.0504	.0164	-3.0676	.0024	-.0828	-.0180
Int_1	-.0001	.0013	-.0992	.9211	-.0027	.0024
FOCS	.1169	.0280	4.1784	.0000	.0618	.1721
Int_2	.0014	.0022	.6415	.5219	-.0029	.0056
Age	-.0454	.0235	-1.9340	.0544	-.0917	.0009

Product terms key:
Int_1 : SBS x CEAS
Int_2 : SBS x FOCS

Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	.0000	.0098	1.0000	214.0000	.9211
X*Z	.0011	.4115	1.0000	214.0000	.5219
BOTH	.0015	.2902	2.0000	214.0000	.7484

Tables T4

Moderation Analysis with Submissive Behaviour, Compassion Received and DASS-S

OUTCOME VARIABLE:
DASS_S

Model Summary

R	R-sq	MSE	F	df1	df2	p
.5744	.3299	12.4026	17.5615	6.0000	214.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	9.4930	.6359	14.9279	.0000	8.2396	10.7465
SBS	.0872	.0268	3.2522	.0013	.0344	.1401
CEAS	-.0521	.0162	-3.2213	.0015	-.0839	-.0202
Int_1	.0007	.0013	.5365	.5922	-.0018	.0032
FOCS	.0940	.0275	3.4170	.0008	.0398	.1482
Int_2	.0019	.0021	.9081	.3649	-.0022	.0061
Age	-.0224	.0231	-.9730	.3316	-.0679	.0230

Product terms key:
Int_1 : SBS x CEAS
Int_2 : SBS x FOCS

Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	.0009	.2879	1.0000	214.0000	.5922
X*Z	.0026	.8246	1.0000	214.0000	.3649
BOTH	.0027	.4261	2.0000	214.0000	.6536