The sequential indirect effect of adverse parenting on depressive symptoms through perfectionism and self-compassion

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Declaration

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Literature Review

Abstract

Depression is a leading cause of global disability. Among many other factors, the development of depressive symptoms across the lifespan has been linked to adverse parenting practices. Previous research has addressed perfectionism and self-compassion as factors that individually mediate the parenting-depression relationship; however, very few studies have taken an integrative approach to examine how these factors interact to influence this relationship. The following review examines theory and previous research regarding the associations between parenting, perfectionism, self-compassion and depressive symptoms. The review concludes with aims for future research to address the potential interconnectivity between perfectionism and self-compassion in the parenting and depression relationship.

Depression and University

Depression remains one of the leading causes of disability and mental illness globally (Bitsika & Sharpley, 2012; S. L. James et al., 2018). From 2017 to 2018, one in 10 Australians was diagnosed with depression or experienced depressive symptoms, signifying an 8.9% increase in comparison to the period from 2014 to 2015 (Australian Bureau of Statistics, 2019). National data also indicate increasing prevalence of depressive symptoms amongst the Australian tertiary student population. In a 2016 Australian student survey, 65% of young adults and 53% of mature-age students reported high to very high psychological distress (Rickwood, Telford, O'Sullivan, Crisp, & Magyar, 2016). Furthermore, the majority of respondents reported they experienced mental illness symptoms that adversely impacted their study over the previous year (Rickwood et al., 2016). Schofield, O'Halloran, McLean, Forrester-Knauss, and Paxton (2016) found that 39.5% of 800 tertiary students reported mild to extremely severe symptoms of depression and concluded that university students are at high risk for developing mental illness. Tertiary students face numerous stressors associated with transition to university, such as increased academic and organisational demands, independent living requirements and forming interpersonal relationships (Said, Kypri, & Bowman, 2013). In this population, depressive symptoms have been linked to further adverse outcomes, such as impaired academic performance (Dyrbye et al., 2008), increased associated risk of comorbid anxiety (Bitsika & Sharpley, 2012), and stress, loneliness and body image concerns (Schofield et al., 2016). Concerningly, tertiary study stressors have also been linked to suicide attempts (Lester, 2014). Consequently, gaining further insight into the mechanisms for depressive symptom development in the tertiary student population remains a vital area of research.

Furthermore, it is important to consider the relevant predisposing factors which may increase an individual's vulnerability to depression in this population.

Parenting and Depression

The parent-child relationship has an enduring impact on mental health throughout the lifespan and has been shown to act as a predisposing factor for mental illness. Bowlby (2005) contended that childhood attachment (efforts to maintain closeness to a primary care figure) and parental caregiving reflect behaviours that are aimed to protect the child and aid their development. A functional parent-child relationship is characterised by synchronous child attachment and parental caregiving (Jones, Cassidy, & Shaver, 2015). Furthermore, parental behaviours have been posited to influence the development of tripartite emotion regulation systems that interact to govern response to threat (threat-protection system), desire to seek rewards and resources (drive-excitement system), and ability to self-soothe (soothing-contentment system) (Gilbert, 2009). Consequently, parenting that is misaligned with, or negligent of, the child's needs is proposed to disrupt the parent-child relationship and contribute to insecure attachment and emotion regulation difficulties (such as an underdeveloped ability to self-soothe) (Gilbert, 2010). Such adverse parenting may lead to enduring difficulties in an individual's ability to self-regulate and form attachments, which may continue to influence the individual's identity and perceptions of self and others.

Substantial research has demonstrated that adverse parenting is associated with adverse mental health outcomes across the lifespan, such as depression. Adverse parenting constitutes parental behaviours which may be perceived as excessively controlling and harsh, lacking in warmth, critical, highly demanding and low in

responsiveness (Ko, Hewitt, Cox, Flett, & Chen, 2019). In a systematic review and meta-analysis, parenting characterised by low warmth, hostility, excessive monitoring and overinvolvement was shown to increase risk for depression in people aged 12 to 18 (Yap, Pilkington, Ryan, & Jorm, 2014). Additionally, relationships have been established between adverse parental rearing practices and increased psychopathology, including between parental rejection and suicidality (Campos, Besser, & Blatt, 2013), parental rejection and depressive symptoms (Temel & Atalay, 2018), high-demand/low-responsiveness parenting and depressive symptoms (King, Vidourek, & Merianos, 2016), low familial support and depression (Flett, Druckman, Hewitt, & Wekerle, 2012), and parental overcontrol and anxiety (Chorot, Valiente, Magaz, Santed, & Sandin, 2017). Severe forms of adverse parental behaviour (such as emotionally abusive and neglectful parenting) have been shown to correspond with increased risk for a variety of mental illness diagnoses, including major depression, borderline personality disorder, anxiety disorders and substance use disorders (Taillieu, Brownbridge, Sareen, & Afifi, 2016), as well as increased suicide risk (Falgares et al., 2018). Alternately, responsive and supportive parenting has been linked to enhanced wellbeing. For example, research has shown parental warmth to be associated with reduced depressive symptoms (Temel & Atalay, 2018; Chorot et al., 2017), along with positive associations between parental responsiveness and childhood coping (Watson et al., 2014). Baker and Hoerger (2012) argued that further enquiry is necessary to more precisely determine how parenting behaviour in childhood impacts adult functioning, in order to support treatment and increase understanding of developmental psychology.

Recalled Parenting Measurement

Contention exists regarding the use of recalled parenting measures, which require participants to recollect and express their perceptions of aspects and frequency of their parents' behaviour. Previous researchers have critiqued the validity and accuracy of recalled parenting measures on the basis that recollections may become distorted over time (e.g. Alonso, 2015). Seemingly in support of this, Bell and Bell (2018) found only moderate correlation relationships between prospective and retrospective forms of familial environment measurement. However, Baker and Hoerger (2012) note that retrospective studies provide a more feasible means of assessing past parenting, given the financial barriers associated with longitudinal, prospective and observational studies. Furthermore, it has been posited that perceptions of historic parental behaviour are likely to be more pertinent to mental health outcomes than objective parenting measurement, given that perceptions are more likely to influence development and that recollections may have an enduring impact on psychological outcomes (Parker, 1984; Pepping, Davis, O'Donovan and Pal, 2015).

Perfectionism Conceptualisation and Measurement

Perfectionism has been broadly defined as holding and aiming for exceedingly and unrealistically high standards and a belief that self-worth is contingent on meeting these standards (Frost, Marten, Lahart, & Rosenblate, 1990; Hewitt, Mittelstaedt, & Wollert, 1989). High standards underlying perfectionism may be expected from the self, from others, or encompass beliefs about what others expect (Flett, Hewitt, Oliver, & MacDonald, 2002). Perfectionism has been alternately conceived of as a personality trait or style, a symptom of mental disorder, and as a cognitive process which

perpetuates psychopathology (Egan, Wade, & Shafran, 2011; Hewitt, Flett, & Mikail, 2017; Morris & Lomax, 2014). Furthermore, perfectionism has been established as a transdiagnostic factor, shown to be influential in the development and perpetuation of multiple types of mental illness and comorbidity (Egan et al., 2011).

Perfectionism has been extensively researched and measured differentially. While initial studies conceptualised perfectionism as a unidimensional construct, more recent conceptualisations and measures recognise it as a multidimensional construct (Gong, Fletcher, & Bolin, 2015). Predominantly used multidimensional perfectionism measures include the Frost Multidimensional Perfectionism Scales (F-MPS; Frost et al., 1990), Hewitt and Flett's (1991) Multidimensional Perfectionism Scale (MPS-HF), the Almost Perfect Scale-Revised (Slaney, Rice, Mobley, Trippi, & Ashby, 2001) and the Perfectionism Inventory (Hill, Huelsman, Furr, Kibler, & Vicente, 2004). These measures assess varied facets of perfectionism. For example, the F-MPS incorporates subscales measuring personal standards, concern over mistakes, doubts about actions and aspects of perceived parenting, whereas the MPS-HF assesses high standards for self, high standards for others and beliefs that others expect high standards (Frost et al., 1990; Hewitt & Flett, 1991).

Perfectionism has also been conceptualised and measured as comprised of two factors: perfectionistic concerns and perfectionistic strivings (Dunkley, Blankstein, Masheb, & Grilo, 2006). Perfectionistic concerns, alternately termed maladaptive perfectionism, refers to excessively high personal standards that are persistent and contribute to critical self-evaluation, preoccupation with failure and diminished sense of self-worth as a result of failures. Perfectionistic strivings, alternately termed adaptive perfectionism, refers to excessively high standards and belief in the importance of striving for, and maintaining, these standards (Mehr & Adams, 2016; Sirois, Molnar, &

Hirsch, 2017). Consequently, research differs considerably with regard to the forms and facets of perfectionism under examination.

As a result, there is a lack of consistency in conceptualisation and measurement of perfectionism and forms of perfectionism in the literature. Stoeber and Otto (2006) suggested several subscales from different perfectionism measures could be used to represent core aspects of perfectionistic concerns and strivings: for example, the authors suggested the discrepancy subscale of the APS-R (which measures the extent to which participants consider they are not meeting their own or others' high standards) and the concern over mistakes and doubts about actions subscales from the F-MPS represent means of measuring perfectionistic concerns. Alternately, Linnett and Kibowski (2019) derived a 30-item scale of maladaptive and adaptive perfectionism by conducting factor analysis on subscales recommended by Stoeber and Madigan (2016) for perfectionism assessment and consequently combining items from each scale. Conversely, numerous studies have measured maladaptive or adaptive perfectionism using only one subscale: for example, maladaptive perfectionism has frequently been measured using the APS-R discrepancy subscale (e.g. Fletcher et al., 2019; Mehr & Adams, 2016; Wei, Mallinckrodt, Russell, & Abraham, 2004). Furthermore, personal standards (a subscale of the F-MPS) has been adopted as a representation of adaptive perfectionism (Stoeber & Otto, 2006). However, this subscale has been shown to correlate positively with subscales representing "maladaptive" perfectionism (concern over mistakes and doubts about actions from the F-MPS) (Gong et al., 2015). These findings suggest that forms of perfectionism are not easily delineated from one another and that the relationship between facets of perfectionism may be complex. As such, the use of single subscales may represent an oversimplified approach to perfectionism measurement.

Similarly, contention exists regarding whether perfectionism can be stated to have an adaptive form. Previous theorists have argued that perfectionism is not inherently detrimental and have linked adaptive perfectionism to beneficial outcomes such as increased self-esteem, positive affect, and higher sense of accomplishment in correlation research and with improved academic performance in student populations (Birch, Riby, & McGann, 2019; Madigan, 2019; Methikalam, Wang, Slaney, & Yeung, 2015; Rice, Richardson, & Tueller, 2014). Additionally, Morris and Lomax (2014) posited that interventions aimed at shifting clients toward adaptive perfectionism may be a preferable aim in situations where the client is resistant to relinquishing perfectionism. In contrast, an alternate perspective in perfectionism literature suggests that the beneficial aspects of high standards cannot be separated from the harmful influence of the rigid belief system inherent in perfectionism, which specifies that unrealistic, flawless standards must be perpetually maintained (Egan et al. 2011). Furthermore, very little research has examined how adaptive perfectionists are impacted when prevented from achieving goals or following sustained repeated failures. Additionally, both forms of perfectionism have been linked with detrimental outcomes in clinical populations (for example, clients with chronic illness) (Linnett & Kibowski, 2019; Molnar & Sirois, 2016). As such, it is important that future research adopt a multi-dimensional approach, which captures both the arguably positive and negative facets of perfectionism, to comprehensively measure and make conclusions regarding perfectionism. Furthermore, it is important that caution is exercised in use of terminology and making recommendations regarding the type of perfectionism under study.

Perfectionism and Depression

Perfectionism has been demonstrated to be a risk factor for development of eating disorders and depression. For example, perfectionism shows positive associations with bipolar disorder, anxiety disorders, obsessive-compulsive disorder, and personality disorders, along with strong, positive associations with suicidal ideation and self-harm (Egan et al., 2011; Morris & Lomax, 2014). Brown and Beck (2002) reflected, in their conceptualisation of depression vulnerability, that people with depression experience more negative thoughts, including negative thoughts about the self, environment and the future. Following from this, those who endorse perfectionistic beliefs and do not meet high standards are likely to experience more negative thoughts about the self and their ability to achieve. In support of this conceptualisation, longitudinal research has established perfectionism as an antecedent to depressive symptoms in adolescents and adults (Graham et al., 2010; Soenens et al., 2008). Furthermore, cross-sectional research has frequently shown positive relationships between maladaptive perfectionism and depressive symptoms, for example in college students (Mehr & Adams, 2016). This relationship may be particularly pertinent in adolescent and young adult populations, as research has shown that a linear trend of increasing perfectionism in recent generations of young people (Curran & Hill, 2019).

Perfectionism acts as a barrier to engagement in and efficacy of mental health treatment. Perfectionism has been shown to impede treatment-seeking and engagement in therapy, whilst greater therapeutic efficacy and symptom reduction have been linked to perfectionism interventions in both child and adult populations (Egan et al., 2011; Morris & Lomax, 2014; Presley, Jones, & Newton, 2017; Richardson, Rice, Sauer, & Roberts, 2019). Additionally, Curran and Hill (2019) established a trend of linearly increasing perfectionism in young people, since the late 1980s. As such, perfectionism

is an increasingly pervasive problem, particularly in young people, and is a transdiagnostic risk factor which can act as a barrier to seeking help and can impair treatment efficacy. Therefore, further psychological research is necessary in order to improve understanding of the mechanisms which link perfectionism to adverse mental health outcomes.

Additionally, intervention research has shown that targeting perfectionism in therapy can help to reduce mental illness outcomes, such as depressive symptoms. Nehmy and Wade (2015) reported participants who engaged in a program targeting perfectionism reported significantly less perfectionism and negative affect six months after program completion. In this study, intervention participants who had lower negative affect at the start of the program tended to report lower negative affect six months after the program, in comparison to controls (suggesting that the program assisted to protect against negative affect increase). In contrast, changes in mental health symptoms were found to precede changes in perfectionism in an intervention study utilising individual therapy with adult clients (Richardson et al., 2019). Consequently, it is important to further explore the nature of relationships between perfectionism and depressive symptoms, to enhance understanding of symptom emergence and assist intervention development.

Parenting and Perfectionism Development

Several models establish parenting as an important antecedent to perfectionism development. The social expectations model posits that perfectionism emerges when parental approval is conditionally granted on the basis that the child meets high parental standards (Flett et al., 2002). Similarly, the social reaction model outlines that a child

may develop perfectionism as a coping response to severe, adverse and neglectful parenting. In this model, perfectionism is proposed to enable the child to avoid further critical parental scrutiny or harm and provides a set of beliefs that impose a sense of control and stability within an unstable environment (Flett et al. 2002). Hewitt et al. (2017) subsequently developed the perfectionism social disconnection model (PSDM), which proposes there are numerous pathways to development of perfectionistic beliefs and behaviours and consequently multiple mechanisms associated with perfectionism that influence health outcomes. Specifically, the model posits that personal factors (e.g. self-concept, temperament) and social context and relationship factors (e.g. parental relationships, attachment difficulties, peer interactions) contribute to perfectionism formation and expression. Importantly, the authors hypothesized that asynchrony between the needs of the child and parental conduct contributes to a less stable sense of self, increased vulnerability and increased proclivity toward self-criticism (Hewitt et al., 2017). For example, asynchrony may occur as a result of exposure to harsh or controlling parenting, neglectful or unresponsive parenting, and adverse childhood experiences. The model further hypothesizes that perfectionism heightens a person's sensitivity to how they are perceived and contributes to distorted beliefs about being judged negatively. In turn, this state is speculated to contribute to negative affect and behaviour (e.g. shame, self-isolation, impaired ability to self-soothe), which therein increases the likelihood of outcomes such as psychological distress. This model reinforces that interpersonal relationships, in various contexts, continue to influence perfectionism from childhood into adulthood (Rasmussen & Troilo, 2016).

Longitudinal studies have provided support for these models by establishing parenting as a precursor to perfectionism (Soenens et al., 2008). Numerous studies have also shown positive correlative relationships between perfectionism and aspects of

parenting, including psychological control (Soenens et al., 2008), parenting that is high in demands and low in responsiveness (Gong et al., 2015), high parental expectations and criticism (Maloney, Egan, Kane, & Rees, 2014), conditional regard (Curran, Hill, & Williams, 2017), and family dysfunction (Chen, Hewitt, & Flett, 2019). In a systematic review of child and adolescent perfectionism, Morris and Lomax (2014) summarised that demanding parental behaviour (separately characterised by overprotection, psychological control and authoritarian parenting style) predicted maladaptive perfectionism. Furthermore, one study established that recalled adverse parenting (reflecting low parental autonomy support, involvement and warmth) was indirectly related to aspects of perfectionism through attachment anxiety and defectiveness (Ko et al., 2019). Consequently, parenting has been shown to be a substantial contributor to perfectionism development.

Research has also shown that perfectionism increases negative outcomes resulting from adverse parenting. In a longitudinal study of adolescents, Soenens et al. (2008) established that increased parental control predicted greater maladaptive perfectionism after one year, which then predicted greater depressive symptoms after a further year. Similarly, disproportionate parental demands (coupled with heightened childhood emotionality) have been linked to higher likelihood of perfectionism development, which in turn corresponded with greater depressive symptoms (Oros, Iuorno, & Serppe, 2017). Self-criticism, a construct related to and a component of perfectionism, has been shown to mediate relationships between parental rejection and depression and suicidality (Campos et al., 2013), and to partially mediate the relationship between childhood psychological abuse and suicide risk (Falgares et al., 2018). Additionally, maladaptive perfectionism has been established as a mediator in the relationship between overly protective, vigilant parenting and depressive symptoms

(Hong & Doh, 2018), between adult attachment avoidance and depressed mood and as a partial mediator between adult attachment anxiety and depressed mood; however, in the latter study, perfectionism was also established as a moderator of attachment anxiety and depressed mood (Wei et al., 2004). Enns, Cox and Clara (2002) established that perfectionism mediated the relationship between harsh parenting and susceptibility to depression, but did not exert a mediating effect on the relationship between perfectionistic parenting and depression. Perfectionism may have a differential facilitation or strengthening role on depressive symptoms, depending on the type of parental behaviour under investigation.

Self-compassion

Self-compassion has been targeted in psychotherapeutic intervention to address and protect against maladaptive mental health outcomes. Neff (2003) defined self-compassion as comprised of three, bipolar components: self-kindness, common humanity and mindfulness. Self-kindness reflects an ability to be understanding and gentle with oneself (rather than being judgemental or critical). Common humanity refers to a sense that one's suffering is part of normal, human life and that the individual is not alone in suffering (as opposed to self-isolation). Mindfulness refers to a balanced and accepting mentality, in which a person is able to defuse from negative thoughts or emotions (as opposed to overidentification with painful thoughts and feelings). The bipolar opposites of self-compassion (self-judgement, self-isolation, and overidentification) have been defined as representing self-coldness (Brenner et al., 2018). Self-compassion has been conceptualised as a positive attitude toward the self, an adaptive coping strategy, an emotion regulation mechanism and a transdiagnostic

process (Gilbert, Clarke, Hempel, Miles, & Irons, 2004; Neff, 2003; Westphal, Leahy, Pala, & Wupperman, 2016). Self-compassion has been shown to enhance wellbeing and protect against mental illness symptoms, as higher self-compassion has been linked with lower psychological distress (MacBeth & Gumley, 2012), increased life satisfaction (Yang, Zhang, & Kou, 2016), and greater wellbeing (Neff & McGehee, 2010). Higher levels of self-compassion have been significantly linked to decreased depressive symptoms in the general population (Körner et al., 2015), high school students (Temel & Atalay, 2018), and college students (Ko et al., 2018). Additionally, low self-compassion has been found as a risk factor for recurring depressive episodes (Ehret, Joormann, & Berking, 2015).

Experimental research has demonstrated self-compassion interventions can lead to large reductions in depressive symptoms and may be particularly effective for highly depressed clients (Diedrich, Grant, Hofmann, Hiller, & Berking, 2014). A longitudinal study demonstrated higher self-compassion corresponded with improvement in depressive symptoms (or reduced increase in symptoms) five months after intervention, in a sample of psychology students (Raes, 2011). Furthermore, in an Australian university sample, self-compassion was shown to have a strong, negative relationship with depressive symptoms, a strong, positive relationship with wellbeing and moderated the relationship between stress and depression (Fong & Loi, 2016). This is similar to findings internationally, as Mehr and Adams (2016) established that university students in the United States who had lower self-compassion reported higher depressive symptoms. Furthermore, higher self-compassion has been shown to correspond with improved adjustment for commencing university students (Terry, Leary, & Mehta, 2013). As such, research suggests self-compassion may assist university students to transition to study life and may protect against maladjustment.

Self-Compassion Development

Secure and supportive parenting is integral for self-compassion development. Theorists have considered that self-compassion emerges as a result of interactions between parent and child, whereby children raised in a caring and safe manner develop a secure attachment style, which facilitates inner self-kindness and consideration (Gilbert, 2010; Neff, 2003). Conversely, children raised in an unstable, uncaring or abusive manner are thought to develop self-critical attitudes. Moreira, Gouveia and Canavarro (2018) posited that the parent-child relationship and observational learning influence the formation of self-compassion, facilitated via observation of how parents treat themselves and via experiencing parental warmth and soothing. Conversely, unresponsive parenting may result in lack of emotional awareness and dysregulation.

Extensive research has provided support for these suggested development pathways. Lower self-compassion has been linked to experiences of emotional abuse and neglect in childhood (Tanaka, Wekerle, Schmuck, Paglia-Boak, & MAP Research Team, 2011), maternal criticism and low early parental warmth (Naismith, Guerrero, & Feigenbaum, 2019), and fearful and preoccupied attachment styles (Neff & McGehee, 2010). Parental criticism has been linked to related constructs, as a prior study determined positive association with self-coldness and negative association with self-warmth (Potter, Yar, Francis, & Schuster, 2014). Alternately, higher self-compassion has been associated with increased maternal and parental warmth (Kelly & Dupasquier, 2016; Temel & Atalay, 2018), and with recalled maternal support and secure attachment style (Neff & McGehee, 2010). Pepping et al. (2015) further demonstrated via an experimental manipulation (prompting visualization of a secure attachment figure providing a compassionate response) that increased sense of attachment security led to an increased state of self-compassion. This research suggests that responsive, accepting

parenting prompts development of self-compassion and that recollection of a secure attachment figure (such as a parent) can continue to influence self-compassion across the lifespan.

Parenting, Self-Compassion and Depression

Self-compassion has been established as a mediator in the relationship between parental behaviour and mental health outcomes. In previous research, self-compassion mediated the relationships between early familial memories and quality of life (Marta-Simões, Ferreira, & Mendes, 2018), parental indifference and psychopathology (Westphal et al., 2016), and childhood emotional abuse and depressive symptoms (Wu, Chi, Lin, & Du, 2018). Additionally, self-compassion was shown to partially mediate relationships between childhood abuse and psychological wellbeing in men (Tarber, Cohn, Casazza, Hastings, & Steele, 2016), between family factors (comprised of maternal support, family functioning and attachment) and wellbeing (Neff & McGehee, 2010), and between parental warmth and depression (Temel & Atalay, 2018). Contrarily, Hood, Thomson Ross and Wills (2019) established self-compassion as a moderator of the relationship between familial unpredictability and depression in college students. Furthermore, Westphal et al. (2016) did not establish a significant relationship between recalled abusive parenting and self-compassion. The authors posited that the nature and measurement of this relationship may be affected by the severity and recency of the parental behaviour (when recalled by participants). Similarly, Wu et al. (2018) found that self-compassion significantly mediated the relationship between childhood psychological abuse and depression, but did not have significant effects in other forms of childhood abuse. As such, further research is

necessary to understand the conditions in which self-compassion influences depressive symptoms linked to parental behaviour.

Parenting, Self-compassion and Perfectionism

Perfectionism and self-compassion may stem from similar developmental pathways. As previously noted, perfectionism is hypothesized to emerge as a result of asynchrony between parental conduct and the needs of the child (Hewitt et al., 2017). Stolorow (1997) posited that misalignment between a child's needs and parental behaviour may be perceived as traumatic by the child and may impair their ability to self-soothe, which may have lasting impacts on emotion regulation capacity and ability to practice self-compassion. As proposed by the PSDM (Hewitt et al., 2017), perfectionism is suggested to contribute to self-alienation, a sense that one's consequent suffering is unique, and confirmation bias regarding a defective self. These hypothesized outcomes represent the bipolar opposite characteristics of self-compassion: self-judgement, isolation and overidentification. Gilbert (2010) further proposed that heightened self-criticism (a component of perfectionism) may overcome the ability to self-soothe. This suggests that increased perfectionism leads to low self-compassion. In support of this, Linnett and Kibowski (2019) demonstrated that facets of maladaptive and adaptive perfectionism predicted lower self-compassion and higher self-judgement respectively. Research has consistently demonstrated an inverse relationship between perfectionism and self-compassion, as low self-compassion has been linked to maladaptive perfectionism (Neff, 2003) and perfectionism generally (Yeshua, Zohar, & Berkovich, 2019). Additionally, K. James and Rimes (2018) established that a mindfulness-based self-help intervention (tailored to address perfectionism) led to significantly less perfectionism and higher self-compassion, which

was maintained 10 weeks after intervention. Furthermore, changes in self-compassion were found to significantly mediate the relationship between treatment group and resulting difference in perfectionism scores. This finding suggests that perfectionism decreased as a result of increased self-compassion, resulting from perfectionism-specific therapy. Perfectionism may pose an ongoing barrier to self-compassion, due to fears that self-kindness may lead to relaxation of high standards (and consequently, lead to poorer performance). As such, developmental theories and research evidence indicate that perfectionism and self-compassion deficits develop as a result of parent-child asynchrony and that perfectionism may inhibit self-compassion development.

Perfectionism, Self-Compassion and Depression

There is extensive evidence that self-compassion is protective against the negative outcomes associated with perfectionism and self-criticism. Multiple intervention studies have demonstrated that self-compassion strategies can reduce perfectionism and associated depressive symptoms. For example, in a sample of psychology undergraduates, a compassionate thinking intervention reduced negative affect experienced as a result of prompted recall of a self-critical past event (Arimitsu & Hofmann, 2017). Short-term compassion-focused therapy led to statistically significant decreases in self-criticism, perfectionism and improved mood (which were maintained at two months post-intervention), in a pilot study with university students (Rose, McIntyre, & Rimes, 2018). Furthermore, several studies have established self-compassion as a mediator, or partial mediator, in the relationship between forms of perfectionism and depressive outcomes. Using the MPS-HF, Stoeber, Lalova and Lumley (2020) established that self-compassion mediated the relationship between perfectionism and subjective wellbeing (comprising life satisfaction, affect and

depression, anxiety and stress scales). Mehr and Adams (2016) demonstrated that self-compassion partially mediated the relationship between maladaptive perfectionism and depressive symptoms in a sample of college students, such that higher perfectionism was related to lower self-compassion, which in turn related to increased reported depressive symptoms; however, this study used the discrepancy subscale of the APS-R alone as a measure of maladaptive perfectionism. Richardson, Trusty and George (2018) investigated the role of self-compassion amongst psychology doctoral students and established that it partially mediated the relationship between self-critical perfectionism with depressive symptoms and burnout. Similarly, the authors used the discrepancy subscale alone to measure perfectionism. Self-compassion has also been found to act as a partial mediator in relationships between inner self-criticism and depression (Joeng & Turner, 2015), and maladaptive perfectionism (measured by the APS-R discrepancy subscale) and depression in participants with bipolar disorder (Fletcher et al., 2019).

Contrarily, self-compassion has been found to moderate the relationship between perfectionism (or related constructs) and depression. Self-compassion was shown to act as a moderator in the relationship between perfectionism and psychosomatic distress (Yeshua et al., 2019), between perfectionism and depressive symptoms in adults and adolescents (Ferrari, Yap, Scott, Einstein, & Ciarrochi, 2018), and between self-coldness and depressive symptoms (Körner et al., 2015). As a result, several authors have posited that self-compassion does not facilitate changes in depression outcomes as a result of perfectionism, but rather that self-compassion changes the strength of the relationship between perfectionism and depressive symptoms. As such, further research is necessary to refine understanding of how self-compassion operates in the relationship between perfectionism and depression.

Additionally, it is important to explore the robustness of this relationship by using multidimensional measures of perfectionism, given that numerous studies have adopted a single-subscale approach.

Integrating Perfectionism and Self-Compassion in the Parenting-Depression Relationship

Previous research has discussed the potential interconnectivity between critical self-appraisal and self-compassion, as a product of adverse parenting. For example, Pepping et al. (2015) used the short-form of the 'My Memories of Upbringing' scale (s-EMBU) to measure three dimensions of recalled parenting: parental warmth (parenting that is supportive and responsive), parental rejection (parenting that is critical and dismissive), and parental overprotection (parenting that is hypervigilant, anxious and controlling). In this study which sampled undergraduate students, low parental warmth, high parental rejection and high parental overprotection were found to predict lower levels of self-compassion. The authors proposed that high parental rejection and overprotection may lead to increased self-criticism and decreased sense of coping self-efficacy respectively. As such, the authors suggested that adverse parenting styles may contribute to lower self-compassion via increased negative self-evaluation and lack of self-belief regarding ability to cope. Similarly, Gong et al. (2015) proposed that parenting may contribute to the development of perfectionism, which may in turn influence a person's ability to cope with stressors, as their study found perfectionism (as measured by the concern over mistakes scale from the F-MPS) mediated the relationship between highly demanding, less responsive parenting and avoidant coping.

As outlined in this review, numerous studies have explored perfectionism and self-compassion separately as mediators of the relationship between parenting behaviour and depression; however, very few studies have concurrently explored the combined roles of perfectionism and self-compassion in this relationship. One previous study addressed the roles of self-criticism and self-reassurance in the relationships between recalled parenting (rejection, overprotection and warmth) and depression (Irons, Gilbert, Baldwin, Baccus, & Palmer, 2006). The authors established that self-criticism partially mediated relationships between parental rejection, overprotection (but not parental warmth) and depression. Alternately, self-reassurance mediated the relationship between parental warmth (but not rejection or overprotection) and depression. A recent study proposed that self-criticism and self-compassion develop via different emotion systems, due to findings that self-compassion was associated with early parental warmth but was not linked to avoidant or anxious attachment, and that parental invalidation increased likelihood of self-critical attitudes (Naismith et al., 2019). As such, there is a lack of clarity in existing research regarding perfectionism and self-compassion development and their role as mechanisms between differential parenting styles and depressive symptoms in later life.

Whilst the former noted studies integrated exploration of parental conduct, perfectionism, self-compassion, psychopathology and related constructs, there is a distinct research gap regarding the potential combined roles of perfectionism and self-compassion in the parenting and depression relationship. This is particularly notable given substantial evidence that self-compassion mediates (or partially mediates) the link between perfectionism and depressive symptoms, which suggests perfectionism and self-compassion may have a serial influence. Whilst single mediation studies have reviewed these constructs separately, Hayes (2018) states single mediation model

research frequently “oversimplifies the kinds of phenomena that researchers study” and that “most effects and phenomena that scientists study probably operate through multiple mechanisms at once” (p. 147). Additionally, Graham et al. (2010) asserted that further research linking perfectionism to emergence of depressive symptoms requires an integrative approach, as previous research has typically focused on individual mediators. The authors emphasise that numerous factors are involved in the emergence of depressive symptoms and posit that a combined approach will assist researchers’ understanding and intervention development. As such, it is recommended that future research simultaneously address the roles of perfectionism and self-compassion (and their potential interconnectivity) in the relationship between adverse parenting and depression.

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The sequential indirect effect of adverse parenting on depressive symptoms through perfectionism and self-compassion

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The sequential indirect effect of adverse parenting on depressive symptoms through perfectionism and self-compassion

Adverse recalled parenting has implications for the formation of maladaptive means of coping and has been linked to increased risk of depression. This study adopted an integrative, cross-sectional approach to explore the relationship between adverse recalled parenting (characterised by low warmth and high levels of rejection and overprotection) and depressive symptoms in adulthood, and the hypothesized roles of perfectionism and self-compassion as sequential facilitatory mechanisms in this relationship. A sample of 233 university students completed self-report measures of recalled parenting, perfectionism, self-compassion and depressive symptoms. Sequential mediation analyses were completed to determine whether indirect relationships existed between recalled parenting and depressive symptoms, through perfectionism and self-compassion. Results provided support for sequential mediation hypotheses, as significant indirect effects were established through both perfectionism and self-compassion sequentially in each model. Findings suggest that enhancing self-compassion may counteract perfectionism and associated depressive symptoms, developed in part as a result of adverse parenting.

Keywords: Adverse recalled parenting; perfectionism; self-compassion; depressive symptoms

Depression is a leading cause of disability internationally, and reports of diagnosis and depressive symptoms have increased in prevalence in recent years (Bitsika & Sharpley, 2012; S. L. James et al., 2018; Australian Bureau of Statistics, 2019). Research suggests that psychological distress and depressive symptoms are increasingly common amongst the tertiary student population, which has significant, adverse implications for student wellbeing and study (Rickwood, Telford, O'Sullivan, Crisp, & Magyar, 2016). A recent study of Australian tertiary students concluded that university students are at increased risk of developing mental illness, as nearly half of

the sample reported symptoms of depression within the mild to extremely severe range (Schofield, O'Halloran, McLean, Forrester-Knauss, & Paxton, 2016). Previous research has established that university students who experience depressive symptoms are at greater risk of associated comorbid symptoms and diagnoses, such as anxiety (Bitsika & Sharpley, 2012), feelings of loneliness, stress, body dysmorphia (Schofield et al., 2016), and deterioration in academic performance (Dyrbye et al., 2008). As such, it is vitally important for research to continue to refine understanding of the mechanisms that contribute to university student depression, including developmental factors that may heighten vulnerability to mental illness.

Perceived parental behaviour is an important factor for psychological functioning which has been shown to influence mental health throughout childhood development and adulthood (Taillieu, Brownbridge, Sareen, & Afifi, 2016). In line with attachment theory, a child's safety and development is supported by the child's attempts to maintain proximity to a parent (or parental figure), coupled with the parent's efforts to care for the child (Bowlby, 2005). The relationship between parent and child is considered to be functional when child attachment and parental caregiving are in alignment and occur together (Jones, Cassidy, & Shaver, 2015). Additionally, Gilbert (2009) postulated that parental behaviour influences the formation of three interacting emotional regulation systems: the threat-protection system (which guides threat response), the drive-excitement system (which influences motivation to obtain rewards and resources), and the soothing-contentment system (which influences capacity to engage in self-soothing). As such, it is posited that the parent-child relationship is disrupted when parental behaviour does not align with (or is inconsiderate of) the needs of the child, and that this in turn leads to disrupted attachment and problems with regulating emotions, such as impaired capacity to self-soothe (Gilbert, 2010).

Consequently, parenting that is unsupportive, inconsistent or dismissive may contribute to persistent impairment in the child's ability to form secure attachments and ability to regulate emotions, which may in turn persist to shape how the child views themself and others as they continue to develop and age.

Considerable evidence has shown an association relationship between adverse parenting and mental illness, including depressive symptoms. Adverse parenting refers to parental conduct that is considered excessively demanding, higher in control, criticism and harshness, and lower in warmth and responsiveness (Ko, Hewitt, Cox, Flett, & Chen, 2019). Recalled parenting measures have frequently been used to assess adverse parenting and dimensions of parental behaviour. These measures typically constitute questionnaires that ask participants to consider their memories and perceptions of their parents' conduct. The s-EMBU is one such measure which assesses an individual's perceptions of three dimensions of parental behaviour: parental rejection, overprotection and warmth (Arrindell et al., 1999). Parental rejection reflects heightened dismissiveness and criticism of the child; parental overprotection reflects exceedingly controlling and hypervigilant parenting motivated by safety anxiety; and parental warmth is characterised by increased supportiveness and responsiveness to the child (Pepping, Davis, O'Donovan, & Pal, 2015; Temel & Atalay, 2018).

Adverse parenting comprised of greater parental rejection and control, and lower warmth, has been linked to higher risk of depression (Yap, Pilkington, Ryan, & Jorm, 2014). Additionally, prior research has demonstrated positive associations between parental rejection and suicidality (Campos, Besser, & Blatt, 2013), parental rejection and depressive symptoms (Temel & Atalay, 2018), and parental overcontrol and anxiety (Chorot, Valiente, Magaz, Santed, & Sandin, 2017). Comparatively, parenting that is higher in warmth has been shown to correspond with lower reported depressive

symptoms (Temel & Atalay, 2018; Chorot et al., 2017). Whilst previous research has addressed the association relationships between parenting and mental health outcomes, further research is necessary to refine understanding of how adult functioning is influenced by parental conduct in childhood, as this may further assist development of appropriate interventions and improve knowledge regarding developmental impacts across the lifespan (Baker & Hoerger, 2012). Continued investigation of this relationship, and the mechanisms through which it is facilitated, is particularly relevant for university students, given the prevalence of depressive symptoms in this population.

Previous research indicates that perfectionism is associated with increased depressive symptoms and may emerge as a means of coping with adverse parenting. In general, perfectionism reflects unrealistically high demands and excessive standards coupled with a sense of self-worth that is dependent on persistently aiming for and meeting these standards (Frost, Marten, Lahart, & Rosenblate, 1990; Hewitt, Mittelstaedt, & Wollert, 1989). Perfectionism has been assessed as a unidimensional and multidimensional construct, with more recent research adopting the latter conceptualisation in measurement. Furthermore, numerous studies have conceptualised perfectionism as having two forms: maladaptive perfectionism (representing excessive personal standards that contribute to negative self-evaluation and decreased self-worth) and adaptive perfectionism (reflecting belief in the importance of aiming to achieve high standards (Mehr & Adams, 2016; Sirois, Molnar, & Hirsch, 2017). Previous studies have established associations between adaptive perfectionism and beneficial outcomes such as academic success (Madigan, 2019); however, measures of adaptive perfectionism have been shown to correlate positively with measures of maladaptive perfectionism (Gong, Fletcher, & Bolin, 2015) and both maladaptive and adaptive perfectionism have been linked to poorer health outcomes, as summarised by Molnar

and Sirois (2016). These findings suggest that perfectionism is complex in nature and accordingly, cannot be easily delineated into forms that may be considered beneficial or detrimental to mental health. Consequently, it is important that further research adopt multidimensional measures which incorporate both adaptive and maladaptive facets of perfectionism.

Parenting has been conceived of as a predisposing factor for perfectionism development in multiple theoretical models. One such model is the perfectionism social disconnection model (PSDM), which posits that perfectionism may emerge as a result of numerous combinations of factors and that perfectionism may influence health outcomes via multiple, differing mechanisms (Hewitt, Flett, & Mikail, 2017). As detailed in the model, perfectionism develops due to a combination of individual, sociocultural, and relationship factors, such as temperament and relationships with peers and parents, respectively. An asynchronous parent-child relationship (for example, as characterised by harsh, controlling, or neglectful parenting) is suggested to influence the formation of a less balanced self-concept and increased likelihood to engage in self-criticism, which are tenets of perfectionism (Hewitt et al., 2017). As proposed in the model, perfectionism is considered to heighten sensitivity to perceived judgement from others, increase distortions regarding being judged negatively, contribute to emotional dysregulation and maladaptive coping, along with psychological distress; however, there is evidence that these processes and associated outcomes may differ depending on the child's gender (Shahar, Blatt, Zuroff, Kuperminc, & Leadbeater, 2004). Furthermore, research has suggested there may be age-related differences in the cognitive processes underlying perfectionism, such that adolescents and young adults may be more likely to interiorise social expectations (Ferrari, Yap, Scott, Einstein, & Ciarrochi, 2018). The PSDM emphasises that social relationships have an enduring

influence on perfectionism, which persists into adulthood (Rasmussen & Troilo, 2016). Longitudinal research has provided evidence for the temporal nature of perfectionism development as a result of parenting, as outlined in the PSDM (e.g. Soenens et al., 2008). Additionally, positive association relationships have been established between adverse parenting and perfectionism (e.g. Curran, Hill, & Williams, 2017; Gong et al., 2015). As such, parenting has been shown to have a considerable influence on perfectionism emergence.

Similarly, parenting has been shown to be influential in self-compassion development. As proposed by Neff (2003), self-compassion is the ability to be warm and responsive to the self in times of pain and incorporates three central elements: self-kindness (being gentle and understanding with the self); common humanity (a sense that one is not alone in suffering and that this is a natural part of human existence); and mindfulness (a balanced mindset reflecting presence in the moment and ability to defuse from thoughts and feelings). Parenting that is supportive and ensures the child's care and safety the child is fundamental for self-compassion development. Self-compassion has been suggested to develop as a product of parent-child relations, whereby warm, secure and caring parenting enables the child to form secure attachment, which in turn promotes the ability to practise self-kindness (Gilbert, 2010; Neff, 2003). Similarly, problems with emotion regulation and inability to self-soothe may stem from not having needs met in childhood, potentially as a result of parenting that is lacking in warmth and compassion (Moreira, Gouveia, & Canavarro, 2018; Stolorow, 1997). These proposed pathways have been supported by numerous studies, which have linked low self-compassion to increased parental criticism and low early warmth (Naismith, Guerrero, & Feigenbaum, 2019), and higher self-compassion to increased parental warmth (Kelly & Dupasquier, 2016; Temel & Atalay, 2018). Consequently, theory indicates that

perfectionism and self-compassion have similar developmental pathways, as both have been hypothesized to emerge as a result of misalignment between the needs of the child and parental behaviour (Hewitt et al., 2017).

Perfectionism may contribute to deficits in self-compassion. Hewitt et al. (2017) proposed in the PSDM that perfectionism may be linked to psychological distress through a sense of self-alienation (i.e. isolation), a belief that others do not suffer in the same way (i.e. overidentification), and a sense of defectiveness (i.e. self-judgement) – these are the bipolar opposite characteristics of components of self-compassion (Neff, 2003). In support of this, there is consistent evidence that perfectionism and self-compassion are negatively associated. For example, self-criticism and multidimensional perfectionism have been linked to lower self-compassion (Neff, 2003; Yeshua, Zohar, & Berkovich, 2019). Furthermore, a recent study aimed to target perfectionism specifically via the use of a self-help intervention which incorporated mindfulness (K. James & Rimes, 2018). The authors demonstrated significant reduction in perfectionism and improved self-compassion as a result of the intervention and reported that these gains were sustained after 10 weeks. Furthermore, findings suggested that the change in perfectionism following treatment *operated through* an increase in self-compassion. Perfectionism may further prohibit development and utilisation of self-compassion through concerns that practising warmth and gentleness will correspond with decreased motivation to meet high expectations and consequent lower likelihood of success (Naismith et al., 2019). For those who can develop self-compassion, this may also serve to ameliorate the impacts of perfectionism on psychological outcomes.

Perfectionism and self-compassion have both been characterised as transdiagnostic processes, with implications for a wide range of mental health outcomes (including depression) (Egan, Wade, & Shafran, 2011; Westphal, Leahy, Pala, &

Wupperman, 2016). Furthermore, both factors have been shown to act as mediators of the adverse parenting-depression relationship in single mediation studies. For example, perfectionism was shown to mediate the relationship between overly protective, vigilant parenting and depressive symptoms (Hong & Doh, 2018). Soenens et al. (2008) established in their longitudinal study that greater parental control corresponded with increased maladaptive perfectionism after a year, which in turn corresponded with increased depressive symptoms a year later. Perfectionism was shown to mediate the adverse parenting and depression-proneness relationship, but was not supported as a mediator between perfectionistic parenting and depression (Enns, Cox, & Clara, 2002). As such, perfectionism may only mediate or strengthen relationships between certain types of parental conduct and depressive symptoms.

Similarly, previous research has shown self-compassion mediated the relationships between parental indifference and psychopathology (Westphal et al., 2016), and childhood emotional abuse and depressive symptoms (Wu, Chi, Lin, & Du, 2018). Furthermore, the relationships between childhood abuse and psychological wellbeing (Tarber, Cohn, Casazza, Hastings, & Steele, 2016), and between parental warmth and depression (Temel & Atalay, 2018) were partially mediated by self-compassion. Contrarily, other research has suggested that the severity and recency of perceived parental conduct may influence the significance of association relationships between recalled parenting and abuse (Westphal et al., 2016), and that self-compassion may only act as a mediator in relation to psychological abuse (as it did not mediate the relationship between other forms of childhood abuse and depression) (Wu et al., 2018). Further research is therefore required in order to determine the roles of perfectionism and self-compassion in the parenting and depression relationship and the circumstances under which these factors influence this relationship.

Substantial research has indicated self-compassion (and interventions to enhance self-compassion) can reduce and buffer the harmful effects of perfectionism on mental health, including reduction of depressive symptoms (Arimitsu & Hofmann, 2017; Rose, McIntyre, & Rimes, 2018). Self-compassion has been shown to mediate, or partially mediate, the relationship between alternate forms of perfectionism and mental health and wellbeing, including between perfectionism and subjective wellbeing (Stoeber, Lalova, & Lumley, 2020), maladaptive perfectionism and depressive symptoms in college students (Mehr & Adams, 2016), self-critical perfectionism and depressive symptoms in doctoral students (Richardson, Trusty, & George, 2018), inner self-criticism and depression (Joeng & Turner, 2015), and maladaptive perfectionism and depression in a clinical sample (Fletcher et al., 2019).

In contrast, researchers have proposed and established self-compassion as a moderator of the perfectionism and depression relationship. For example, higher self-compassion was shown to reduce the effect of perfectionism on psychosomatic distress (Yeshua et al., 2019), and decreased the strength of the relationship between perfectionism and depressive symptoms in adults and adolescents (Ferrari et al., 2018). These findings suggest that self-compassion influences the strength of the perfectionism-depression relationship rather than acting as a facilitatory mechanism. Consequently, additional research is required to determine the role of self-compassion in this relationship, using multidimensional perfectionism measurement.

Although numerous studies have explored perfectionism and self-compassion separately as mediators of the parenting and depression relationship, there is a distinct gap in the literature regarding the potential, combined influence of perfectionism and self-compassion between these factors. Consequently, the nature of perfectionism and self-compassion development in non-clinical samples is unclear. Further exploration of

these factors as mechanisms in the relationship between perceived parenting and depression may assist to inform preventative strategies and interventions.

Previous research has predominantly focussed on modifiable factors like self-compassion and perfectionism, as single mediators of the relationship between adverse parenting and depression, despite the assertion that research linking perfectionism to emergence of depressive symptoms requires an integrative approach (Graham et al., 2010). Although prior studies have combined investigation of parental behaviour, perfectionism, self-compassion and mental illness outcomes (e.g. Irons, Gilbert, Baldwin, Baccus, & Palmer, 2006; Naismith et al., 2019), to our knowledge, previous research has not examined whether perfectionism and self-compassion may sequentially mediate the relationship, despite substantial evidence that self-compassion mediates the link between adverse parenting and depression and between perfectionism and depressive symptoms. Gaining further insight into the potential combined, serial effect of perfectionism and self-compassion is particularly important for improving treatment efficacy through the further refinement of interventions aimed at reducing depressive symptoms, particularly for people reporting increased perceived adverse parental behaviour.

As such, the aim of the following study was to explore the roles of perfectionism and self-compassion in the relationship between adverse parenting and depression. Conceptually, it is posited that maladaptive perfectionism may develop in response to adverse parenting and that this in turn inhibits self-compassion, contributing to increased depressive symptoms in adulthood. Primarily, the goal of this study is to investigate the possibility that perfectionism and self-compassion serially influence the parenting-depressive symptom relationship. Specifically, study hypotheses are that:

1. Adverse parenting (characterised by low parental warmth, higher parental rejection and higher parental overprotection) will predict depressive symptoms via an indirect effect of perfectionism, such that increased perfectionism will be related to greater depressive symptoms;
2. Adverse parenting will predict depressive symptoms through an indirect effect of self-compassion, such that higher self-compassion will be related to lower levels of depressive symptoms; and
3. Perfectionism and self-compassion will have a sequential, indirect effect on the relationship between adverse parenting and depressive symptoms.

Method

Participants

Two hundred and forty-four participants attempted online questionnaire completion. Of these, 10 respondents were excluded due to non-completion of two or more questionnaire scales and a further respondent was removed following data screening. As such, participants were 233 students from a South Australian university, (mean age = 24.39, SD = 9.08). In order to be eligible, participants were required to be aged 18 years or older, to be a university student at the time of participation and to be fluent in English. One hundred and twelve participants (48.07%) were first year psychology students (who participated via a university research participation system for course credit) and 121 (51.93%) were university students with unspecified course enrolment. Seventy-two participants (30.9%) were male, 158 (67.8%) identified as female, and three participants (1.3%) did not identify as male or female. The majority of participants identified as White (59.7%); 29.2% of participants identified as Asian,

0.9% identified as Aboriginal or Torres Strait Islander, 0.9% identified as black, 0.4% identified as Hispanic or Latino, 3.9% identified as bicultural and 5.3% identified as having an unlisted ethnic background. In relation to gross household, 30.5% of participants earned less than $30000 per year, 38.2% earned $30000 to $89999 annually, 31.3% earned $90000 to $120000 or more annually. In regard to highest level of completed education, 57.1% had completed high school or equivalent, 10.3% had obtained a technical or vocational training certificate, 34.8% had completed a University degree or course, and 1.3% had not obtained a high school certificate.

Measures

Recalled Parenting

Recalled parenting was measured using the short form of the My Memories of Upbringing scale (s-EMBU) (Arrindell et al., 1999). The s-EMBU is a 23-item measure of perceived parental behaviour, derived from the 81-item EMBU (Perris, Jacobsson, Lindström, Knorring, & Perris, 1980), and includes three subscales assessing recalled parental warmth (derived from 6 items), rejection (derived from 7 items) and overprotection (derived from 9 items). Items are measured on a four-point scale representing frequency of parental behaviour (from 1 = *Never*, to 4 = *Most of the time*), one item is reversed scored and items are summed to yield total subscale scores. For the purposes of this study, participants were asked to respond in relation to both parents, rather than considering individual parent behaviour. The s-EMBU has been shown to have good convergent and divergent validity in an adult population (Arrindell & Engebretsen, 2000), cross-national validity in Australian, Spanish and Venezuelan samples (Arrindell et al., 2005) and high internal consistency in cross-cultural samples

(all $\alpha > .71$). In the current study, Cronbach's alpha for the rejection subscale was .85, .89 for the warmth subscale, and was .85 for the overprotection subscale.

Perfectionism

Frost et al.'s (1990) Multidimensional Perfectionism Scale (F-MPS) is a 35-item measure, comprised of six subscales: concern over mistakes and doubts about actions, parental expectations and evaluation, personal standards and organization subscales. The concern over mistakes, doubts about actions and personal standards subscales were used in the current study, in line with previous research which suggests these subscales are primarily relevant to clinical outcomes (Ong et al., 2019) and recommendations that parental expectations and criticism and organization subscales be removed when measuring perfectionism (Frost et al., 1990; Gong et al., 2015). Items are assessed on a five-point scale reflecting agreement with statements (from 1= *Strongly Disagree*, to 5 = *Strongly Agree*). Items were summed to yield a total score; higher scores indicate higher levels of perfectionism and totalled scores across subscales range from 20 to 100. The FMPS has sound psychometric properties, including good internal consistency and concurrent validity in female psychology undergraduates (Frost et al., 1990). In the current study, Cronbach's alpha for the scale was .91.

Self-Compassion

The Self-Compassion Scale-Short Form (SCS-SF; Raes, Pommier, Neff, & Van Gucht, 2011) is a 12-item measure of components of self-compassion and their antithetical constructs: self-kindness and self-judgement, common humanity and isolation, and mindfulness and overidentification. A total score was calculated by summing items to measure overall self-compassion, rather than subscale components of self-compassion. Items are assessed on a five-point scale reflecting frequency of self-

compassionate attitudes and behaviour (from 1 = *Almost Never*, to 5 = *Almost Always*). Six items are reversed scored, and items are summed, with the total score ranging from 12 to 60 and higher scores reflecting greater levels of self-compassion. The SCS-SF has sound psychometric properties, including good internal consistency for the total scale (α exceeding 0.85) and high correlation with the long-form self-compassion scale (Neff, 2003). Cronbach's alpha for the scale was .86 in the current study.

Depressive Symptoms

The Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977) is a 20-item measure of depressive symptoms experienced in the week preceding assessment. Items are measured on a four-point scale reflecting frequency of symptoms experienced (from 0 = *None of the time/Less than one day*, to 3 = *Most of the time/Five to Seven Days*). Four items are reverse scored, and items are summed to yield a total score: higher scores reflect more frequent depressive symptoms and total scores range from 0 to 60. In line with the recommendations of a meta-analysis and systematic review (Vilagut, Forero, Barbaglia, & Alonso, 2016), scores of 20 and above were considered to represent significant levels of depressive symptomology and were used to identify participants who may be at risk of depression. The CES-D has been shown to have acceptable test-retest reliability (Radloff, 1977) and high internal consistency in a sample of US adults (α = .90; Cosco, Prina, Stubbs, & Wu, 2017). Cronbach's alpha for the scale was .92 in the current study.

Demographic Details

In addition to the preceding measures, participants were asked to provide their age, gender, education background, gross income and socioeconomic status.

Procedure

Ethics approval was obtained from the School of Psychology Sub-committee of the University of Adelaide's Human Research Ethics Committee. Participants were recruited via online study advertisements placed on the University of Adelaide's research participation system (accessible to first year psychology students) and on a University of Adelaide student service platform website (appendix 1). Advertisements linked participants to a 15-minute online questionnaire, administered using the online survey system Qualtrics® version May 2020 (appendix 4). After reading an information sheet (appendix 2), participants were asked to provide their email address as confirmation of consent (appendix 3), and proceeded to complete the questionnaire (appendix 4). Risk was mitigated via: 1) forewarning participants of the content of the questionnaire and that participation would not be suitable for persons who may experience discomfort in relation to survey topics, and 2) provision of mental health service contacts and resources to participants who provided CESD scores indicative of depression (as detailed in appendices 1 and 5). Participants were able to indicate if they wished to be compensated by the chance to win one of five $40 gift vouchers, and first year psychology students received course credit.

Data Analysis

A priori power analysis was completed using Monte Carlo Power Analysis for Indirect Effects software (Schoemann, Boulton, & Short, 2017), prior to data collection. This software enables calculation of the minimum sample size needed to detect the desired power of the study, for sequential mediation models. Analysis determined that a sample size of 180 was required to detect a medium effect size, with α error rate = .05, and power at 0.80, based on a serial mediation model with three predictors.

All analyses were completed using the IBM Statistical Package for Social Sciences (SPSS) version 26. Mediation analyses were completed using model 6 (sequential mediation) of the PROCESS macro for SPSS, version 3.5 (Hayes, 2018), which is based on ordinary least-squares regression and adopts a nonparametric bootstrapping procedure. PROCESS calculates regression coefficients for indirect effects and bootstrap 95% confidence intervals for point estimates of mediators. As recommended by Hayes and Rookwood (2017), significance testing for indirect effects is based on examination of bootstrap confidence intervals: if confidence intervals do not include zero, the null hypothesis (that the indirect effect is zero) is rejected and mediation is considered to occur. In line with Hayes (2018) recommendations, 10000 bootstrap resamples were adopted in the current study and unstandardized coefficients have been reported. Additionally, completely standardized coefficients for total indirect effects have been included to allow for further interpretation and comparison.

Results

Preliminary Analyses

Data Screening

Prior to conducting the correlation and mediation analyses, preliminary exploration of the data confirmed that assumptions of residual normality, linearity, multicollinearity and homoscedasticity were met. Following examination of multivariate outliers, one respondent was excluded from analysis due to consistent lack of variation in answers provided. Exploratory, comparative analyses did not reveal significant differences in results with cases removed. The remaining responses, included

in primary analyses, did not contain missing data. The study remained sufficiently powered to detect medium effect size.

Primary Analyses

Descriptive Statistics, Correlations and Covariates

Descriptive statistics and Spearman's correlations are detailed in Table 1. Analyses demonstrated that depressive symptoms correlated positively and significantly with parental rejection, overprotection, and perfectionism, and negatively and significantly with parental warmth and self-compassion.

Kruskal-Wallis test analysis was employed given the skewed distribution of the depressive symptoms variable. This analysis determined gender differences in depressive symptoms were not statistically significant, H (2) = 1.12, $p > .05$. Consequently, gender was not included as a covariate in mediation analyses. Age correlated significantly with parental rejection and warmth; however, it did not correlate significantly with the outcome variable (depressive symptoms). Exploratory regression analyses were conducted with age entered as a covariate; however, age was not statistically significant at any stage across the three separate models for parental rejection, overprotection and warmth ($p > .05$). As such, age was not included as a covariate in analysis for the subsequent mediation models.

Table 1. Descriptive Statistics and Spearman's Correlation Coefficients

Measure	Mean	SD	1	2	3	4	5	6	7
1. Age	24.39	9.08	–						
2. Gender	–	–	-.43	–					
Parenting									
3. Rejection	12.35	4.71	.17*	.08	–				
4. Overprotection	20.65	5.99	.04	.12	.53***	–			
5. Warmth	16.67	4.76	-.25***	-.09	-.65***	-.24***	–		
Mediators and Outcome									
6. Perfectionism	65.18	14.21	-.02	.08	.36***	.31***	-.35***	–	
7. Self-Compassion	34.11	8.41	.05	-.11	-.27***	-.15*	.32***	-.64***	–
8. Depressive Symptoms	22.24	12.56	.00	-.01	.41***	.24***	-.35***	.52***	-.65***

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Mediation Analyses

The three-path, sequential mediation roles of perfectionism and self-compassion were examined in three separate models for each independent variable (parental rejection, parental overprotection and parental warmth) and the dependent variable, depressive symptoms. Unstandardized regression coefficients and model summary statistics are reported in Tables 2, 3 and 4, mediation relationships and path coefficients are depicted in Figures 1, 2 and 3, and point estimates and bootstrap confidence intervals for the indirect effects in these models are listed in Table 5.

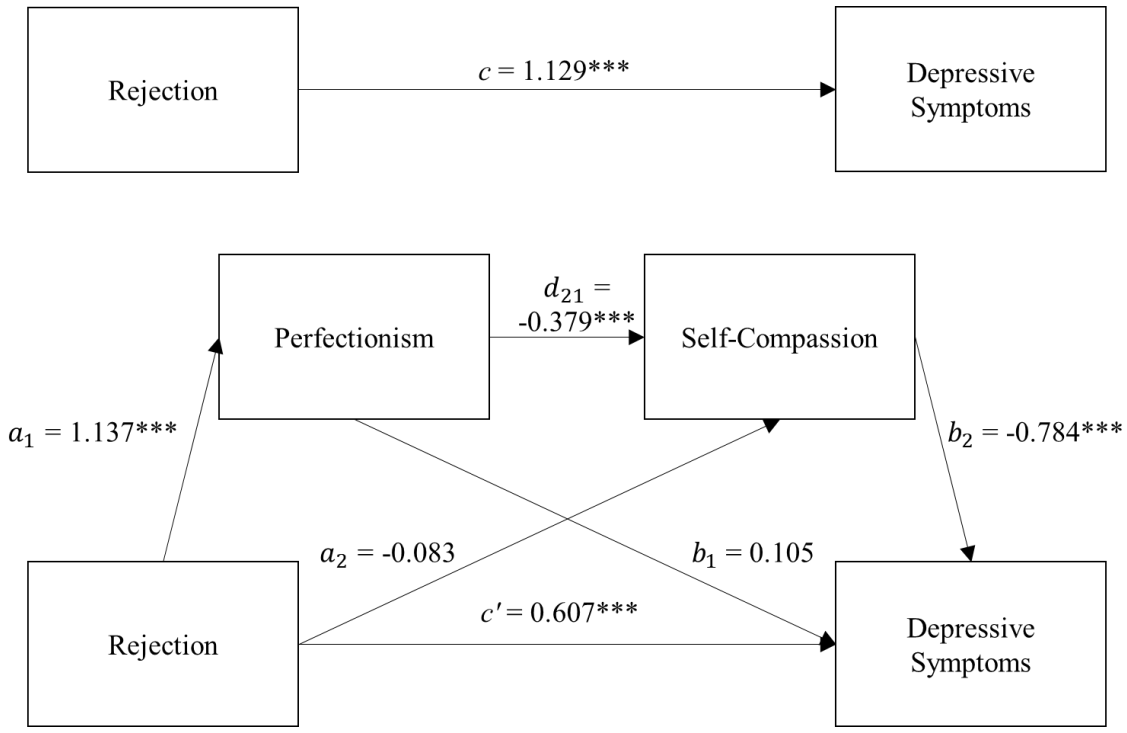
Parental Rejection. Sequential mediation analysis results of the relationship between parental rejection and depressive symptoms are detailed in Table 2 and Table 5 and are depicted in Figure 1. Results demonstrated that parental rejection increased depressive symptoms sequentially via increased perfectionism and subsequently via decreased self-compassion. Whilst sequential mediation occurred through perfectionism and self-compassion, these factors did not individually mediate the relationship between rejection and depressive symptoms. The completely standardized total indirect effect was .196 (95% CI = .113, .277) and there was evidence of a direct effect independent of mediators between rejection and depressive symptoms (unstandardized c' = .607, $p <$ .001).

Table 2 Serial Mediation Model for Parental Rejection: Unstandardized Regression Coefficients, Standard Errors, *t* Values and *p* Values

		Consequent													
		M_1 (Perfectionism)					M_2 (Self-Compassion)					Y (Depression)			
Antecedent		B	*SE*	*t*	*p*		B	*SE*	*t*	*p*		B	*SE*	*t*	*p*
X (Rejection)	a_1	1.137	0.184	6.189	< .001	a_2	-0.083	0.095	-0.864	.388	c'	0.607	0.133	4.567	< .001
M_1 (Perfectionism)		–	–	–	–	a_3	-0.379	0.032	-11.979	< .001	b_1	0.105	0.056	1.877	.062
M_2 (Self-Compassion)		–	–	–	–		–	–	–	–	b_2	-0.784	0.092	-8.547	< .001
Constant		51.137	2.428	21.062	< .001		59.835	1.996	29.981	< .001		34.618	6.148	-8.547	< .001
		R^2 = .142					R^2 = .435					R^2 = .513			
		F (1, 231) = 38.308, p < .001					F (2, 230) = 88.627, p < .001					F (3, 229) = 80.347, p < .001			

Note: * p < .05, ** p < .01, *** p < .001

Figure 1. Unstandardized Regression Coefficients for Serial Mediation Model Pathways in the Relationship between Parental Rejection and Depressive Symptoms



Note: * $p < .05$, ** $p < .01$, *** $p < .001$

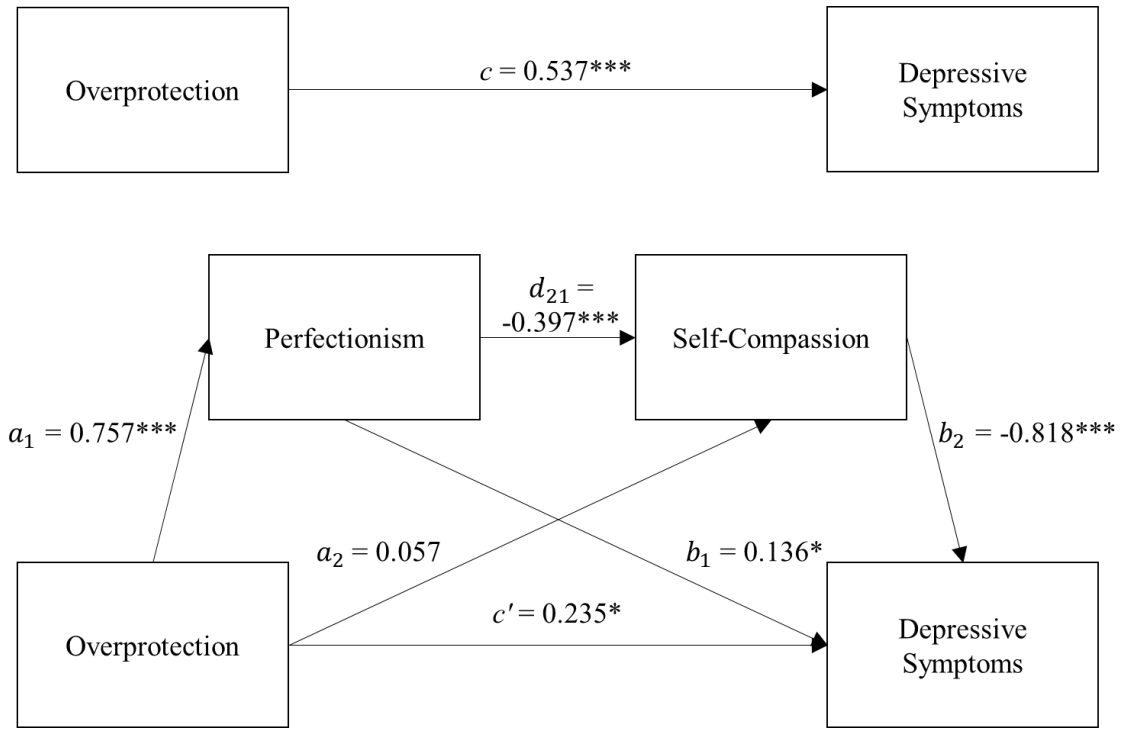
Parental Overprotection. Sequential mediation analysis results for the parental overprotection and depressive symptoms relationship are presented in Table 3 and Table 5 and are depicted in Figure 2. Results also showed a significant, indirect effect of parental overprotection on depressive symptoms through increased perfectionism and in turn via decreased self-compassion. Furthermore, there was an indirect effect for overprotection on depressive symptoms via perfectionism; however, results showed there was no indirect effect through self-compassion. The completely standardized total indirect effect was .144 (95% CI = .053, .230) and there was evidence of a direct effect, independent of mediators, between parental overprotection and depressive symptoms (unstandardized c' = .235, $p < .05$).

Table 3 Serial Mediation Model for Parental Overprotection: Unstandardized Regression Coefficients, Standard Errors, *t* Values and *p* Values

		Consequent													
		M_1 (Perfectionism)					M_2 (Self-Compassion)					Y (Depression)			
Antecedent		B	*SE*	*t*	*p*		B	*SE*	*T*	*p*		B	*SE*	*t*	*p*
X (Overprotection)	a_1	0.757	0.148	5.114	< .001	a_2	0.057	0.073	0.779	.437	c'	0.235	0.106	2.222	< .05
M_1 (Perfectionism)		–	–	–	–	a_3	-0.397	0.031	-12.837	< .001	b_1	0.136	0.058	2.338	< .05
M_2 (Self-Compassion)		–	–	–	–		–	–	–	–	b_2	-0.818	0.095	-8.638	< .001
Constant		49.554	3.181	15.577	< .001		58.809	2.142	27.459	< .001		36.434	6.364	5.725	< .001
		R^2 = .102					R^2 = .435					R^2 = .480			
		F (1, 231) = 26.148, *p* < .001					*F* (2, 230) = 88.504, *p* < .001					*F* (3, 229) = 70.365, *p* < .001			

Note: * *p* < .05, ** *p* < .01, *** *p* < .001

Figure 2. Unstandardized Regression Coefficients for Serial Mediation Model Pathways in the Relationship between Parental Overprotection and Depressive Symptoms



Note: * $p < .05$, ** $p < .01$, *** $p < .001$

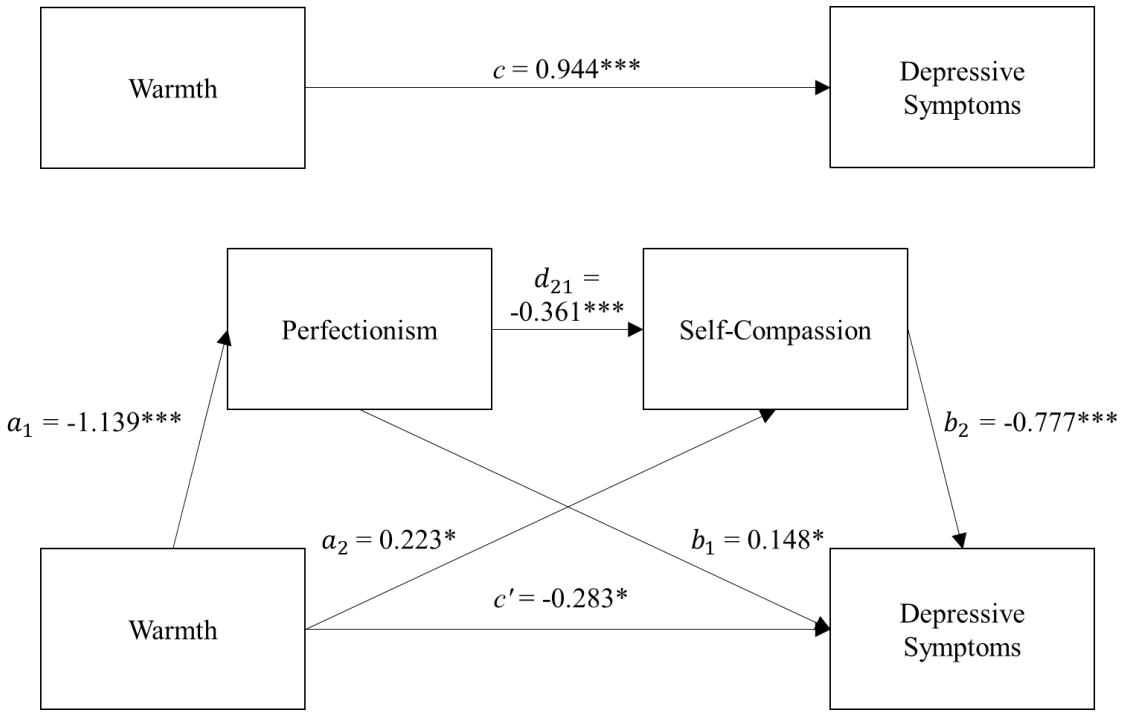
Parental Warmth. Sequential mediation analysis results for the relationship between parental warmth and depressive symptoms are presented in Table 4 and Table 5 and are depicted in Figure 3. Results demonstrated that parental warmth decreased depressive symptoms sequentially via lower perfectionism and subsequently via higher self-compassion. Furthermore, there was evidence of indirect effects of parental warmth on depressive symptoms through perfectionism and self-compassion separately (as individual mediators). The completely standardized total indirect effect was -.250 (95% CI = -.335, -.162) and there was evidence of a direct effect, independent of mediators, between parental warmth and depressive symptoms (unstandardized c' = -.283, $p < .05$).

Table 4 Serial Mediation Model for Parental Warmth: Unstandardized Regression Coefficients, Standard Errors, *t* Values and *p* Values

		Consequent													
		M_1 (Perfectionism)					M_2 (Self-Compassion)					Y (Depression)			
Antecedent		B	*SE*	*t*	*p*		B	*SE*	*T*	*p*		B	*SE*	*t*	*p*
X (Warmth)	a_1	-1.139	0.182	-6.277	< .001	a_2	0.223	0.094	2.375	< .05	c'	-0.283	0.138	-2.055	< .05
M_1 (Perfectionism)		–	–	–	–	a_3	-0.361	0.031	-11.502	< .001	b_1	0.148	0.057	2.575	< .05
M_2 (Self-Compassion)		–	–	–	–		–	–	–	–	b_2	-0.777	0.096	-8.102	< .001
Constant		84.168	3.145	26.759	< .001		53.927	3.038	17.753	< .001		43.851	6.801	6.447	< .001
		R^2 = .146					R^2 = .447					R^2 = .478			
		F (1, 231) = 39.405, p < .001					F (2, 230) = 92.946, p < .001					F (3, 229) = 69.917, p < .001			

Note: * p < .05, ** p < .01, *** p < .001

Figure 3. Unstandardized Regression Coefficients for Serial Mediation Model Pathways in the Relationship between Parental Warmth and Depressive Symptoms



Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Table 5. Bootstrap Point Estimates, SEs and 95% Confidence Intervals for Indirect Effects

			Bootstrapping 95% Cis	
Model and Effects	Point Estimate	SE	Lower	Upper
Parental Rejection				
Total Indirect Effect	.522	.117	.297	.760
Rejection →Perfect. →Depression	.120	.067	-.005	.257
Rejection → Self-Compassion → Depression	.065	.075	-.087	.211
Rejection → Perfect. → Self-Compassion → Depression	.338	.078	.199	.507
Parental Overprotection				
Total Indirect Effect	.302	.096	.110	.486
Overprotect. → Perfect. → Depression	.103	.048	.015	.204
Overprotect. → Self-Compassion → Depression	-.047	.058	-.166	.063
Overprotect. → Perfect. → Self-Compassion → Depression	.246	.062	.133	.374
Parental Warmth				
Total Indirect Effect	-.660	.122	-.901	-.424
Warmth → Perfect. → Depression	-.168	.068	-.310	-.042
Warmth → Self-Compassion → Depression	-.173	.078	-.329	-.023
Warmth → Perfect. → Self-Compassion → Depression	-.320	.074	-.474	-.188

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Discussion

The current study explored the indirect effect of recalled parenting on depressive symptoms through perfectionism and self-compassion, in a sample of university students. The findings supported sequential mediation hypotheses and demonstrated that there was an indirect effect of recalled parenting styles (rejection, overprotection and warmth) on depressive symptoms sequentially through perfectionism and self-compassion. Furthermore, sequential mediation occurred in each of the three models, demonstrating that the findings were robust across different facets of parental conduct. This suggests that adverse parenting (characterised in the present study by low warmth and greater rejection and overprotection) places an individual at risk of developing perfectionism, subsequent reduced capacity for self-compassion, and in turn, increased risk of depression. Gilbert's (2010) conceptualisation of emotion regulation systems provides a means of interpreting these findings. In the context of adverse parenting, perfectionism can be conceived of as a threat-protection response aimed at avoiding harm and providing a means of control in a potentially unstable or unsafe environment. In turn, perfectionism prompts increased self-monitoring and blame and as such impedes self-compassion development and utilisation, due to beliefs that mistakes or failures are not permissible. Conversely, supportive and responsive parenting would not result in activation of the threat-protection system (nor consequently perfectionism as a coping response), thus enabling development of soothing and contentment-aimed responses and more adaptive coping. The findings of the current study also align with pathways outlined in the PSDM, which suggest that perfectionism may arise as a result of relationships with parents and that perfectionism can contribute to a sense of alienation, which can resultantly contribute to psychological distress. Importantly, the findings in the present study extend these models by specifically demonstrating the

combined, sequential mediation effect of perfectionism and self-compassion in the parenting and depression relationship.

Whilst sequential mediation hypotheses were supported across each model, findings from the current study did not support each of the individual mediation hypotheses. Results showed that perfectionism did not act as an individual mediator in the relationship between parental rejection and depressive symptoms. This is inconsistent with previous literature which found that perfectionism mediated the relationship between harsh parenting and depression susceptibility (Enns et al., 2002). Assessment in the current study was unlikely to have captured more severe forms of parental rejection, as prospective participants were forewarned that the study may not be suitable should they experience discomfort in relation to survey topics (thus discouraging students with a history of childhood trauma from engaging), and as the s-EMBU assesses frequency rather than severity of parental behaviour. Furthermore, it is possible that perfectionism only operates via reduced self-compassion in the relationship between parental rejection and depressive symptoms.

Similarly, and unexpectedly, self-compassion was not shown to act as a significant, individual mediator in rejection-depressive symptoms and overprotection-depressive symptoms models. Previous research regarding the role of self-compassion in adverse parenting and depression has provided conflicting results. Self-compassion has previously been found to mediate the relationship between childhood abuse and depressive symptoms (e.g. Wu et al., 2018). Conversely (and in line with findings in the current study), the related concept of self-reassurance was not found to mediate relationships between rejecting and overprotective parenting and depression (Irons et al., 2006). Further research is necessary to determine the conditions under which self-

compassion acts as a mediator in relation to parental overprotection and depressive symptoms.

Conversely, perfectionism was shown to be a significant mediator of the overprotection and depressive symptoms relationship, which is consistent with previous research that demonstrated perfectionism mediated the relationship between hypervigilant and controlling parenting style and depressive symptoms (Hong & Doh, 2018). Perfectionism further mediated the relationship between parental warmth and depressive symptoms, which aligns with previous research that has shown parenting low in responsiveness and support (i.e. parental warmth) is associated with increased maladaptive perfectionism (Ko et al., 2019; Turner & Turner, 2011), and depression (Yap et al., 2014). Additionally, self-compassion was shown to mediate the relationship between parental warmth and depressive symptoms. This is consistent with previous research and proposed self-compassion development pathways, which posit that self-compassion is facilitated by reference to childhood experiences of compassionate parenting (Moreira et al., 2018; Neff, 2003).

Analysis of perfectionism and associated means of coping is particularly important in tertiary student populations, given that the university environment and study demands are likely to reinforce high personal standards through repeated requirement to demonstrate competencies (Radhu, Daskalakis, Arpin-Cribbie, Irvine, & Ritvo, 2012). Heightened demands at university may trigger activation of the threat-protection system, stimulated by a desire to avoid negative evaluation by peers and academic staff (Midgley & Urdan, 2001). Heightened perfectionism and low levels of self-compassion are likely to exacerbate university stressors and related adverse health outcomes, noting these factors have both been conceptualised as transdiagnostic factors (Egan et al., 2011; Westphal et al., 2016). The findings of the current study provided

valuable insight into mechanisms which facilitate greater depressive symptoms in a university student population, which is particularly pertinent, given that university students increasingly report depressive symptoms and depression disorder diagnosis (Australian Bureau of Statistics, 2019). This is consistent with findings in the current study, as the mean for reported depressive symptoms was higher than the score recommended for identification of participants at risk of depression, using the CES-D (Rickwood et al., 2016; Vilagut et al., 2016). Furthermore, these findings have implications for intervention development, given that perfectionism has been shown to act as a barrier to help-seeking and treatment efficacy (Egan et al., 2011; Morris & Lomax, 2014; Richardson, Rice, Sauer, & Roberts, 2019). Perfectionism with origins in childhood (and as a result of parental conduct) may contribute to entrenched patterns of self-criticism and threat-based responding throughout childhood, adolescence and adulthood (Hewitt et al., 2017; Gilbert, 2010). This is supported by previous intervention research which established that, whilst a 10-session acceptance and commitment therapy intervention contributed to decreases in facets of perfectionism and increased valued action (in participants with clinical perfectionism and low self-compassion), these improvements were not sustained long-term (Ong et al., 2019). Conversely, a previous study that adopted a mindfulness intervention approach, specifically targeting perfectionism in university students, reported decreased perfectionism and increased self-compassion, which persisted after 10 weeks (K. James & Rimes, 2018). In line with these findings and the sequential mediation effect of perfectionism and self-compassion established in this study, interventions which specifically combine approaches to reduce perfectionism through increasing self-compassion (or components of self-compassion, such as mindfulness) may be more effective in reducing depressive symptoms and maintaining gains in the long-term. This

type of intervention approach may be particularly beneficial for university students with a history of perceived adverse parenting, in contrast to intervention strategies targeting attachment, memories of parenting, or depressive symptoms in isolation.

The present study has several limitations. Firstly, causal and temporal relationships cannot be established due to the cross-sectional nature of the study. Furthermore, self-report measures, which are subject to bias, were used to measure variables of interest. Whilst the validity and accuracy of parental recall measures have been questioned (due to concerns regarding the effect of mood and potential for distortion over time), retrospective self-report measures provide an affordable means of assessment that pose far fewer cost and time-related barriers to implementation (Baker & Hoerger, 2012) and may more effectively gauge the impact of memories of parental conduct (Parker, 1984; Pepping et al., 2015). Additionally, the current study did not assess potential differences in outcomes as a result of parental gender. There is evidence that parental gender may influence differential outcomes, for example, previous research has shown parent gender-based differences in associations between parenting style and perfectionism (Hibbard & Walton, 2014). Future research may address this by further investigating models that address paternal and maternal conduct separately. Furthermore, fear of self-compassion was not taken into account in the current study, as the present primary aim was to specifically explore the potential interconnectivity between perfectionism and self-compassion. Fear of self-compassion has been shown to be distinct from self-compassion and has been linked to adverse childhood experiences, such as psychological abuse (Naismith et al., 2019). Fear of self-compassion may further perpetuate perfectionism and contribute to resistance to change in therapeutic intervention. Participants with a history of adverse or abusive parenting may experience difficulty in self-soothing due to lacking experience and observation of this behaviour

as children and may be fearful of others' efforts to engage them in a kind and mindful manner (Gilbert, 2010; Naismith et al., 2019). Such fear may stem from concerns that self-compassion will result in lowering of standards (enhancing likelihood of failure), reduction in behavioural control, feelings of shame or self-loathing, and that negative consequences will occur as a result (Gilbert, 2010). As such, there is a need for further research to address how fear of self-compassion (as distinct from self-compassion) relates to perfectionism in the relationship between parenting and depressive symptoms. Finally, it is uncertain whether the present findings can be extended to the general population, given that participants were current university students primarily aged in their twenties; however, they remain important given the increased likelihood for depression in this population (Schofield et al., 2016).

The findings from the present study suggest potential future directions for research and treatment development. In line with Gilbert's (2010) conceptualisation of emotion regulation systems, self-compassion interventions are important to promote development of self-soothing abilities and counteract entrenched threat-based responding (such as self-criticism). Congruently, evidence suggests that self-compassion interventions may help to counteract perfectionistic tendencies (Ong et al., 2019). As such, it is important for future research to prepare and examine self-compassion interventions specifically aimed at targeting and reducing perfectionism, given that the findings of the present study suggest that self-compassion may assist in reducing risk for depression. Furthermore, exploration of the origins of heightened perfectionism and self-compassion deficits (such as adverse parental conduct) as part of intervention may assist clients to understand how patterns of responding emerged and how they have contributed to current depressive symptoms.

Additionally, given the direct and indirect links established between adverse parenting and depressive symptoms in the present study, intervention techniques aimed at addressing unmet childhood needs and mitigating the impact of critical parenting (such as limited reparenting) may assist high perfectionism, low self-compassion clients by providing a template for receiving validation, warmth and compassion and thereby potentially reducing the risk of depression (Rafaeli, Bernstein, & Young, 2010).

Rasmussen and Troilo (2016) note the lack of qualitative research examining the emergence of perfectionism in the context of parental and wider familial relationships. As indicated by the findings of this study and previous research, perfectionism development and expression is complex and may be facilitated through multiple mechanisms. Qualitative research may provide further opportunity for exploration of the various pathways to perfectionism and more specifically, provide added depth to the exploration of the impact of perceived parental behaviour. Finally, further research regarding the exploration of serial mediation effects through perfectionism and self-compassion with other proposed antecedents, such as peer relationships (Hewitt et al., 2017) may enable further assessment of the robustness of these factors as combined, facilitatory mechanisms.

Whilst previous research has explored integrated models of parenting, perfectionism, self-compassion and depressive symptoms, to our knowledge, the present study provided an initial exploration of sequential mediation effects of perfectionism and self-compassion in the relationship between adverse, recalled parenting and depressive symptoms. Although restricted by cross-sectional design, the results of this study suggest that perfectionism and self-compassion are mechanisms that interact to facilitate the relationship between adverse parenting and depression. These findings further suggest that the development of targeted interventions that aim to decrease

perfectionism via strengthening self-compassion may assist to improve therapeutic effectiveness for treatment and management of depressive symptoms, particularly for those who report adverse parenting.

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Declaration of Interest

No potential conflict of interest was identified by the author.

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Appendices

Appendix 1:

Advert Title: Memories of parents and mental health

Advert Content: Are you a current University student? If yes, then we want to hear from you! Participate to enter $40 voucher draw.

We are conducting a study via online survey on how University student's self-compassion, beliefs about high standards and depressive symptoms may be impacted by memories of their relationships with their parents.

We are asking for 15 minutes of your time to complete a quick survey and you can go in the drawer to win one of five $40 Coles/Myer vouchers. If you are interested in participating, please click the link below.

Appendix 2: Participant Information Sheet

Memories of Parents and Mental Health Survey

PARTICIPANT INFORMATION SHEET
PROJECT TITLE: The relationships between recalled parenting behaviour, perfectionism, self-compassion and depressive symptoms

Human Research Ethics Subcommittee in the School of Psychology approval number: 20/42

Dear Student,
You are invited to engage in the research project described below.

What is the project about?
This study aims to investigate how past parenting behaviour influences beliefs about the need and ability to meet high standards, how parenting influences compassion towards oneself, and how past parenting influences self-reported mental health. Previous studies have shown that parental behaviour can affect these factors but further research is needed to explore how these factors interact. The exploration of these relationships may enable further understanding of how past parental behaviour can affect current depressive symptoms and assist with further research on how to treat these symptoms.

Who is undertaking the project?
This project is being conducted by current University of Adelaide, Master of Psychology (Clinical) program student Elise Young. The study is supervised by Dr Michael Proeve (principal investigator and primary supervisor) and Dr Amanda Taylor (co-supervisor) of the University of Adelaide. This research is conducted in partial completion of the degree of Master of Psychology (Clinical) at the University of Adelaide.

Why am I being invited to participate?
You are being invited to take part as you are a current University student. In order to take part in this study, you must be aged 18 years or older and be able to read and understand English sufficiently to be able to complete the survey. You will be asked to reflect on memories of how your parent/s treated you in the past, as well as considering how you have been feeling in the last two weeks, how easy it is for you to be compassionate to yourself and your performance expectations for yourself. This study is not appropriate for people who are likely to experience severe discomfort when reflecting on these topics. Please contact the research investigators prior to engaging in this study if you feel unsure about whether this study is appropriate for you.

What am I being invited to do?
You are being invited to complete an online questionnaire in which you will be asked to provide brief background information and to rate how much you agree or disagree with

several statements. These statements will reflect memories of how your parents behaved toward you in the past, your beliefs about your ability to meet high standards and how important this is to you, how you relate to difficult emotions or things you may not like about yourself and how often you have experienced symptoms of depression in the last few weeks. Clear instructions will be provided at the start of each section of the questionnaire to assist your understanding of how to complete the rating scales. You will not be required to provide your name. We request that you provide your email address to take part in this study. This will enable us to get in touch with you should we have concerns regarding your scores on a measure of mental health. Your email address will not otherwise be linked to your survey responses. Email addresses will not be stored with your responses, after the survey period of this study has ended. You will be able to indicate whether you would like to enter the chance to win one of five $40 gift vouchers and/or whether you would like to be provided with a summary of the findings of the study. First year psychology students who consent to take part will be granted course credit upon completion of the questionnaire.

How much time will my involvement in the project take?
Completing the questionnaire will take approximately 15 minutes. If you consent to engage, the questionnaire will need to be completed in one session as you will not be able to return to the questionnaire at a later time. You will not be required to answer any further questions once the survey has been completed. You will have the ability to request a summary of findings, to be forwarded via email following conclusion of the study.

Are there any risks associated with participating in this project?
You will be asked to provide your email address to take part in this study. Email addresses will only be linked to surveys for people who report elevated mental health symptoms, to enable us to contact you to provide further information about helpful resources. You will otherwise not be contacted unless you wish to receive a summary of the study's results or wish to enter the voucher draw. Emails will not be linked to responses once data is stored. All responses will be kept private and secured in a password protected drive, which will only be accessed for research purposes. It is possible that you may experience discomfort when answering some of the survey questions. You are able to withdraw immediately, without penalty or further required contact.

Should you experience discomfort as a result of taking part in this study, in addition to seeking support from your doctor or preferred health provider, you may wish to seek support from Lifeline on 13 11 14 or from the University of Adelaide counselling service on 08 8313 5663 or via counselling.centre@adelaide.edu.au.

You are welcome to share details of this study to others generally, but please do not refer or approach any particular person/s specifically about engaging in this study.

What are the potential benefits of the research project?
There are no foreseeable, direct benefits to people who complete this study; however, the study has the potential to benefit understanding of depressive symptoms and how

these emerge. You will be able to indicate whether you wish to be considered for a chance to win one of five $40 vouchers. First year psychology students taking part via the School of Psychology Research Participation System will receive course credit.

Can I withdraw from the project?
Taking part in this project is completely voluntary. If you agree to engage in the study, you can withdraw at any time during completion and up to submission of the survey. We will not be storing your email address with your responses after mental health symptom scores have been initially reviewed. As such we are unable to remove your responses once the survey is no longer available; however, any incomplete data will be removed. There will be no follow-up or other consequences should you choose to withdraw from this study.

What will happen to my information?
Confidentiality and privacy: You will not be required to provide your name. While you will be asked to provide your email address, this information will not be stored long-term and will only be used in the ways described in this information sheet. You will not be able to be identified via the information you provide in the questionnaire.

Storage: The questionnaire is available via Qualtrics online survey software. Information collected and project records will be securely stored in confidence on a password protected drive by the researchers. These will be kept for a period of five years and will be able to be accessed for University research purposes (which may include future research). You will not be contacted again should your data be used as part of future research.

Publishing: The data collected will be analysed as part of a student thesis project, in partial completion of the Master of Psychology (Clinical) program at the University of Adelaide. The thesis will also be prepared for submission as a journal article and may be published for wider review. Your information and data will be summarised and you will not be individually identifiable.

Sharing: Individual questionnaire responses will not be shared and will only be accessed by the listed study researchers and possibly by other researchers at the University of Adelaide (should the data be used in future research). In the final report, the results will be presented in a manner which ensures that individuals remain anonymous. A summary of the study's results will be made available to you if you wish to receive study results via email.

Your information will only be used as described in this information sheet and it will only be disclosed according to the consent provided, except as required by law. Information provided will not be disclosed to third parties and will only be used for research

purposes.

Who do I contact if I have questions about the project?
If you have questions or concerns regarding this project please contact the study's research investigators:

Primary contact:
Dr Michael Proeve
Principal Investigator, Primary Supervisor & Senior Lecturer, School of Psychology, University of Adelaide
[redacted]

Secondary contacts:
Elise Young
Student Researcher, Master of Psychology (Clinical) student, School of Psychology, University of Adelaide
[redacted]

Dr Amanda Taylor
Study Co-supervisor & Lecturer
[redacted]

What if I have a complaint or any concerns?
The study has been approved by the Human Research Ethics Subcommittee in the School of Psychology at the University of Adelaide (approval number). This research project will be conducted according to the NHMRC National Statement on Ethical Conduct in Human Research 2007 (Updated 2018). If you have questions or problems associated with the practical aspects of your participation in the project, or wish to raise a concern or complaint about the project, then you should consult the Principal Investigator. If you wish to speak with an independent person regarding concerns or a complaint, the University's policy on research involving human participants, or your rights as a participant, please contact the Chair of the Human Research Ethics Subcommittee in the School of Psychology on:

Phone: 08 8313 4936
Email: paul.delfabbro@adelaide.edu.au
Post: Level 5, Hughes building, North Terrace campus,
ADELAIDE 5000 AUSTRALIA

Any complaint or concern will be treated in confidence and fully investigated. You will be informed of the outcome.

If I want to take part in the study, what do I do?
If you would like to engage in the study, please proceed to the next section regarding consent and review. If you consent to complete the questionnaire, please check the

box indicating your consent. You will then be able to proceed to complete questionnaire items in the online survey.

Yours sincerely,
Dr Michael Proeve Principal Investigator, Primary Supervisor and Senior Lecturer, School of Psychology, University of Adelaide
Elise Young Student researcher, School of Psychology, University of Adelaide
Dr Amanda Taylor Co-Supervisor and Lecturer, School of Psychology, University of Adelaide

○ Please continue to consent form

Appendix 3: Participant Consent Form

Human Research Ethics Committee (HREC)
School of Psychology Sub-committee

CONSENT FORM

1. I have read the Information Sheet and agree to take part in the following research project:

Title: The relationships between recalled parenting behaviour, perfectionism, self-compassion and depressive symptoms
Ethics Approval Number: 20/42

2. I have had the project, so far as it affects me, and the potential risks and burdens fully explained to my satisfaction. I have had the opportunity to ask any questions I may have about the project and my engagement. My consent is given freely.

3. Although I understand the purpose of the research project, it has also been explained that my involvement may not be of any benefit to me.

4. I agree to participate in the survey, as outlined in the information sheet.

5. I understand that I can withdraw at any time up until submission of the survey. I am aware that if I decide to withdraw this will not affect my study at the University now or in the future.

6. I have been informed that the information gained in the project may be published in book, journal article, thesis, conference presentation, website, report and/or news article format.

7. I have been informed that in the published materials I will not be identified and my personal results will not be reported.

8. I agree to my information being used for future research purposes by any researchers and hereby provide ‘unspecified’ consent for the use of my data in any future research.

9. I understand my information will only be disclosed according to the consent provided, except where disclosure is required by law.

10. I have read the participant information sheet and I am willing to take part in the study. I agree to participate in the online questionnaire. I understand the processes for engaging in this study and the aims of the research. I also confirm that I am aged 18 years or older. I understand that I may request a copy of the information sheet and details of consent from the researchers. By providing my email address and clicking to

the next page, I give my consent.

11. If you consent to the above and wish to engage in this study, please enter your email below and progress to the questionnaire. Thank you for choosing to participate in this study.

_____

If you are a first year University of Adelaide School of Psychology student, please provide your 5-digit Research Participation System ID:
(if not please continue to questionnaire)

_____

If you are a first year University of Adelaide School of Psychology student, please enter your student ID below:

_____

Appendix 4: Participant Questionnaire – s-EMBU, F-MPS, SCS-SF, CES-D

What is your age (in years)?

_____

How would you describe your gender:

- ○ Male
- ○ Female
- ○ Other
- ○ Prefer not to say

What is your ethnic and/or cultural background?

- ○ Aboriginal or Torres Strait Islander
- ○ White
- ○ Asian or Pacific Islander
- ○ Black
- ○ Hispanic or Latino
- ○ Other
- ○ Mixed

Please indicate your household yearly income (before tax):

- ○ Less than $30000
- ○ $30000 to $59999
- ○ $60000 to $89999
- ○ $90000 to $119999
- ○ $120000 or more

What is your highest level of completed education?

- ○ Primary school or some high school, no certificate
- ○ High school degree or equivalent
- ○ Technical or Vocational training certificate (e.g. TAFE)
- ○ University Diploma
- ○ Bachelors Degree
- ○ Masters Degree
- ○ Doctorate Degree

Section 2: Memories of upbringing

Below are a number of questions concerning your childhood. Please read through the following instructions before filling out the questionnaire. Even if it is difficult to recall exactly how our parent/s behaved toward us when we were very young, each of us have memories of our upbringing. When filling out this questionnaire, it is important that you try to remember your parent/s' behaviour towards you as you yourself experienced it.

Below, there are a number of statements about your parent/s' behaviour and four alternative options regarding how often you remember this behaviour occurring. For each statement, please check the box representing the option which applies to how your parent/s behaved towards you. Some questions may not apply to you if you do not have siblings.

	No, never	Yes, but seldom	Yes, often	Yes, most of the time
1. My parents were sour or angry with me without letting me know the cause	1	2	3	4
2. My parents praised me	1	2	3	4
3. I wished my parents would worry less about what I was doing	1	2	3	4
4. My parents gave me more corporal punishment (e.g. spanking) than I deserved	1	2	3	4
5. When I came home, I then had to account for what I had been doing to my parents	1	2	3	4

6. My parents tried to make my adolescence stimulating, interesting and instructive (for instance by giving me good books, arranging for me to go on camps, taking me to sports/clubs)	1	2	3	4
7. My parents criticized me and told me how lazy and useless I was in front of others	1	2	3	4
8. My parents forbade me to do things other children were allowed to do because they were afraid something might happen to me	1	2	3	4
9. My parents tried to spur me to become the best	1	2	3	4
10. My parents would look sad or in some other way show that I had behaved badly so that I got real feelings of guilt	1	2	3	4
11. I think that my parents' anxiety that something might happen to me was exaggerated	1	2	3	4
12. If things went badly for me, I then felt that my parents tried to comfort and encourage me	1	2	3	4
13. I was treated as the "black sheep" or "scapegoat" of the family	1	2	3	4
14. My parents showed with words and gestures that they liked me	1	2	3	4
15. I felt that my parents liked my sibling(s) more than they liked me	1	2	3	4
16. My parents treated me in such a way that I felt ashamed	1	2	3	4
17. I was allowed to go where I liked without my parents caring too much	1	2	3	4
18. I felt that my parents interfered with everything I did	1	2	3	4
19. I felt that warmth and tenderness existed between me and my parents	1	2	3	4
20. My parents put decisive limits for what I was and was not allowed to do, which they adhered to rigorously	1	2	3	4
21. My parents would punish me hard, even for small offences	1	2	3	4
22. My parents wanted to decide how I should be dressed or how I should look	1	2	3	4
23. I felt that my parents were proud when I succeeded in something I had undertaken	1	2	3	4

Section 3: Beliefs about performance

Please answer the following questions in relation to how much they apply to you, by checking the appropriate box. Do not spend too much time on any one question.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. If I fail at work/school, I am a failure as a person	1	2	3	4	5
2. Even when I do something very carefully, I often feel that it is not quite right	1	2	3	4	5
3. If I do not set the highest standards for myself, I am likely to end up a second-rate person	1	2	3	4	5
4. I should be upset if I make a mistake	1	2	3	4	5
5. I usually have doubts about the simple everyday things I do	1	2	3	4	5
6. It is important to me that I am thoroughly competent in everything I do	1	2	3	4	5
7. If someone does a task at work/school better than I do, then I feel like I failed the whole task	1	2	3	4	5
8. I tend to get behind in my work because I repeat things over and over	1	2	3	4	5
9. I set higher goals than most people	1	2	3	4	5
10. If I fail partly, it is as bad as being a complete failure	1	2	3	4	5
11. It takes me a long time to do something “right”	1	2	3	4	5
12. I am very good at focusing my efforts on attaining a goal	1	2	3	4	5
13. I hate being less than the best at things	1	2	3	4	5
14. People will probably think less of me if I make a mistake	1	2	3	4	5
15. I have extremely high goals	1	2	3	4	5

16. If I do not do as well as other people, it means I am an inferior human being	1	2	3	4	5
17. If I do not do well all the time, people will not respect me	1	2	3	4	5
18. Other people seem to accept lower standards than I do	1	2	3	4	5
19. The fewer mistakes I make, the more people will like me	1	2	3	4	5
20. I expect higher performance in my daily tasks than most people	1	2	3	4	5

Section 4: Attitudes toward self

The following statements relate to how you typically act toward yourself in difficult times. Please read each statement carefully before answering. Using the scale below, please indicate by checking the box how often you behave in the stated manner.

	Almost Never				Almost Always
1. When I fail at something important to me I become consumed by feelings of inadequacy	1	2	3	4	5
2. I try to be understanding and patient towards those aspects of my personality I don't like	1	2	3	4	5
3. When something painful happens I try to take a balanced view of the situation	1	2	3	4	5
4. When I'm feeling down, I tend to feel like most other people are probably happier than I am	1	2	3	4	5
5. I try to see my failings as part of the human condition	1	2	3	4	5
6. When I'm going through a very hard time, I give myself the caring and tenderness I need	1	2	3	4	5
7. When something upsets me I try to keep my emotions in balance	1	2	3	4	5
8. When I fail at something that's important to me, I tend to feel alone in my failure	1	2	3	4	5
9. When I'm feeling down I tend to obsess and fixate on everything that's wrong	1	2	3	4	5

10. When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people	1	2	3	4	5
11. I'm disapproving and judgmental about my own flaws and inadequacies	1	2	3	4	5
12. I'm intolerant and impatient towards those aspects of my personality I don't like	1	2	3	4	5

Section 5: Recent feelings

Below is a list of ways you may have felt or behaved. Please check the boxes to indicate how often you have felt or behaved in the past week:

	IN THE LAST WEEK			
	Not at all or Less than one day	1 – 2 days	3 – 4 days	Most or all of the time 5 – 7 days
1. I was bothered by things that usually don't bother me	0	1	2	3
2. I did not feel like eating; my appetite was poor.	0	1	2	3
3. I felt that I could not shake off the blues even with help from my family or friends	0	1	2	3
4. I felt that I was just as good as other people	0	1	2	3
5. I had trouble keeping my mind on what I was doing	0	1	2	3
6. I felt depressed	0	1	2	3
7. I felt that everything I did was an effort	0	1	2	3
8. I felt hopeful about the future	0	1	2	3
9. I thought my life had been a failure	0	1	2	3
10. I felt fearful	0	1	2	3
11. My sleep was restless	0	1	2	3
12. I was happy	0	1	2	3
13. I talked less than usual	0	1	2	3
14. I felt lonely	0	1	2	3
15. People were unfriendly	0	1	2	3
16. I enjoyed life	0	1	2	3
17. I had crying spells	0	1	2	3
18. I felt sad	0	1	2	3
19. I felt that people dislike me	0	1	2	3
20. I could not get "going"	0	1	2	3

Thank you for agreeing to participate in this questionnaire.
Please indicate your preferences below if you would like to receive a summary of the study's results and/or would like to enter the draw to win one of five $40 vouchers:

I would like to receive a summary of the study's outcomes: Yes ☐ No ☐
I would like to enter the voucher draw: Yes ☐ No ☐

Resources are available if you have experienced any discomfort as a result of participating in this study. These include Lifeline (13 11 14) and the University of Adelaide counselling service (08 8313 5663 or via counselling.centre@adelaide.edu.au). If you have experienced any discomfort as a result of engaging in this study, please contact Dr Michael Proeve, Principal Investigator of this study [redacted]

Appendix 5: Follow-up Participant Email

Dear Participant

I am writing to you as you recently participated in an online questionnaire for the study of "The relationships between recalled parenting behaviour, perfectionism, self-compassion and depressive symptoms" with the School of Psychology, University of Adelaide. I wanted to thank you for your participation and contact you further, as the responses you provided may be characteristic of people who are experiencing depression. At this unusual time, it is important to take into account the fact that many people are experiencing mental health effects of enforced social isolation. However, I wanted to let you know about some of the supports and resources that may assist with managing mental health issues.

If you are experiencing an emergency or crisis and feel you need help immediately, please contact the Mental Health Triage service on 13 14 65. This contact line is available 24/7.

A doctor may be able to assist you if you wish to obtain a Mental Health Treatment Plan under the Medicare Better Access to Mental Health Care scheme. A Mental Health Treatment Plan enables access to an initial six sessions with a mental health practitioner, for which you will be provided with a Medicare rebate to cover part of the session cost. You may also be eligible for four further sessions, should these be required following review with a general practitioner. You are able to seek a Mental Health Treatment Plan by contacting your preferred general practitioner. The University of Adelaide offers this service through the University Health Practice: https://www.adelaideunicare.com.au/our-practices/university-health-medical-practice

Furthermore, if you are a current student of the University of Adelaide, you are eligible to receive assistance from the University of Adelaide Counselling Support service. You can find out more about how to access counselling via the website: https://www.adelaide.edu.au/counselling/

In addition to these supports, I wanted to provide you with a list of South Australian and National services that can provide personal and confidential assistance:

Lifeline 13 11 14 https://www.lifeline.org.au	Information and help line for people experiencing a personal crisis or suicidal thoughts.
Beyond Blue 1300 224 636 https://www.beyondblue.org.au/	Information and help line for issues associated with depression, suicide, and anxiety disorders.

Black Dog Institute https://www.blackdoginstitute.org.au/	Information on symptoms, treatment and prevention of depression and bipolar disorder.
Headspace 1800 650 890 https://headspace.org.au/ https://www.eheadspace.org.au/	Free online and telephone service that supports young people aged between 12 and 25 and their families going through a tough time.
Relationships Australia 1300 364 277 http://www.relationships.org.au/	A provider of relationship support services for individuals, families and communities.
Embrace Multicultural Mental Health https://embracementalhealth.org.au/	A national platform for multicultural communities and Australian mental health services to access resources, services and information in a culturally accessible format.
Suicide Call-back Service 1300 659 467 https://www.suicidecallbackservice.org.au/	Suicide Call Back Service is a nationwide service that provides professional 24/7 telephone and online counselling to people who are affected by suicide.
Head to Health https://headtohealth.gov.au	An innovative website that can help you find free and low-cost, trusted online and phone mental health resources.
Lived Experience Telephone Support Service 1800 013 755 http://www.letss.org.au/	After hours telephone and web-chat support service delivered by Peer workers, providing information, navigation of the mental health system and non-clinical mental health support.

If you would like to speak with one of the research investigators of this project, please respond to this email or contact via the following:

Dr Michael Proeve, Clinical Psychologist
Principal Investigator, Primary Supervisor & Senior Lecturer, School of Psychology, University of Adelaide
Phone: 08-8313-3818
Email: michael.proeve@adelaide.edu.au

Elise Young, Psychologist

Student Researcher, Master of Psychology (Clinical) student, School of Psychology, University of Adelaide
[redacted]

Dr Amanda Taylor, Clinical Psychologist
Study co-supervisor & Lecturer, School of Psychology, University of Adelaide
[redacted]

Please do not hesitate to contact us should you wish to discuss your engagement in this study or would like further support in discussing the options listed above.

Kind regards
Elise Young
Registered Psychologist
M. Psych. (Clinical) Student

Appendix 6: Self and Identity Journal Instructions for Authors

Instructions for authors

COVID-19 impact on peer review
As a result of the significant disruption that is being caused by the COVID-19 pandemic we understand that many authors and peer reviewers will be making adjustments to their professional and personal lives. As a result they may have difficulty in meeting the timelines associated with our peer review process. Please let the journal editorial office know if you need additional time. Our systems will continue to remind you of the original timelines but we intend to be flexible.

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Contents

- Data Sharing Policy
- Publication Charges
- Copyright Options
- Complying with Funding Agencies
- My Authored Works
- Reprints

About the Journal

Self and Identity is an international, peer-reviewed journal publishing high-quality, original research. Please see the journal's Aims & Scope for information about its focus and peer-review policy.

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