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## The Role of Self Compassion in the Relationship between Perfectionism and Suicide

Authors	Hong, Jihee
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## ACCEPTANCE

This dissertation, THE ROLE OF SELF COMPASSION IN THE RELATIONSHIP BETWEEN PERFECTIONISM AND SUICIDE, by JIHEE HONG, was prepared under the direction of the candidate's Dissertation Advisory Committee. It is accepted by the committee members in partial fulfillment of the requirements for the degree, Doctor of Philosophy, in the College of Education & Human Development, Georgia State University.

The Dissertation Advisory Committee and the student's Department Chairperson, as representatives of the faculty, certify that this dissertation has met all standards of excellence and scholarship as determined by the faculty.

---

Kenneth G. Rice, Ph.D.  
Committee Chair

---

Cirleen DeBlaere, Ph.D.  
Committee Member

---

Laura Shannonhouse, Ph.D.  
Committee Member

---

Chris Oshima, Ph.D.  
Committee Member

06.04.2021

Date

---

Brian Dew, Ph.D.  
Chairperson, Department of Counseling and Psychological Services

---

Paul A. Alberto, Ph.D.  
Dean, College of Education & Human Development

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Jihee Hong  
Department of Counseling and Psychological Services  
College of Education and Human Development  
Georgia State University

The director of this dissertation is:

Kenneth G. Rice, Ph.D.  
Department of Counseling and Psychological Services  
College of Education and Human Development  
Georgia State University  
Atlanta, GA 30303

**CURRICULUM VITAE**  
**JIHEE HONG**  
Email: [jhong22@student.gsu.edu](mailto:jhong22@student.gsu.edu)

**EDUCATION**

**Georgia State University, Atlanta, GA** **Expected August 2022**  
Doctor of Philosophy, Counseling Psychology (*APA Accredited*)

**Sogang University, Seoul, Korea** **February 2014**  
Master of Art, Counseling & Clinical Psychology

**Sogang University, Seoul, Korea** **February 2011**  
Bachelor of Art, Psychology  
Bachelor of Science., Life Science

**SELECTED DOCTORAL CLINICAL EXPERIENCE**

**Emory University** **August 2021 – July 2022**  
**Counseling and Psychological Services, Atlanta, GA**  
*Doctoral Psychology Intern (APA Accredited)*

**Emory University** **August 2020 – April 2021**  
**School of Medicine & Grady Memorial Hospital**  
**Grady Trauma Project, Atlanta, GA**  
*Doctoral Practicum Student*

**Georgia Tech** **August 2019 – April 2020**  
**Counseling Center, Atlanta, GA**  
*Doctoral Practicum Student*

**Georgia Gwinnett College** **September 2018 – June 2019**  
**Counseling Center, Lawrenceville, GA**  
*Doctoral Practicum Student*

**Georgia State University** **January 2018 – April 2018**  
**Counseling and Testing Center, Atlanta, GA**  
*Doctoral Practicum Student*

**SELECTED MASTER'S CLINICAL EXPERIENCE**

**Sogang University** **February 2014 – February 2015**  
**Counseling Center, Seoul, Korea**  
*Intern*

## SELECTED PRESENTATIONS AND PUBLICATIONS

- Hong, J.**, Shannonhouse, L., Fullen, M., Westcott, J., Mize, M. (2021). Fearlessness About Death: Measurement Invariance Between African American and White Older Adults. Presentation at 54<sup>th</sup> American Association of Suicidology Annual Conference, Virtual.
- Fullen, M., Mize, M., **Hong, J.**, Shannonhouse, L., & Westcott, J. (2020). Suicide Risk in Older Adulthood: Differential Pathways Based on Race. Poster presentation at the Gerontological Society of America 2020 Annual Scientific Meeting, Virtual.
- Hong, J.**, Taber, Z., Aiello, M., Dennis, B., & Rice, K. G. (2020). The role of Perfectionism between Self-Compassion and Social, Emotional Loneliness. Poster presentation at 128<sup>th</sup> Annual Conference of American Psychological Association, Virtual.
- Hong, J.**, Oshima, C., & Rice, K. G. (2019). Multi-Group Differential Functioning of Items and Tests with Cultural Orientation Scale. Presentation at the Georgia Educational Research Association Conference, Macon, Georgia, United States.
- Hong, J.**, Aiello, M., Rice, K. G., Oshima, C., & Arana, F. (2019). Cultural Orientation Scale Item Response Differences among Asian, Black, and White Students. Poster presentation at 127<sup>th</sup> Annual Conference of American Psychological Association, Chicago, United States.
- Rice, K. G., Park, H. J., **Hong, J.**, & Lee, D. G. (2019). Measurement and Implications of Perfectionism in South Korea and the United States. *The Counseling Psychologist*, 47(3), 384-416.
- Massengale, M., Shebuski, K., Karaga, S., Choe, E., **Hong, J.**, Hunter, T., & Dispenza, F. (2019). Psychology of Working Theory with refugee persons: Applications for career counseling. *Journal of Career Development*. 0894845319832670.
- Castleberry, J., **Hong, J.**, Aiello, M. & Rice, K. G. (2018). Psychometric Properties of the Experiences in Close Relationships Scale-Short Form. Poster presentation at 30<sup>th</sup> Annual Convention of Association for Psychological Science, Boston, United States.
- Hong, J.** & Rice, K. G. (2018). The Role of Cultural Orientation in Relationship between Perfectionism and Depression. Poster presentation at 126<sup>th</sup> Annual Conference of American Psychological Association, San Francisco, United States.
- Hong, J.** & Rice, K. G. (2017). Perfectionism, Social Connectedness, and Life Satisfaction among International and Domestic College Students. Poster presentation at 29<sup>th</sup> Annual Convention of Association for Psychological Science, Boston, United States.

## PROFESSIONAL SOCIETIES AND ORGANIZATIONS

American Psychological Association (APA) - APAGS, ICP, Div. 17, 45, 52	2012 - present
Association for Psychological Science (APS)	2016 - present
American Association of Suicidology (AAS)	2021 - present
Korean Psychologist Network (KPN)	2016 - present
Korean Psychological Association (KPA)	2011 - present
Korean Counseling Psychological Association (KCPA)	2011 - present

THE ROLE OF SELF COMPASSION IN THE RELATIONSHIP BETWEEN  
PERFECTIONISM AND SUICIDE

by

JIHEE HONG

Under the Direction of Kenneth G. Rice, Ph.D.

ABSTRACT

The suicide rate has been increasing in the world, both in the young and older adult population. Prolific research has investigated causes, mechanisms, and interventions to prevent suicide. Many significant contributions from psychology in providing a theoretical and empirical understanding of suicidal behavior stem from the Interpersonal Theory of Suicide (IPTS). Based on the IPTS, the current study aims to examine the hypothesized model showing the relationship between perfectionism and suicidal risk and the moderating role of self-compassion in both young and older adult samples. Before testing the model, measurement invariance between young and older adults was evaluated. Also, multigroup Structural Equation Modeling was done to examine the differences in construct relationships between young and older adults. A total of 260 young adults and 319 older adults were included in the final data analyses. The Short Almost Perfect Scale (SAPS), Self-Compassion Scale Short Form (SCS-SF), and Interpersonal Needs Questionnaire (INQ) were used to measure the constructs. With some adjustments to the measurement models, partial scalar invariance models were supported for the SAPS, SCS-SF, and INQ. Consistent with the literature, perfectionism (Perfectionistic Strivings and Perfectionistic concerns) significantly predicted suicidal risk (Perceived Burdensomeness and Thwarted Belongingness), and self-compassion significantly moderated paths in predicting suicidal risk. Older adults with lower self-compassion and higher perfectionistic concerns

predicted higher perceived burdensomeness. Also, a lower level of self-compassion and lower perfectionistic strivings exacerbated suicidal risk. Strengths of associations between constructs were different between young and older adults. The results supported and extended current literature on the relationship between perfectionistic strivings, perfectionistic concerns, and suicidal risks. Also, results provided empirical evidence that self-compassion may work as an important protective factor in mitigating suicidal risks. Further implications, including limitations of the current study and suggestions for future directions, are also discussed.

**INDEX WORDS:** Self-Compassion, Perfectionism, Perceived Burdensomeness, Thwarted Belongingness, Interpersonal Theory of Suicide

THE ROLE OF SELF COMPASSION IN THE RELATIONSHIP BETWEEN  
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JIHEE HONG

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# **1 SELF-COMPASSION, SELF-CRITICAL PERFECTIONISM, AND SOCIAL CONNECTEDNESS: A META-ANALYSIS**

The way we perceive ourselves plays a vital role in how we interpret the world. Simultaneously, the way we look at the world plays an essential role in how we see ourselves. Some researchers argue that extending kindness to oneself can help individuals be kind to others as well (Neff & Beretvas, 2013) which can lead to the development of social support, and ultimately improved well-being. However, previous research found evidences that individuals with stronger perceived social support tend to report higher levels of subjective well-being (Neff & Germer, 2013; Yang, 2016), whereas individuals endorsing higher levels of self-criticism present a higher risk for developing depression (Abdollahi et al., 2020; Mehr & Adams; 2016). In counseling sessions, many psychologists intervene on both internal and external factors to help clients experiencing both mental health concerns and interpersonal challenges. Thus, it is crucial to consider the influence of both personality and social variables when developing conceptualizations and effective interventions for clients in need. In recent literature on effective interventions, self-compassion has known to be one of the commonly used effective tool for psychologists (Neff, 2015). To address this topic, this paper seeks to understand the relationship between aspects of perfectionism, social connectedness, and self-compassion. Mainly, the current study aims to investigate to what extent self-compassion relates to self-critical perfectionism and social connectedness.

## **Self-Compassion**

According to Neff (2015), the definition of self-compassion entails three reactions to the experiences of personal pain and personal sufferings. First, by maintaining a compassionate stance when confronting failure and hardship, individuals may offer themselves gentle,

supportive, and non-judgmental understanding rather than belittling their pain or scolding themselves with self-criticism (i.e., self-kindness). Second, self-compassion may allow individuals to understand and accept their predicament as a part of the human experience rather than isolating themselves (i.e., common humanity). This process includes recognizing that being imperfect, making mistakes, and encountering life difficulties is something that people all go through rather than something that happens to 'me' alone (Neff et al., 2007). The third component of self-compassion involves being aware of one's present moment with clarity and balance without being caught up in negatively exaggerated narratives about oneself (i.e., mindfulness). It means that self-compassion entails taking a balanced approach to one's negative experiences so that painful feelings are neither suppressed nor exaggerated (Neff et al., 2007).

Gilbert (2005) asserts that self-compassion enhances well-being because it makes individuals feel cared for, connected, and emotionally calm. Stemming from the principles of evolutionary biology, neurobiology, and attachment theory, social mentality theory explains that self-compassion deactivates the threat system that is related to the limbic system, defensiveness, and feelings of insecurity (Gilbert, 1989). Instead, self-compassion activates the self-soothing system that is associated with oxytocin-opiate system, safeness, and senses of secure attachment, which in turn generate higher capacities for intimacy and successful coping with the environment (Gilbert, 2005). Research findings also indicated that self-compassion was positively related to life-satisfaction, social connectedness, mastery of goals, and emotional intelligence, whereas it was negatively associated with self-criticism, depression, anxiety, rumination, neurotic perfectionism, performance goals, eating disorder, and thought suppression (Adams & Leary 2007; Neff et al., 2005; Neff et al., 2007).

Aging may be one-factor that influences self-compassion (Werner et al., 2011). Research showed that self-compassion is negatively correlated with age for individuals positively screened for social anxiety disorder (Werner et al., 2011). They argued that socially stressful life events and anxiety symptoms are compounded over time as people age and can degrade one's capacity for generating self-kindness and care. However, age was positively correlated with self-compassion in the general population (Werner et al., 2011). Bluth and Blanton (2015) suggested that age differences in self-compassion emerge between middle school and high school. Also, in the adolescent population, researchers suggested that females' level of self-compassion decreases as age increases, but males' level of self-compassion stays similar across all ages (Bluth et al. 2017). In addition to these mixed results, another study suggested that the effect of self-compassion on subjective well-being was shown to be more beneficial to older adults than those who were in their early adulthood (Allen et al., 2012; Allen & Leary, 2014; Hwang et al., 2016). Hwang et al. (2016) argued that older adults may be required to face more permanent conditions in health, career, and relationships (Havighurst, 1972), so they may have a greater capacity to accept such conditions as compared to younger adults. However, further research is needed to understand the relationship between age and self-compassion across the life span.

Also, self-compassion studies have included multiple measurements including the Self-Compassion Scale (SCS; Neff, 2003a), Self-Compassion Scale Short Form (SCS-SF; Raes et al., 2011), Compassionate Love Scale (CLS; Sprecher & Fehr, 2005), Friendship Compassionate and Self-Image Goals Scale (FCSIGS; Crocker & Canavello, 2008), Forms of Self-Criticism and Self-Image Goals Scale (FSCRS; Gilbert et al., 2004), State Self-Criticism & Self-Compassion Scale (Falconer et al., 2015), and the Submissive Compassion Scale (Catarino et al., 2014). Unlike most of other measures of self-compassion focuses on its specific role in relationship with

others and other psychological constructs such as self-criticism, SCS and SCS-SF investigate all three main theories of self-compassion: self-kindness vs. self-judgment, common humanity vs. isolation, and mindfulness vs. over-identification. Furthermore, the psychometric properties SCS and SCS-SF have been investigated and proved to be robust valid measurements, so they are the most commonly used measurement in the self-compassion literature.

Recently the literature on perfectionism has given significant attention to the concepts of self-compassion. Specifically, negative relationships have emerged between self-critical perfectionism and self-compassion, suggesting that self-compassion may mediate the influence of self-critical perfectionism in predicting subjective well-being, depression, anxiety, and emotion regulation difficulties (Abdollahi et al., 2020; Fletcher et al., 2019; Stoeber et al., 2020). Additional research proposes that self-compassion interventions may decrease the level of self-critical perfectionism (Linnett & Kibowski, 2019; Ong et al., 2019). However, other scholars suggest that self-critical perfectionism can impede the development of self-compassion (Bayir & Lomas, 2016). A recent article also hypothesized that excessive self-consciousness, self-evaluative concerns, and hypersensitivity to threatening cues might influence the deficits in individuals' ability to practice the mindfulness aspect of self-compassion (Flett et al., 2020). Based on these mixed findings, the dynamics and mechanisms between self-critical perfectionism and self-compassion continue to need further investigation.

### **Self-Compassion and Personality: Self-Critical Perfectionism**

Self-compassion represents how we relate to ourselves with compassion in personal sufferings (Brach, 2003; Salzberg, 1997). In contrast, perfectionism often leads people to have increased symptoms of depression and anxiety, and in some circumstances even suicidal vulnerability when faced with failure or frustration (Blatt, 2008). In the previous literature,

perfectionism has been understood as a multidimensional trait that includes two higher-order dimensions, perfectionistic strivings and perfectionistic concerns (Stoeber, 2017). Perfectionistic strivings factor refers to aspects of perfectionism associated with the setting of very high personal performance standards. In contrast, perfectionistic concerns are aspects associated with concerns over making mistakes, fear of negative social evaluation, feelings of the discrepancy between one's expectations and performance, and adverse reactions to imperfection (Gotwals et al., 2012, p. 264). These two dimensions of perfectionism provide useful empirical research findings using measures supported by factor analyses (Bieling et al., 2004). Perfectionistic concerns factor has been a significant predictor of cognitively, affectively, and behaviorally maladaptive outcomes in mental health (Gnilka, Ashby, & Noble, 2012; Grzegorek et al., 2004; Mobley et al., 2005; Stoeber & Otto, 2006). Even though self-criticism can be a pre-condition for growth when it allows us to identify our flaws and work on improving ourselves, previous research showed that perfectionistic concerns, also referred to as self-critical perfectionism, can have a detrimental influence on self-compassion (Shahar, 2016). The underlying drive of self-critical perfectionism has been understood as an intense need to avoid failure and an inability to experience satisfaction even when exceptional performance is achieved (Blatt, 1995). Previous investigations have focused on the effect of perfectionistic concerns rather than perfectionistic strivings on self-compassion, because of the conceptually conflicting relationship between perfectionistic concerns and self-compassion. However, investigating the relationship between self-compassion and self-critical perfectionism may provide important clinical implications for preventative work among mental health professionals.

The two dimensions of perfectionism (i.e., perfectionistic strivings and perfectionistic concerns) have been measured with different scales including the Almost Perfect Scale-Revised

(APS-R; Slaney et al., 2001), Hewitt and Flett Multidimensional Perfectionism Scale (HF-MPS; Hewitt et al., 1991), Frost Multidimensional Perfectionism Scale (F-MPS; Frost et al., 1990), Perfectionistic Self-Presentation Scale (PSPS; Hewitt et al., 2003) and (PI; Hill et al., 2004). Perfectionistic strivings factor is measured by Standards, Self-oriented Perfectionism, Personal Standards, and Striving for Excellence subscales from each measure of perfectionism. This dimension showed nonsignificant correlations with negative affect, but a positive correlation with positive affect (Frost et al., 1993; Molnar et al., 2006). Standards, Personal Standards, and Striving for Excellence subscales reflect perfectionists' exceedingly high standards of performance, and Self-oriented Perfectionism comprises internally driven beliefs that striving for perfection and being perfect are important. However, perfectionistic concerns factor is measured by Discrepancy, Socially Prescribed Perfectionism, Concern over Mistakes, Doubts about Actions, Parental Expectations, Parental Criticism subscales (Stoeber, 2017). This dimension showed nonsignificant correlation with positive affect, but positive correlation with negative affect and depression (Frost et al., 1993; Sturman et al., 2009). Discrepancy reflects the perception that perfectionists consistently fails to meet the high standards they set. Concern over Mistakes captures perfectionists' fear about making mistakes and the negative consequences that mistakes have for their self-evaluation. Doubts about Actions refers to a tendency towards indecisiveness related to an uncertainty about doing the right thing. In contrast, Parental Expectations and Parental Criticism refer to perfectionists' perceptions that their parents expected them to be perfect and were critical if they failed to meet these expectations. Also, Socially Prescribed Perfectionism comprises externally motivated beliefs that striving for perfection and being perfect are important to others. It may be controversial that Parental Expectations and Socially Prescribed Perfectionism are grouped together in the perfectionistic

concerns dimension, because researchers from different cultures may argue influences from others are not always destructive. However, from the perfectionism literature, studies have emphasized the negative influence of social pressure on perfectionism and included those subscales in the perfectionistic concerns dimension (Hewitt & Flett, 1990).

The measure PSPS has been developed to explore the motivational principles underlying perfectionism from a self-regulation perspective (Hewitt et al., 2003), with three subscales, perfectionistic self-promotion, nondisplay of imperfection, and nondisclosure of imperfection. Perfectionistic self-promotion is motivated by the need to appear perfect by impressing others through displays of faultlessness and a flawless image. In contrast, nondisplay of imperfection is driven by the need to avoid appearing as imperfect, which includes the avoidance of evaluations if they are likely to highlight a personal shortcoming, mistake, or flaw. Nondisclosure of imperfection is driven by a need to avoid verbally communicating or admitting to concerns, mistakes, and perceived imperfections for fear of being negatively evaluated. Studies have shown that these factors may explain why perfectionistic personality can be associated with psychological maladjustment (Stoeber et al., 2017).

These measurements may represent slightly different constructs of perfectionism but have proven to have convergent validity with other measures and be related under the two higher domains (Rice et al., 2007; Sironic & Reeve, 2015; Slaney et al., 2001). Also, studies investigated the association between perfectionism and higher-order personality dimensions Five-Factor Model of Personality (FFM). Results revealed that the perfectionistic concerns factor was positively associated with the FFM dimension of Neuroticism (Dunkley et al., 2006; Rice et al., 2007; Rosser et al., 2003; Stumpf & Parker, 2000), whereas the perfectionistic strivings

factor was positively related to the FFM dimension of Conscientiousness (Hill et al., 1997; Rice et al., 2007; Stumpf & Parker, 2000).

Theories and research in perfectionism have supported its role as a predictor of psychological outcomes, typically in the college student population (Frost et al., 1993; Rice et al., 1998). Similar findings have been obtained in studies with older clinical populations (Hewitt et al., 1996), but there have been little empirical findings comparing perfectionism between older and young general populations. (Chang et al., 2000). One study investigated a mediation model of perfectionism predicting positive and negative psychological outcomes both in the older and younger adult population (Chang et al., 2000). They found that the role of perfectionism in their mediation model appeared the same across both groups, but also reported that the different age groups showed mean differences in perfectionism, stress, life satisfaction, worry, and negative affect. Thus, future studies may be needed to investigate the role of age in understanding the mechanisms of perfectionism.

### **Self-Compassion and Interpersonal Relationships: Social Connectedness**

The Dalai Lama (1995, 2001) referred to the construct of compassion as an openness to, and an understanding of the suffering of others with a commitment to help them. In psychology, the definition of self-compassion stresses its role in perceiving others' pain and feeling goodwill towards them (Cosley et al., 2010). According to this conceptualization, self-compassion and social connectedness seem linked and should be considered together. The concepts of social connectedness or sense of belongingness stem from attachment theory and self-psychology theory (Bowlby, 1969, 1973, 1988; Kohut, 1984). Theorists explain that early traumatic or stressful relational experiences with primary attachment figures may contribute to the formation of an insecure attachment with others, an overwhelming sense of shame, and an unfulfilled need

for approval and acceptance (Banai et al., 2005; Horney, 1950). Some also define social connection as a basic human need and subjective awareness of being in closer relationship with the social world (Baumeister & Leary, 1995; Lee & Robbins, 1998). Initial understanding of the sense of belongingness by Kohut (1984) is related to other constructs such as attachment (Bowlby, 1988), loneliness (Marangoni & Ickes, 1989), and perceived social support (Brown et al., 1987).

The social connectedness has been a prominent predictor for well-being and social support among adolescents and young adults (Jose et al., 2012; Newcomb, 1990). However, previous research with older adults suggested that social connectedness may be a more influential factor for older adults' psychological well-being. One of the previous studies reported that age is negatively related to network size, closeness to members in the community, and the number of friends outside of family (Cornwell et al., 2008). They suggested that for some older adult population, later-life transitions such as retirement and bereavement may prompt greater connectedness with people. Elders have also reported higher risks and vulnerability in social connectedness, such as perceived burdensomeness compared to young adults (Vanyukov et al., 2016). Future studies are needed to understand the role of age better in understanding the predicting role of social connectedness in mental health.

In a previous study, self-compassionate individuals were described by their partners as being more caring, accepting, and autonomy-supporting than self-critical individuals, who were described as being more detached, aggressive, and controlling in the relationship (Neff & Beretvas, 2013). Participants also reported that a relationship with self-compassionate partners felt safer and more satisfactory (Neff & Beretvas, 2013). Not only in romantic relationships, but also other social relationships, additional studies suggested that self-compassion is associated

with higher levels of relational well-being (Wilson et al., 2020; Yarnell & Neff, 2013), and feeling safe in relationships (Akin & Akin, 2014; Kelly & Dupasquier, 2016), which in turn predicted satisfaction with life (Yang, 2016). However, in the previous empirical literature, there has been a lack of consensus on the aspects of social connectedness or a sense of belongingness that most influence or are influenced by self-compassion. Previous research studies included social connectedness, perceived social support, perceived social safeness, attachments, burdensomeness, belongingness, and interdependence with different measurements, but it was difficult to draw a general social factor that is crucial in self-compassion (Akin & Akin, 2014; Bell et al., 2019; Toplu-Demirtaş et al., 2018; Jeon et al., 2016; Jiang et al., 2017; Mackintosh et al., 2018; Niiya et al., 2013; Øverup et al., 2017). Furthermore, the previous meta-analysis on self-compassion has been limited to its relationship with psychopathology and psychological well-being, but not on social connectedness (MacBeth & Gumley, 2012; Zessin et al., 2015). Given this lack of meta-analysis on social connectedness, looking at the trend of the current literature on self-compassion and qualities of relationship seems critical.

In summary, previous theoretical models and empirical findings on self-compassion have been suggesting its association with self-critical perfectionism and social connectedness. Although there have been several studies of self-compassion in perfectionism and interpersonal well-being, there has not been a systematic quantitative review of the association between self-compassion and two constructs that represent personality and relationships: self-critical perfectionism and social connectedness. Therefore, the current review sought to review the literature on self-compassion with self-critical perfectionism and social connectedness. In particular, we wish to estimate the strength of association between self-compassion and the two

constructs. We also sought to evaluate the effect of potential moderator variables on the relationship between self-compassion and the two constructs.

## **Hypotheses**

The purpose of the current study was to provide a meta-analytical review of research examining the relationship between self-compassion and two constructs that can represent mental health in oneself (self-critical perfectionism) and relationships (social connectedness).

The hypotheses are as follows:

**Hypothesis 1:** Self-compassion would be negatively related to self-critical perfectionism.

**Hypothesis 2:** Self-compassion would be positively related to social connectedness.

A secondary purpose was to examine whether relationships between self-compassion, perfectionism, and social connectedness differ depending on various aspects of the studies included in the meta-analysis. More specifically, I explored the moderating effects of age, sample characteristics (e.g., university students, athletes, doctoral trainees), and measurements used in different studies.

## **Method**

### **Literature Search**

A literature search was conducted using the electronic database APA Psych INFO (e.g., journal articles, books, dissertations) with the following search terms: “self-compassion,” “self compassion,” “compassion-focused,” “compassion-based,” or “self-kindness.” The search dates were between January 2003 (the year the article on self-compassion scale development was published) and April 2020. No other restrictions were placed on the searches. This initial search yielded 2,430 studies. A secondary search was conducted with the following terms: “perfect\*” (for perfectionism, perfectionist, and perfectionistic), “social connect\*” and “social support.”

This search identified 61 perfectionism related articles and 99 social connection related articles. On April 1st, 2020, all search strategies were ended, and data reduction was instigated. Based on all the search strategies and screening of abstracts, a total of 27 perfectionism articles and 23 social connection articles were selected for further review with inclusion/exclusion criteria as follows.

### **Inclusion / Exclusion Criteria**

Studies were included in the meta-analysis if they (a) measured self-compassion, self-critical perfectionism, and social connectedness using self-report scales that yielded quantitative values; (b) had a measure of self-compassion, (c) had a measure of self-critical perfectionism or a measure of social connectedness, (d) included correlation coefficients or other sufficient information for computation or estimation of effect size, (e) included adults as participants (18 years and older), (f) were published in peer-reviewed journal articles, and (g) were published in English in English speaking countries, to control variances in measurements and cultural differences in understanding the concept of variables. The implementation of the criteria resulted in the final inclusion of 22 studies: 12 self-critical perfectionism articles reporting 12 effect sizes capturing the relationship between self-compassion and self-critical perfectionism, and 10 social connectedness studies reporting 10 effect sizes capturing the relationship between self-compassion and self-critical perfectionism.

### **Recorded Variables**

A coding sheet was completed for each study included in the meta-analysis. It included (a) publication information (authors/year), (b) a number of participants, (c) mean ages of participants, (d) sample characteristics (e.g., undergraduate students, general population, patients), (e) nationality of participants, (f) measurements used to measure self-compassion, (g)

measurements used to measure self-critical perfectionism, (h) measurements used to measure social connectedness, (i) reliability of the measures, (j) bivariate correlations between self-compassion and self-critical perfectionism or social connectedness.

Indicators of self-compassion were the total composite scale of the Self-Compassion Scale (SCS; Neff, 2003a) and total composite scale of Self-Compassion Scale Short Form (SCS-SF; Raes et al., 2011). These indicators were selected based on factor analytical evidence of psychometric properties of measures on self-compassion (Neff, 2003a).

Indicators of self-critical perfectionism were the Discrepancy subscale from Almost Perfect Scale-Revised (APS-R; Slaney et al., 2001), the Concerns over Mistakes, Parental Expectations, Parental Criticism, and Doubts about Action subscales from Frost Multidimensional Perfectionism Scale or its sport adaptations (MPS; Frost et al., 1990 and Sport-MPS 2; Gotwals & Dunn, 2009), the Socially Prescribed Perfectionism subscale from Hewitt and Flett's Multidimensional Perfectionism Scale (HFMPs; Flett et al., 1997), and Non-Display of Imperfection subscale from Perfectionistic Self-Presentation Scale (PSPS; Hewitt et al., 2003). For PSPS, Perfectionistic Self-Presentation subscale was eliminated because it showed nonsignificant correlation with self-compassion. Furthermore, Nondisclosure of Imperfection subscale was not included in current meta-analysis, because conceptually, the subscale may be integrated in the Non-Display of Imperfection subscale. For other measures, the indicators were selected based on the recommended practice of researchers examining self-critical perfectionism (Stoeber, 2011), and factor analytical evidence (Bieling et al., 2004).

Indicators of social connectedness were total scores from Social Connectedness Scale (SCS; Lee & Robbins, 1995), Social Support scores from Multidimensional Scale of Perceived Social Support (MSPSS; Zimet et al., 1988), Received Social Support subscale from Social

Provisions Scale (SPS; Dunkley et al., 2000), Relational Well-Being with Friend subscale from Relational Well-Being measure (RWB; Harter et al., 1992), Positive Relationships with Others subscale from Scales of Psychological Well-Being (SPWB; Ryff, 1989), and Importance to Others as an Aspect of Mattering subscale from Importance Scale of the Mattering Index (ISMI; Elliott et al., 2004). Received Social Support subscale was selected from SPS, because it represents sense of belongingness, emotional support, and reassurance of worth which are key concepts of social connectedness. Other indicators were selected based on their theoretical contribution to the social connectedness.

Study participants were primarily young adults, and the majority of the participants were reportedly White. One out of 22 studies had an older adult population as their sample (mean age = 70), and another one out of 22 studies had African Americans as their participants' race/ethnic background. Sixteen out of twenty-two studies used the 26-item SCS as their self-compassion measurement, and the remaining six studies used the 12-item SCS-SF. Further coded information for each study is presented in Tables 1 and 2.

### **Meta-Analytical Procedures**

A power analysis was conducted using the metapower package in R (Griffin, 2020). In computing statistical power for meta analyses main effects, effect size magnitude, average number of sample, number of studies, effect size type (correlation), and alpha level of 0.05 was included in the equation. The average sample sizes were 291 for self-critical perfectionism studies, and 253 for social connectedness research. Following Cohen's (1992) recommendations for medium effect sizes, we set the effect size for the power analysis at  $r = .30$ . The power was  $>.80$  to detect the  $r = .30$  effect, but the numbers of studies included in the meta-analysis were small (12 and 10, respectively). However, according to Valentine et al. (2010), meta-analysis

provides a method for taking advantage of the relevant information including the significance tests in the studies (i.e., effect sizes and their precision) using statistical conclusions arising from individual tests. The researchers argue that theoretically the minimum number of studies needed in meta-analysis can be two, because all other synthesis techniques are less transparent and are less likely to be valid (Valentine et al., 2010).

The meta-analyses were conducted using metafor package in R (Viechtbauer, 2010). Before meta-analysis, sensitivity analyses were conducted to inspect standardized studentized residuals and covariance ratio, which indicate an outlier among studies included in meta-analyses. In deriving effect sizes and confidence intervals, random-effects models were used, because such models assume variation in effect sizes between studies due to both sampling error and true random variance arising from differences between studies in terms of their procedures and settings. Random-effects models are also recommended in the previous study to allow generalization beyond the set of studies examined to future studies (Schmidt, Oh, & Hayes, 2009).

Analyses were based on Fisher's  $Z$  transform of the correlation coefficient. Fisher's  $Z$  ranges from  $-\infty$  to  $+\infty$ , and higher values indicate stronger relationships. In the meta-analysis, Fisher's  $Z$  is preferable to the correlation coefficient because correlation coefficients provide a problematic standard error when obtaining weighted cumulative effects (Lipsey & Wilson, 2001). When correlation coefficients are transformed to Fisher's  $Z$ s, the sampling distribution of the resulting variance becomes a normal distribution, with a variance that is stable over different values of the underlying true correlation. To interpret effects, Cohen's (1992) recommendations for small, medium and large effect sizes were used ( $r=.10$ ,  $.30$ , and  $.50$ ). Statistical significance was indicated by the 95% confidence intervals that exclude zero ( $p < .05$ ). The contributions of

individual effect sizes to mean effect sizes were weighted using the reciprocal of their sampling variance. This allows studies with larger sample sizes have more influence in determining the mean effect size (Rosenberg, Adams, & Gurevitch, 2007).

Of the 22 studies, 3 included multiple effect sizes. In those three studies, correlations between multiple indicators of self-compassion subscales and social connectedness were reported (e.g., correlations of self-kindness, common humility, mindfulness, and social connectedness). In these cases, only one effect size was included in the meta-analyses. This effect size was the average of the reported effect sizes, which is a commonly used strategy to ensure that effect sizes in the analyses are independent and avoid artificial inflation of sample size and distortion of standard error estimates (Lipsey & Wilson, 2001).

To evaluate moderation, heterogeneity of effect sizes was assessed. The total heterogeneity of the weighted mean effect sizes ( $Q$ ) provides an indication of whether the variance evident in the weighted mean effect size exceeds that would be expected by sampling error. Also, moderation was assessed by calculating the degree of inconsistency in the observed relationship across studies ( $I^2$ ). This index is interpreted as the percentage of total variation across studies due to true heterogeneity rather than sampling error. So, increases in  $I^2$  equal an increase in the level of true heterogeneity (0%-100%). Low, medium, and high levels of heterogeneity have been identified by the values of 25%, 50%, and 75% (Higgins & Thompson, 2002). This index is not adversely influenced by the number of studies included in the analyses and can be compared across meta-analyses that include a different type and number of studies (Higgins et al., 2003).

Several strategies were used to assess publication bias. A funnel plot was inspected to find the asymmetrical distribution of study effect sizes and standard errors, which indicates

publication bias. Egger's test of regression intercept was also used to quantify the bias captured by the funnel plots by regressing effect size on the reciprocal of its standard error (Egger, Smith, Schneider, & Minder, 1997). If there is no publication bias, Egger's regression intercept does not differ significantly from zero. Also, Rosenthal's (1979) fail-safe number for each effect size was examined. The fail-safe number indicates the number of non-significant, unpublished, or missing studies with a mean effect size of zero that would need to exist to change the statistical significance of the observed effect size to a non-significant level. According to Rosenthal's recommendation, the fail-safe number should be greater than  $5k + 10$ , where  $k$  is the number of observed effect sizes.

## **Results**

### **Sensitivity Analyses**

Sensitivity analyses (Viechtbauer & Cheung, 2010) were conducted using the metafor package in R for the random effects models. Inspection of studentized residuals and covariance ratios indicated that Stoeber et al. (2019), which used HFMPs as their perfectionism measure, was likely an outlier. Omission of the study would decrease heterogeneity and slightly improve the precision of the model ( $\Delta I^2 = 4.70$ ,  $\Delta \tau^2 = .007$ ), therefore Stoeber et al. (2019) was removed from the analysis.

Sensitivity analyses also indicated that Homan (2018) was likely an outlier and omission of the study would decrease heterogeneity greatly and improve the precision of the model. However, Homan studied older adults, and sample age may act as a moderating factor in mixed

effect model. Because there were relatively few studies of older adults, Homan (2018) was not removed from the analysis.

### **Overall Effect Sizes**

For the relationship between self-compassion and self-critical perfectionism, the total number of participants from 11 studies was 3,241. The weighted mean effect sizes between self-compassion and self-critical perfectionism are reported in Figure 2. The effect size for the relationship between self-compassion and self-critical perfectionism was  $-.65$  (95% CI  $[-.74, -.55]$ ;  $I^2 = 84.44$ ), representing that self-compassion displayed a large negative relationship with self-critical perfectionism. The correlations in this meta-analysis summary between self-compassion and self-critical perfectionism ranged from  $-.68$  to  $-.33$ .

For the relationship between self-compassion and social connectedness, the total number of participants from 10 studies was 2,532. The weighted mean effect sizes between self-compassion and social connection are reported in Figure 3. The effect size for the relationship between self-compassion and social connectedness was  $.35$  (95% CI  $[.27, .43]$ ;  $I^2 = 71.71$ ), indicating that self-compassion displayed a medium positive relationship with social connectedness. The correlations between self-compassion and social connectedness ranged from  $.22$  to  $.56$ .

Assessment of total heterogeneity across studies indicated that variability in the weighted mean effects exceeded that associated with sampling error. The percentage of total variation across studies due to true heterogeneity ( $I^2$ ) was high. This suggests that variability among the effect sizes is also due to the possible influence of moderating factors.

## **Moderator Analyses**

Sample characteristics, age, and measurements were tested as moderators in the relationship between self-compassion and both self-critical perfectionism, and social connectedness. First, sample characteristics (i.e., undergraduate students, older adults), mean age of the sample, and scale used to measure self-critical perfectionism did not significantly influence the relationship between self-compassion and self-critical perfectionism studies in the current meta-analysis ( $p = .69$ ,  $p = .88$ , and  $p = .43$ , respectively). However, for the relationship between self-compassion and social connectedness, the weighted mean effect size for studies from the older adult population has a tendency to be higher than the young adult population. The mixed effect model with mean age of the sample as a moderator presented decreased heterogeneity and improve the precision of the model ( $I^2 = 53.87$ ,  $\tau^2 = .0048$ ). When the sample characteristics were a moderator in the relationship between self-compassion and social connectedness, true heterogeneity ( $I^2$ ) decreased significantly ( $I^2 = 56.62$ ). Also, when the social connectedness measure was a moderator in the relationship between self-compassion and social connectedness, the examination of the total variation across studies due to true heterogeneity ( $I^2$ ) revealed the amount of true variability was low ( $I^2 = 33.11$ ,  $\tau^2 = .0023$ ). Among the measurements, Relational Well Being questionnaire was the significant moderator in the relationship between self-compassion and social connectedness ( $p = .04$ ).

## **Publication Bias**

Funnel plots found little evidence of publication bias. This is further supported by Egger's test of the intercept, which was nonsignificant for both models with self-critical perfectionism and social connectedness ( $p = .69$  and  $p = .72$ , respectively) at the recommended  $p < 0.1$  criteria. Begg and Mazumdar's (1994) rank correlation test for publication bias also

supported little evidence of publication bias, which was nonsignificant for both meta-analyses ( $p > .38$ ). Rosenthal's fail-safe numbers were 5,067 for research with self-critical perfectionism, and 965 for research with social connectedness. This result suggests that, for the meta-analyses with both self-critical perfectionism and social connectedness, the number exceeded the recommended thresholds, indicating that publication status did not influence the results. For meta-analyses with social connectedness, there would need to be nearly 1,000 studies with a mean risk ratio of 1.0 added to the analysis, before the cumulative effect would become statistically nonsignificant.

### **Discussion**

This meta-analytic review investigated the relationship between self-compassion and self-critical perfectionism, and self-compassion and social connectedness. The first hypothesis was supported as the meta-analyses indicated a large negative relationship between self-compassion and self-critical perfectionism. Due to heterogeneity in the results a mixed-effect model with moderators was included. However, age, sample characteristics and measurements were not significant moderators in studies with self-critical perfectionism and self-compassion. Participants in 10 out of 12 studies with self-critical perfectionism and self-compassion shared their identity as a young adult student, even though they were recruited as athletes, doctoral trainees, and the general population. Thus, the majority of the student population could have acted as a default variance characteristic for the relationship between self-critical perfectionism and self-compassion, rather than moderating the relationship. However, it is plausible that perfectionism can be understood and evaluated differently between non-clinical and clinical settings. Thus, in future studies, confirming the consensus on how different populations conceptualize perfectionism distinctively may be crucial. Also, studies used distinctive scales

from different measurements that have been studied to be highly correlated under the same higher-order construct of perfectionistic concerns (Rice et al., 2007). Also, perfectionistic concerns are related to the difficulty individuals have with experiencing self-compassion (Neff, 2003a). Thus, the negative relationships between self-critical perfectionism and self-compassion could have had more power than variances coming from using different measures. Even though the moderators tested in this meta-analysis were not significant, there has been lack of evidence supporting that the measurements are valid across different age groups or different samples. Thus, future research may investigate the measurement invariance among different groups to understand the multidimensional concepts of both self-compassion and perfectionism across different samples.

The second hypothesis was supported as the meta-analyses showed a medium positive relationship between self-compassion and social connectedness, even though there was high heterogeneity. A mixed effect model was also supported and implied that the high heterogeneity could have been caused by age differences, different sample characteristics, and measurements used in each study. When age, sample characteristics and measurements were introduced to the model, heterogeneity substantially decreased. Specifically, participants in one out of 10 studies were older adults, and they presented to be a significant moderator. As Cornwell et al. (2008) argued, the older adult population may build a unique social environment due to their later-life changes in relationships, social connectedness, and the influence of self-compassion may look different among the elderly. Ashida and Heaney (2008) also reported that perceived social connectedness has a significant positive association with health status for older adults. Further investigation on the relationship between social connectedness and self-compassion among the

older adult population seems crucial due to their unique struggles with physical pain, psychological health, and greater need in support.

However, the results also showed that the scales used to measure social connectedness significantly influenced the relationship between self-compassion and social connectedness. Even though the subjective feelings of social needs are measured by questionnaires, there have been arguments regarding the ways in which constructs of social connectedness, social support, relational well-being, and importance in the interpersonal relationship can be viewed differently. For example, some define social support as different from social connectedness because it comes from external sources, which is harder to control in certain circumstances (Lee & Robinson, 1995). Also, the complex literature on the difference between perceived social support and received social support could have affected the variance in the relationship between self-compassion and social connectedness (Eagle et al., 2019). Thus, future research may want to focus on specific constructs or theories of interpersonal relationships when investigating its relationship with self-compassion.

It is important to note that these interpretations are premature and based on a limited sample of studies. Even though it was a small set of studies, moderator analyses were conducted as a preliminary analysis for future study. The small amount of empirical studies conducted in the past 15 years indicates that the role of self-compassion has many potential aspects that can be investigated further to contribute to the field of psychology. Particularly, more research with different age groups and robust measurement set will contribute more to understanding the extent to which they influence the relationships between self-compassion and self-critical perfectionism and between self-compassion and social connectedness.

## **Conclusion**

The current study presents a meta-analysis of the relationship between self-compassion, self-critical perfectionism, and social connectedness over the past 15 years. Across all studies, it was found that self-compassion negatively correlated with self-critical perfectionism and positively correlated with social connectedness. In addition to the literature on how self-critical perfectionism prevents from building and maintaining good social support systems, the results suggest that self-compassion can be a critical moderator in the relationship between self-critical perfectionism and social connectedness. Overall, the findings suggest that more research with age and sample considerations, along with psychometrically strong measurement, are needed to provide specific implications on self-compassion.

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Table 1. Characteristics of Self-Critical Perfectionism Studies Included in the Meta-Analysis

Study	Sample		type	Measurement	SC	Effect sizes (r)
	N	Mean age		SCP subscales		
Barnett & Sharp (2016)	580	20.64	Undergraduate Students	APS-R DIS	SCS	-0.51
Broadar et al. (2015)	129	NA	Undergraduate Students	PSPS NDI	SCS	-0.42
Ferrari et al. (2018)	515	25.22	General Population	FMPS CM, PE, PRC, DA	SCS	-0.63
Fletcher et al. (2019)	302	44.00	Patients	APS-R DIS	SCS	-0.55
Liao et al. (2020)	222	28.50	General Population	APS-R DIS	SCS-SF	-0.66
Linnett & Kibowski (2018)	488	34.30	General Population	APS-R DIS	SCS	-0.68
Lizmore et al. (2017)	239	20.50	Athletes	SportMPS2 PC	SCS-SF	-0.63
Mehr & Adams (2016)	358	18.80	Undergraduate Students	APS-R DIS	SCS	-0.52
Potter et al. (2014)	211	30.23	General Population	FMPS PRC	SCS	-0.33
Richardson et al. (2018)	119	27.11	Doctoral Trainee	APS-R DIS	SCS	-0.66
Stoeber et al. (2020)	250	19.70	Undergraduate Students	HFMPs SPP	SCS-SF	-0.31
Thew et al. (2017)	78	NA	Patients	FMPS CM, PE, PRC, DA	SCS	-0.57

*Note.* APS-R = Almost Perfect Scale-Revised (Slaney et al., 2001), DIS = Discrepancy, PSPS = Perfectionistic Self-Presentation Scale (Hewitt et al., 2003), NDI = Non-Display of Imperfection, FMPS = Frost Multidimensional Perfectionism (Frost et al., 1990), COM = Concerns over Mistakes, PE = Parental Expectations, PRC = Parental Criticism, DA = Doubts about Action, SportMPS2 = Sport Multidimensional Perfectionism 2 (Gotwals & Dunn, 2009), PC = Perfectionistic Concerns, HFMPs = Hewitt and Flett's Multidimensional Perfectionism Scale, SPP = Socially Prescribed Perfectionism

Table 2. Characteristics of Social Connectedness Studies Included in the Meta-Analysis

Study	Sample		type	Measurement		Effect sizes (r)
	N	Mean age		SCN subscales	SC	
Toplu-Demirtaş et al. (2018)	291	23.96	LGB individuals	MSPSS SS	SCS	0.25
Dupasquier et al. (2020)	96	19.7	undergraduate students	SPS RSS	SCS-SF	0.30
Homan (2018)	126	70.4	older adults	SPWB PRO	SCS-SF	0.56
Joeng & Turner (2015)	206	21.42	undergraduate students	ISMI IOAM	SCS	0.41
Kelly & Dupasquier (2016)	153	20.2	undergraduate students	SPS RSS	SCS	0.24
Maheux & Price (2016)	599	34.08	general population	MSPSS SS	SCS-SF	0.36
Neff & McGehee (2010)	287	21.1	undergraduate students	SCNS SC	SCS	0.43
Neff et al. (2007)	40	21.05	undergraduate students	SCNS SC	SCS	0.29
Wilson et al. (2020)	228	19.84	undergraduate students	MSPSS SS	SCS	0.28
Yarnell & Neff (2013)	506	20.79	undergraduate students	RWB F	SCS	0.22

*Note.* MSPSS = Multidimensional Scale of Perceived Social Support (Zimet et al., 1988), SS = Social Support, SPS = Social Provisions Scale (Dunkley et al., 2000), RSS = Received Social Support, SPWB = Scales of Psychological Well-Being (Ryff, 1989), PRO = Positive Relationships with Others, ISMI = Importance Scale of the Mattering Index (Elliott et al., 2004), IOAM = Importance to Others as an Aspect of Mattering, SCNS = Social Connectedness Scale (Lee & Robbins, 1995), SC = Social Connectedness, RWB = Relational Well-Being measure (Harter et al., 1992), F = Relational Well-Being with Friend subscale, SCS = Self-Compassion Scale (Neff, 2003a), and SCS-SF = Self-Compassion Scale Short Form (Raes et al., 2011).

Figure 1. Study flow diagram

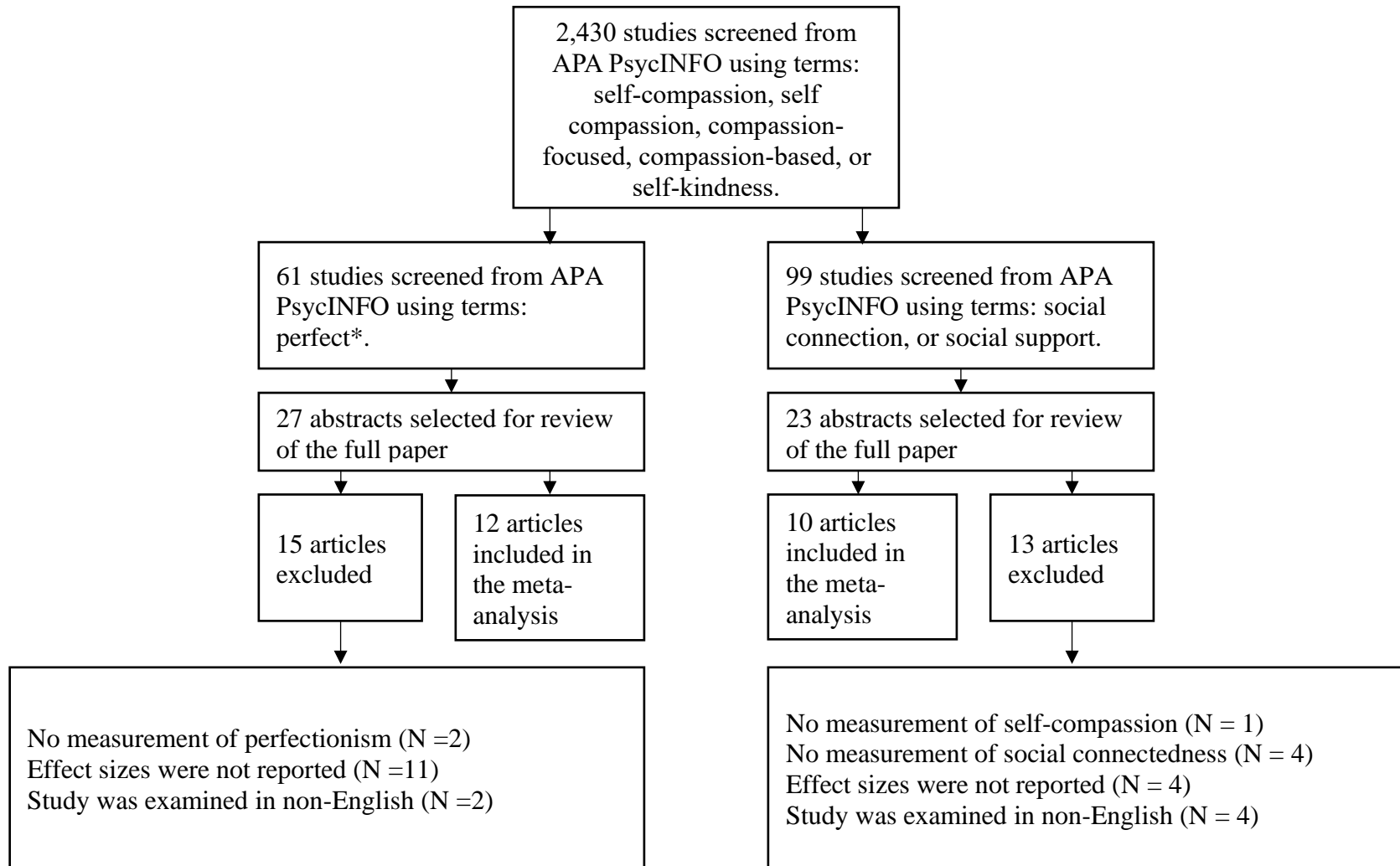


Figure 2. Forest plot of random effects model of Self-Compassion and Self-Critical Perfectionism

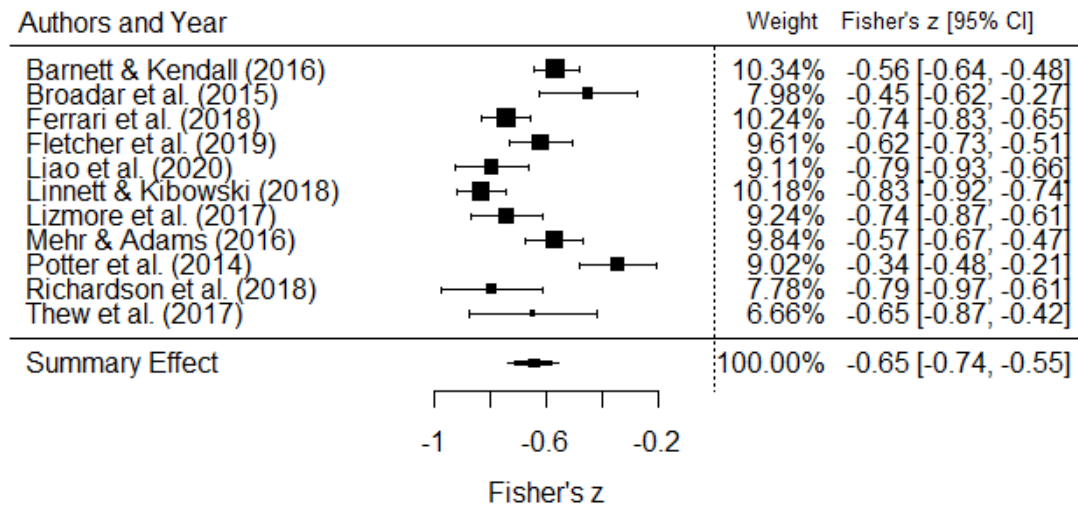
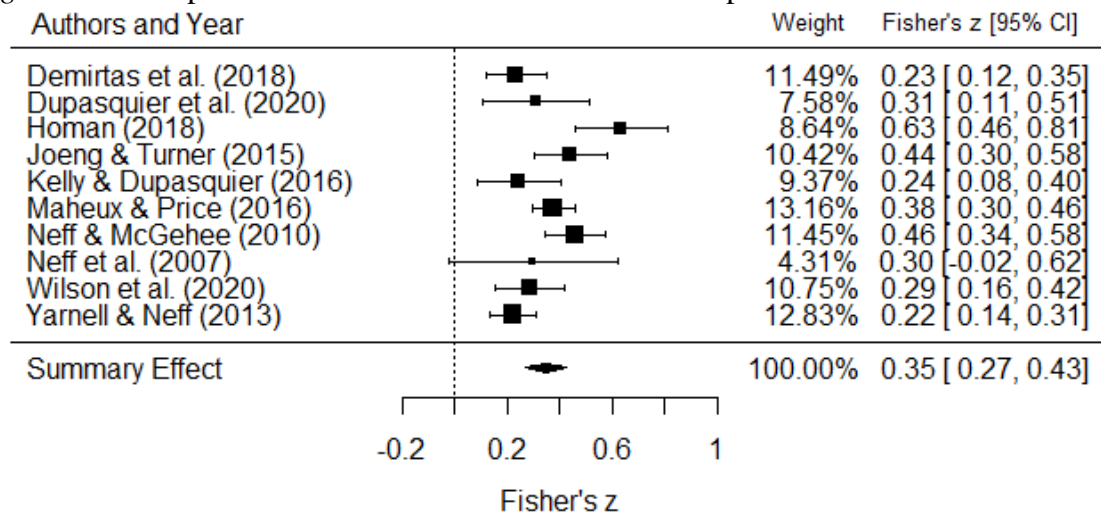


Figure 3. Forest plot of random effects model of Self-Compassion and Social Connectedness



## **2 THE ROLE OF SELF COMPASSION IN THE RELATIONSHIP BETWEEN PERFECTIONISM AND SUICIDE**

According to the World Health Organization (WHO, 2018), nearly 800,000 people die by suicide each year in the world, which equates to one death every 40 seconds. The annual suicide rate in the United States has increased by more than 30% since 1999 (CDC, 2018). This increasing trend of suicide rate in the U.S. exists across the states, and it has become one of the leading causes of death for Americans (CDC, 2018). Thus, suicide prevention has been a crucial topic among psychologists and researchers to investigate and provide direction for effective interventions. Notably, researchers in the field of personality, clinical, and counseling psychology have investigated the individual and environmental factors that can help prevent suicide. Conceptualizing a case with a proper understanding of the underlying personality factors that can lead to suicidal risk has helped psychologists to provide adequate and efficient interventions for clients in crisis. Also, assessing the client's social support or quality of the interpersonal relationship has been a critical component when building safety plans for clients in crisis. Thus, it is beneficial to examine both individual personality characteristics and social circumstances to understand their influence on preventing suicide.

The relationship between social connection and suicidal risk has been studied within the interpersonal theory of suicide (IPTS; Joiner, 2005). According to the IPTS, the suicidal risk is caused by the simultaneous presence of two interpersonal constructs – Perceived Burdensomeness and Thwarted Belongingness. According to this theory, these painful psychological states can become lethal in the presence of an acquired capability for suicide (e.g., prior experience with pain, increased tolerance toward pain). Previous literature supports these interpersonal variables as the most influential and reliable predictors of suicidal ideation,

attempts, and behavior (Joiner & Van Orden, 2008). Many empirical studies have investigated the relationship between suicidal behavior and various facets of relationship struggles, including social isolation, loneliness, social withdrawal, lack of social support, living alone, and losing a partner through death or divorce (Van Orden et al., 2012). These social disconnections are linked to various detrimental effects on physical health, mental health, adjustments, and general well-being. Many previous theories have suggested that the need to form and maintain consistent, stable, positive and significant interpersonal relationships is a fundamental human desire (Bowlby, 1969; Freud, 1930; Fromm, 1956; Guisinger & Blatt, 1994; Horney, 1945; Maslow, 2013; Sullivan, 1953). Baumeister and Leary (1995) argued that relational need is a crucial human need, not a want. According to their argument, if one fails to have a minimum quantity of meaningful relationships, they put themselves at a higher risk of developing unhealthy cognitive, emotional, and behavioral reactions that can potentially lead to severe depression and suicidal ideation (Baumeister, 1990; Durkheim, 1963; Trout, 1980). A meta-analytic review also supported that social relationships reduce the risk of suicide (Holt-Lunstad et al., 2010). They reported that individuals with stronger social relationships showed about a 50 percent increased likelihood of survival from mortality (Holt-Lunstad et al., 2010). The Centers for Disease Control (CDC; 2006) has also identified promoting and strengthening social connections in personal relationships, family, and community as a critical strategy for preventing suicidal behavior. Previous research also showed that social disconnection (e.g., perceived burdensomeness) among specific populations such as elders is more salient and can place them at a higher risk for suicide (Vanyukov et al., 2016). Perceived Burdensomeness is reported to be a common theme that clinicians hear from older adults at risk for suicide (Conwell et al., 2011). Also, Thwarted Belongingness stems from the fundamental need to belong theorized by

Baumeister and Leary (1995), reflected in indicators of social isolation, which has been linked with late-life suicide.

However, the majority of the research on suicide has been conducted with the young adult population, even though suicide among older adults has been a pressing public health concern due to having the highest rates of completed suicide (Conwell & Thompson, 2008). Suicide is a tragedy at any age, but the fact that the majority of studies focused on young adults made the older adult population vulnerable when they may be already oppressed in society. Suicide rates among older adults in the U.S. are reported to be consistently higher than in other age groups (Drapeau & McIntosh, 2018). At the later life stage, physical illness and psychological struggles commonly emerge for the elderly, which becomes a substantial cause of suicidal risk (Conwell et al., 2011; Harwood et al., 2001; Jurlink et al., 2004; Quan et al., 2002). The construct of social connectedness has been a significant factor in understanding risk factors for the older adult population's suicide and its prevention (Holt-Lunstad et al., 2010). Previous older adult research indicated that older adult suicide is highly related to living alone, lack of participation in community activities, and a smaller number of friends (Duberstein et al., 2004; Turvey et al., 2002). Also, a study comparing older and younger adults showed that elders reported higher perceived burdensomeness and more vulnerability in social connectedness than young adults (Vanyukov et al., 2016). Thus, considering the higher risk of social disconnection elders may face in their stage of life, it seems crucial to explore how their personal and environmental factors contribute to risks.

On the other hand, previous suicide literature suggests various added risk and protective factors that influence social factors for suicide. One study indicated that self-compassion might contribute to feelings of social connectedness, which may decrease the likelihood of engaging in

non-suicidal self-injury (Nock, 2010). Nock (2010) reported that individuals with self-kindness would be less likely to punish themselves with non-suicidal self-injury when they are faced with failures. Furthermore, understanding and accepting the current emotional states decreased the likelihood of engaging in non-suicidal self-injury as an emotion regulation method (Heath et al., 2016).

### **Self-Compassion**

Self-compassion entails being caring and compassionate toward oneself in the face of hardship, pain, or failure (Neff, 2007). Self-compassion was studied to be related to higher levels of relational well-being (Yarnell & Neff, 2011). Gilbert (2005) proposes that self-compassion helps the individual feel cared for, connected, and emotionally calm. These self-soothing qualities of self-compassion are thought to generate higher capacities for intimacy in relationships (Gilbert, 2005). A plethora of research has shown that self-compassion influences social relationships because a healthy way of relating to oneself may often be projected in relationships (Crocker & Canevello, 2008; Hermanto & Zuroff, 2016; Neff & Beretvas, 2013; Neff & Germer, 2013).

Allen et al. (2012) reported that self-compassion is associated with well-being in later life. Self-compassionate older adults accepted their physical limitations and presented more willingness to take steps to maintain their well-being, which is consistent with results from young adults (Neff et al., 2007; Leary et al., 2007). Researchers also suggested that a self-compassionate mindset may positively affect how older adults react to inevitable challenges, failures, and losses as they age (Allen et al., 2012). Furthermore, previous research showed that self-compassion moderates the association between self-rated health and depression among older adults (Homan, 2016). However, despite this critical role of self-compassion as a resilience

factor among older adults, self-compassion has not been studied in relation to older adults' perceived burdensomeness and thwarted belongingness.

Self-compassion, as an intervention, is a practical approach for people who are particularly self-critical (Gilbert & Procter, 2006). Furthermore, self-compassion has been investigated as a moderator that reduces the strength of relationships between self-critical perfectionism and depressive symptoms (Ferrari et al., 2018). Self-criticism is also known to be one of the leading causes of suicide ideation (Campos et al., 2013; Campos et al., 2018). Among the literature that explains the construct of self-criticism, a perfectionistic personality has provided a theory explaining how individuals perceive and focus on their failure from not meeting their high standards.

### **Perfectionism**

Perfectionism is a multidimensional personality disposition defined by setting exceedingly high standards and striving to meet them with overly critical evaluations of one's behavior (Stoeber, 2017). In the perfectionism literature, the multidimensional trait has included two higher-order dimensions, perfectionistic strivings and perfectionistic concerns.

Perfectionistic strivings refer to high-performance pursuits or expectations, and perfectionistic concerns refer to self-critical evaluation or excessive concerns regarding the adequacy of one's performance. In theory, these two dimensions can be a reaction to perceived defects in the self (Bruch, 1988). With perfectionistic strivings, if people allow themselves to identify their flaws and work on improving them, they may have higher chances of growing as better people.

However, studies suggest the perfectionistic concerns factor is a vital predictor of cognitive (e.g., attributions), affective (e.g., depression and anxiety), and behavioral (e.g., performance) struggles (Stoeber & Otto, 2006). Meta-analyses have also provided strong evidence that

perfectionism is connected concurrently and longitudinally with numerous mental health problems, including suicide (Smith et al., 2018).

Based on attachment theory and empirical works on personality development the Perfectionism Social Disconnection Model (PSDM) was developed to emphasize the origin of perfectionism from early traumatic relational experiences with a primary attachment figure (Hewitt et al., 2006). According to the PSDM, perfectionistic concerns may then lead to later interpersonal problems because individuals may exhibit insecure attachment with others, an overwhelming sense of shame, and unfulfilled needs for acceptance and approval (Habke & Flynn, 2002). Previous research argued that, paradoxically, the efforts of trying to avoid rejection, shame, and humiliation from others might result in social disconnection, alienation, or a sense of not belonging (Hewitt et al., 2006). However, these significant personality variables have received little attention in studies of the older adult population's interpersonal struggles or suicidal vulnerability, despite the considerable social disconnection and suicidal rate among elders. Even though limited research showed that the pattern of the relationship between perfectionism and negative affect might be similar for both young adults and older adults (Chang, 2000), further investigation on older adults' perfectionism seems needed to understand potential age-related individual differences better. For example, Chang (2000) suggested that an older adult who presents higher levels of perfectionism might be at a greater psychological risk than a young adult who is at the same level of perfectionism because of potentially limited physical and social resources that can help manage their perfectionism-related stress (Ashida & Heaney, 2008; Duberstein et al., 2004)). Correspondingly, a young adult who reports lower levels of perfectionism might be at a higher psychological risk than an older adult within the

same level because a certain amount of perfectionism for young adults was suggested to be adaptive, motivational, or healthy functioning (Hamachek, 1978).

In a previous systematic review, O'Connor (2007) reported considerable evidence that the perfectionistic concerns factor (self-criticism, concern about mistakes, socially prescribed perfectionism) is related to suicidality. There have been many studies implicating trait perfectionism as a cause of suicidality (see Blatt, 1995 for a review). However, in the multidimensional model of perfectionism, many studies showed that the perfectionistic strivings factor is not significantly influencing depression (Stoeber et al., 2018). There has been a lack of clarity about the nature of the relationship between both two higher-order dimensions of perfectionism and suicide. Notably, the role of perfectionistic strivings in predicting suicidal risk has not been extensively investigated or discussed in the current literature. Since perfectionism includes both aspects of perfectionistic strivings and perfectionistic concerns, it seems crucial to test the relationship between perfectionistic striving and suicidal risk as well to provide a general understanding of perfectionism in suicide.

Psychometric properties of the scale used to measure perfectionism have been investigated across different cultures (e.g., Argentina vs. the U.S., Korea vs. the U.S.) and diverse age groups (e.g., children and adolescents) (Arana et al., 2018; Rice et al., 2019; Sastre-Riba et al., 2015). The original perfectionism measures in the literature were developed based on the North American young adult population. Thus, before testing hypotheses to investigate group similarities or differences, it seems crucial to test the measurement invariance in different populations to confirm the variables are measuring the same construct and the items in the measurements are working correctly in other groups. Not only the perfectionism measure but the literature on self-compassion and variables in IPTS has provided little evidence that the

measurements are valid across the sample, especially in the older adult population. The results of measurement invariance across young adults and older adults may provide evidence that measures have comparable psychometrics properties and can reduce concerns that constructs are not understood and measured similarly in two groups.

### **The Present Study**

The influence of perfectionism and self-compassion on suicidal risk has not been studied among the older adult population. The current study examines the effect of self-compassion on two dimensions of perfectionism (Perfectionistic Strivings "Standards" and Perfectionistic Concerns "Discrepancy") and suicidal risks (Perceived Burdensomeness and Thwarted Belongingness) to address these gaps. The primary aim of the present study is to test whether the constructs are comparably measured across the older adult population and the young adult population and whether the two groups present any different patterns or strengths in the relationship between variables.

**Hypothesis 1.** I predict the measures developed based on the young adult population assessing perfectionism (standards and discrepancy), self-compassion, and suicidal risks (perceived burdensomeness and thwarted belongingness) measure the constructs in the same way when used in an older adult population. I anticipate that the measurement invariance model support, at minimum, metric invariance that allows us to compare the two samples in terms of associations between perfectionism, self-compassion, and suicidal risks.

**Hypothesis 2.** I predict that perfectionistic striving and perfectionistic concerns are significantly associated with suicidal risks (perceived burdensomeness and thwarted belongingness). I hypothesize perfectionistic concerns is related to higher levels of perceived burdensomeness and thwarted belongingness. I aim to explore the relationship between perfectionistic strivings and

both perceived burdensomeness and thwarted belongingness, where I anticipate their relationship to be negative, considering previous literature on perfectionistic strivings and its positive relationship with social connection and perceived social support (Sherry et al., 2013; Stoeber et al., 2017).

**Hypothesis 3.** I predict that self-compassion significantly moderates the relationship between perfectionism and suicidal risks. Compared with those who have lower levels of self-compassion, I hypothesize higher levels of self-compassion correspond to a weaker relationship between perfectionistic concerns, perceived burdensomeness, and thwarted belongingness. I also hypothesize that, under higher levels of self-compassion, the beneficial influence of perfectionistic strivings on perceived burdensomeness and thwarted belongingness is greater than under lower levels of self-compassion.

**Hypothesis 4.** I predict that the relationship between perfectionistic strivings, perfectionistic concerns, perceived burdensomeness, and thwarted belongingness are moderated by age between older and young adult populations. I anticipate that the general direction of the relationship is the same across the groups. However, I expect older adults with higher levels of perfectionism might present a greater suicidal risk than young adults at the same level of perfectionism. Similarly, I anticipate that young adults within lower levels of perfectionism range might show higher suicidal risks than older adults within the same level.

**Hypothesis 5.** I predict that the moderating role of self-compassion in the relationship between perfectionistic strivings, perfectionistic concerns, perceived burdensomeness, and thwarted belongingness is more substantial for older adults than young adults. Self-compassion increases with age (Homan, 2016; Neff & Vonk, 2009) and yields positive responses to age-related changes (Allen & Leary, 2013). Therefore, I expect older adults with higher levels of self-

compassion and lower levels of perfectionism to present less suicidal risks than young adults with the same levels of self-compassion and perfectionism.

## **Method**

### **Participants**

A total of 320 older adults were recruited through part of a more extensive, longitudinal study on suicide prevention among older adults. The measurements used in the current study were only included in the second time point, so the current data is derived from the second time point of the longitudinal dataset. They were recruited from five counties in a large metropolitan area in the State of Georgia, recommended by the lead Area Agency on Aging (AAA). Screening for dementia or cognitive impairment was conducted by case managers who work for the counties. Older adults participated in the survey through a telephone interview and received \$20 for their participation.

The older adult sample included 240 females (75.2%) and 79 male participants (24.8%). The age of the older adults ranged from 62 to 107, with a mean age of 77.29 ( $SD = 8.71$ ). 213 older adults identified themselves as Black/African American (66.8%), followed by 77 White/European American (24.1%), 27 Multiracial (8.5%), 1 American Indian/Alaska Native (0.3%), and 1 Asian/Asian American (0.3%). Among older adults, 126 (39.4%) were divorced, 114 (35.7%) were married, 61 (19.1%) were single, and 17 (5.3%) were widowed. In the original dataset, there were minimal missing values because the data were collected through phone interviews where researchers made sure to ask all the questionnaire items and let participants endorse all items. However, one participant did not fully respond to the set of questionnaires, which resulted in a significant number of missing values across the questionnaires. Therefore,

that one participant was dropped, and a total of 319 older adults' data were used in the final analyses.

A total of 278 young adults participated in the current study. They were recruited through Georgia State University's Department of Counseling and Psychological Services Research Participation System (SONA). Young adults voluntarily signed up to participate in the survey through the phone interview and received credit for research requirements in their coursework.

The final young adult sample included 159 females (61.2%) and 101 male participants (38.8%). The age of the young adults ranging from 18 to 39, with a mean age of 22.80 (SD = 3.68). The majority of the young adults identified themselves as Black/African American (42.3%), followed by 50 Asian/Asian American (19.2%), 50 White/European American (19.2%), 29 Latinx/ Hispanic (11.2%), 12 Multiracial (4.6%), 8 Other (3.1%), and 1 American Indian/Alaska Native (0.4%). Among young adults, 222 (85.4%) were single, 30 (11.5%) were married/partnered, 2 (0.8%) were divorced, and 1 (0.4%) reported other. Due to the nature of phone interviews, there were no missing values from the original data since the researcher asked young adults to endorse all items in the questionnaire. However, 18 participants' data were excluded because they were younger than 18 or older than 40, which is outside the definition of a young adult in the current study. Thus, data from 260 young adults were used in the final analyses.

## **Measures**

*Short Almost Perfect Scale* (SAPS; Rice et al., 2014). The SAPS is designed to measure the two primary constructs of perfectionism, perfectionistic strivings and perfectionistic concerns with two subscales: Standards and Discrepancy. Participants respond to 4 items of Standards which represents perfectionistic strivings, and 4 items of Discrepancy which measures

perfectionistic concerns. Items used a 7-point scale ranging from 1 = strongly disagree to 7 = strongly agree. Higher scores represent higher levels of performance expectations, and self-critical perfectionistic concerns. Factor analyses and criterion-validity analyses have supported the factor structure of the SAPS (e.g., Rice et al., 2014). Similar to the Cronbach's coefficients alpha reported for the APS-R (e.g., Rice & Ashby, 2007; Slaney et al., 2001), alpha for the SAPS Discrepancy score was .84 whereas alpha for the SAPS Standards score was .87 (Rice et al., 2014). Although the SAPS have produced reasonable Cronbach's coefficients alphas based on undergraduate student sample, SAPS item set has not been evaluated yet on older adult population.

*Self-Compassion Scale – Short Form* (SCS-SF; Raes et al., 2011). The SCS-SF is designed to assess the construct of self-compassion. It is a 12-item version of Neff's (2003) original 26-item measure of self-compassion. The SCS-SF has good psychometric properties and a nearly perfect correlation ( $r = .98$ ) with the original SCS (Raes et al., 2011). The SCS-SF includes six sub-constructs with 2 items each that support theoretical components of self-compassion; Self-Kindness, Self-Judgment, Common Humanity, Isolation, Mindfulness, and Over-identified. Each subscale intends to investigate three reactions to the experiences of personal pain and personal sufferings. First is maintaining a gentle, supportive, and non-judgmental stance when confronting failure and hardship (Self-Kindness versus Self-Judgment), second is allowing individuals to understand and accept their predicament as a part of the human experience rather than isolating themselves (Common Humanity versus Isolation), and third is being aware of one's present moment with clarity and balance without being caught up in negatively exaggerated narratives about oneself (Mindfulness versus Over-Identification). Confirmatory factor analysis on the SCS-SF supported this six-factor structure as found in the

original SCS, as well as a single higher-order factor of self-compassion. In the current study, one higher-order factor of self-compassion is used as an indicator of self-compassion construct to entail all three aspects of self-compassion. Items used a 5-point scale ranging from 1 = almost never to 5 = almost always in relation to how participants typically act toward themselves in challenging times (e.g., “When I am going through a hard time, I give myself the caring and tenderness I need”). Higher scores represent being more self-compassionate. The Cronbach’s coefficients alphas of SCS-SF was .87 among the university student population (Raes et al., 2011). Previous research with an older adult sample reported that the alpha was .69 (Allen et al., 2012).

*Interpersonal Needs Questionnaire* (INQ; Van Orden et al., 2012). The INQ was developed to investigate the etiology of suicidal risk grounded in the interpersonal theory of suicide framework (Joiner et al., 2009). Participants respond to 6 items of Perceived Burdensomeness which measures feeling like they are a burden to other people (e.g., “These days, the people in my life would be better off if I were gone”) and 9 items of Thwarted Belongingness which measure an unmet need to belong (e.g., “These days, other people care about me,” reverse scored). Items used a 7-point scale ranging from 1 = not at all true for me to 7 = very true for me. The items include reverse coded items, so positive items were reverse scored in the data cleaning process. After reverse coding, a higher score indicates higher Perceived Burdensomeness and higher Thwarted Belongingness. The Cronbach’s coefficients alpha for Perceived Burdensomeness was .89 and Thwarted Belongingness was .85 in previous research with young adults. However, for older adults, the Cronbach’s coefficients alpha reported for Perceived Burdensomeness ranged from .84 to .94 (Lutz & Fiske, 2016), and Thwarted Belongingness ranged from .81 to .87 (Hill et al., 2015).

## **Procedures**

A young adult was defined as a person in the age range of 18-39 years old, which is the range that recent research supported defining as a young adult (Knechtle et al., 2012; Tarpenning et al., 2004). For the young adult population, undergraduate students were recruited through Georgia State University's Department of Counseling and Psychological Services Research Participation System (SONA). For their participation, students received credit for research requirements in their coursework.

An older adult was defined as a person aged 60 years or older, according to the CDC's definition of the older adult (CDC, 2012). Data for the older adult population was recruited in a part of a larger, longitudinal study on suicide prevention among older adults approved by the university Institutional Review Board, the county aging services agencies that organize HCBS, and the county governments (i.e., Board of Commissioners). Older adults were compensated \$20 for their participation.

After young and older adult participants signed up for the study voluntarily, they were contacted by research assistants by phone, provided informed consent and a description of the study, and then asked to answer the questionnaires. Prior to the phone interview, research assistants were trained to deliver the contents and conduct the survey in the most standardized way possible. The training included letting the research assistants practice reading and providing the set of measures at the minimum number of 2 with an audio recorder. The audio recordings were confirmed to proceed with conducting actual data collection.

## **Data Analysis**

Analyses are conducted with IBM SPSS Version 23 (2015), and *Mplus* Version 8 (Muthén & Muthén, 1998-2017). The robust maximum likelihood estimator (MLR) in *Mplus*

was used in all analyses. Full information maximum likelihood (FIML) was used to generate unbiased parameter estimates in those models.

**Power analyses.** Monte Carlo simulations were run to determine the sample size with adequate statistical power (Cohen, 1969) for the multigroup structural equation model (SEM). Monte Carlo simulation constructs a model to the exact specifications and then tests the model on thousands of random datasets with varying conditions (e.g., sample sizes, complications of the model). This procedure helps determine an appropriate sample size for the model I hypothesize by estimating parameter estimate bias, standard error bias, confidence intervals, and the power. There are four criteria that are examined to determine sample size. The first criterion is that parameter and standard error biases do not exceed 10 percent for any parameter in the model. The second criterion is that the standard error bias for the parameter for which power is being assessed does not exceed 5 percent. The third criterion is that coverage (i.e., the proportion of replications for which the 95% confidence interval contains the true parameter value) remains between 0.91 and 0.98. And, once these three conditions are satisfied, the sample size is chosen to keep power close to 0.80, which is a commonly used as an accepted value for sufficient power (Muthen & Muthen, 2002).

Monte Carlo simulations were conducted in *Mplus* and performed using 1,000 replications with two groups. Data for the latent variables in each model were drawn from a multivariate normal distribution. Indicator variables for the three independent latent variables (Standards, Discrepancy, Self-Compassion), two latent interactions (Standards X Self-Compassion, Discrepancy X Self-Compassion), and the dependent variable (Suicidal Risk) were constructed with independent normal residual variances chosen to represent the effect of variables on estimating relationships in the model. Parameters estimated in the simulation and

the procedures were derived from previous studies (Maslowsky et al., 2014; Muthen & Muthen, 2002; Thoemmes et al., 2010).

With a medium effect size ( $f^2$ ) of .15, an alpha level of .05, and a standard power level of .80, the result of Monte Carlo simulation suggested 450 participants for the model without interactions and in one group. By adding an interaction effect, 500 participants for the model was suggested. Finally, by adding an interaction effect and two groups, a minimum of total 500 participants (250 participants in each group) was suggested to achieve an appropriate power level for current study.

**Preliminary analyses.** Analyses are planned to compare the factor structure of the measurements between older adults and young adults (measurement invariance) and explore any model modifications to enhance score comparability. Also, preliminary analyses included evaluating factor mean differences between older adults and young adults to detect any differences in variables between the groups prior to test the structural equation model.

Measurement invariance testing involved nested model comparisons, with increasingly demanding constraints from the baseline configural model (no constraints), to the metric model (constrained factor loadings to be invariant), then to the scalar model (constrained loadings and item intercepts to be invariant). Comparisons help determine if imposing invariance constraints significantly worsen model fit over, allowing parameters to be freely estimated between groups. Metric invariance allows for the relations between the latent factor and external variables to be compared across groups because a one-unit change in one group would be equal to a one-unit change in the other group. Scalar invariance requires equal factor loadings and equal indicator intercepts across groups. When both metric and scalar invariance are in place, the comparison of factor means across groups is permissible. The lack of invariant intercepts signals the presence of

differential item functioning or item bias.

Hypotheses regarding measurement models were evaluated by examining both global fit indices and nested model comparisons. The global fit was evaluated with typical indices: chi-square, Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), standardized root mean square residual (SRMR), and McDonald's noncentrality index (MNCI; McDonald & Marsh, 1990). Some general guidelines regarding fit were used. A non-significant chi-square indicates the sample data and the theoretical model are similar (Schumacker & Lomax, 2010). However, all the chi-square values were expected to be significant and possibly of limited use in evaluating fit (Brown, 2015) because chi-square results are affected by a large sample size. Instead, more information was expected from the other fit indices. The following are the criteria for a good fit. The acceptable fit of CFI values could be in the .90-range (Byrne, 1998) with values of .95 or greater considered a good fit (Hu & Bentler, 1999; Schumacker & Lomax, 2010). Values less than .08 for RMSEA could indicate an acceptable fit (Browne & Cudeck, 1993) or values .05 or lower would demonstrate a good fit (Kenny, Kanistan, & McCoach, 2015). The SRMR values less than .08 could indicate an acceptable fit (Hu & Bentler, 1999). The series of nested model comparison for the invariance tests used scaling corrected  $\Delta\chi^2$ ,  $\Delta$ CFI and  $\Delta$ MNCI to determine whether imposing constraints resulted in a significant worsening of model fit. However, there are no uniformly accepted cutoff values for the indices that unequivocally indicate noninvariance. Consistent with other studies, I considered  $\Delta$ CFI values showing decreases of more than .002 as an alert for failed invariance (Cheung & Rensvold, 2002). According to Kang et al. (2016),  $\Delta$ CFI was affected by sample sizes and quality of indicators, whereas  $\Delta$ MNCI was generally stable to study variable effects. Based on Kang et al. study, I evaluated  $\Delta$ MNCI and use their recommended cutoff of -0.007 as an alert for

potential noninvariance. Following Chen (2007), I also used differences greater than .01 in the RMSEA and SRMR differences greater than .025 as indications of possible noninvariance (Henseler et al., 2014).

**Structural equation modeling.** To investigate potential relationships between perfectionism (Standards and Discrepancy) and suicidal risk (Perceived Burdensomeness and Thwarted Belongingness), and moderating role of self-compassion, structural equation modeling (SEM) was used. SEM allows testing the relationships between latent variables in hypothesis 2: the association between perfectionism (Standards and Discrepancy) and suicidal risk (Perceived Burdensomeness and Thwarted Belongingness). Also using SEM, hypothesis 3, the moderating role of self-compassion in the relationship between perfectionism (Standards and Discrepancy) and suicidal risk (Perceived Burdensomeness and Thwarted Belongingness) was investigated.

To test hypothesis 4 and 5, multigroup SEM model was investigated. To compare the model differences between older adults and younger adults, specific structural path coefficients in a multigroup SEM model was restricted to be equal, while other coefficients remain freely estimated between groups. Testing equality or invariance of path coefficients across groups allowed us to examine whether the factors relate differently between the groups (Hayduk, 1987), that is, whether group also moderates the effects of perfectionism and self-compassion on suicidal risk.

## **Results**

Means, standard deviations, and correlations appear in Table 3. The average scores and correlations for the sample were generally consistent with other studies using the same scales (e.g., Allen et al., 2012; Hill et al., 2015; Lutz & Fiske, 2016; Raes et al., 2011; Rice et al., 2012) and correlations between the scales were in expected directions. For example, Discrepancy was

negatively correlated with Self-Compassion, but positively correlated with Suicidal Risk scores in both young and older adult sample. Standards had no significant correlation with Self-Compassion but was negatively correlated with Suicidal Risk scores.

### **Hypothesis 1: Measurement Invariance between young and older adults**

#### ***Measurement Models***

The initial measurement model involved the original two-factor structure of the SAPS with 4 items measuring Standards and 4 items indicating Discrepancy, two-factor structure of the INQ with 6 items for Perceived Burdensomeness and 9 items for Thwarted Belongingness, and one-factor structure of SCS-SF with 12 items. Initially, these models were tested separately for young adults and older adults then multigroup CFAs were conducted to evaluate configural, metric, and scalar invariance.

**Short Almost Perfect Scale (SAPS).** Fit results for the two-factor structure of SAPS in the young adult sample were:  $\chi^2 (19, N = 260) = 33.53, p = .021, CFI = 0.968, RMSEA = 0.054$  (90% CI: 0.021, 0.084), SRMR = .039. Standardized factor loadings ranged from .63 to .81 for Standards, and .67 to .82 for Discrepancy. The factor correlation between Standards and Discrepancy was not significant ( $p = .682$ ). The largest modification index suggested minimal improvement in fit would occur by allowing two item residuals to correlate (for item 1 and 5 of SAPS), but this alteration was not made at this initial stage.

Fit indices for older adult sample and the two-factor SAPS model were:  $\chi^2 (19, N = 317) = 34.97, p = .014, CFI = 0.970, RMSEA = 0.051$  (90% CI: 0.023, 0.078), SRMR = .04. Standardized factor loadings for Standards ranged from .56 to .87, and for Discrepancy ranged from .60 to .76. The correlation between Standards and Discrepancy was not significant ( $p = .811$ ). The largest modification indices suggested allowing some of the items' residuals (e.g.,

item 1 and item 5 of SAPS) to correlate could improve model fit. However, modification was not made at this initial stage because fit seemed reasonable for a small degrees of freedom model (Kenny et al., 2015).

**Self-Compassion Scale – Short Form (SCS-SF).** Fit results for the original one-factor structure of SCS in young adult sample were:  $\chi^2(55, N = 260) = 217.91, p < .001, CFI = 0.670, RMSEA = 0.107$  (90% CI: 0.092, 0.122), SRMR = .267. Standardized factor loadings ranged from .27 to .77. Several suggested poor fit which represented uncertainty in measured data and accuracy of the measurement model. Thus, to increase the precision of the measurement model, alternative models were explored to discover a model that better represents the constructs. In the current study, hypotheses include self-compassion as a general factor, and previous studies support a single higher-order factor of self-compassion or a bifactor model with a general self-compassion factor (Raes et al., 2011; Brenner et al., 2017). Thus, both higher-order and bifactor models were investigated. First, in the young adult sample, the higher-order structure was comprised of 3 first-order factors and 1 second-order general self-compassion factor. That model did not converge. On the other hand, a bifactor model also did not converge. Exploratory Factor Analysis (EFA) revealed that 6 reverse coded items (negatively worded items) loaded high on one self-compassion construct, yielding the best fit for the current data. The 6 negatively worded items' factor loadings ranged from .51 to .73 in the one-factor model, and .33 to .81 in the two-factor model. The other 6 items' (positively worded items) factor loadings ranged from .14 to .52 in one-factor model, and .19 to .58 in the two-factor model. Parallel analysis also suggested two latent factors. Table 4 provides detailed information regarding this two-factor solution. However, a few positively worded items cross-loaded (i.e., item 7 and item 12), thus two factors were judged unacceptable. Therefore, for the current study's measurement model, 6 positively worded

items out of the total 12 items were excluded, and 6 negatively worded items were selected to represent SCS with one-factor. Fit results for the final one-factor structure of the SCS with 6 items in the young adult sample were:  $\chi^2 (9, N = 260) = 28.26, p = .001, CFI = 0.940, RMSEA = 0.091$  (90% CI: 0.054, 0.129), SRMR = .046. Standardized factor loadings ranged from .48 to .75 for the Self Compassion factor.

Fit results for older adult sample and the original one-factor structure of SCS also were not strong:  $\chi^2 (55, N = 318) = 276.37, p < .001, CFI = 0.621, RMSEA = 0.113$  (90% CI: 0.100, 0.126), SRMR = .178. Previous studies for older adults suggested that a two-factor model formed by the positive and negative components had the best fit (Bratt & Fagerstrom, 2020). Thus, same alternative models that was tested among young adults were explored, but similar to the results from young adult data, higher-order structure and bifactor model did not converge successfully. EFA results with older adult data also suggested two factors, but the other criteria suggested three latent factors. Table 5 provides detailed information regarding both the two-factor and three-factor solution. Three factors were extracted and examined but resulted in a majority of the items that did not load on the third factor, and that third factor did not represent a significant improvement in the model ( $p = .32$ ). Additionally, this three-factor model is incompatible with the previous two-factor solution determined by Bratt and Fagerstrom (2020). Thus, the two-factor model with 6 positively worded items and 6 negatively worded items was chosen to be the final model for the current study. The 6 negatively worded items' factor loadings ranged from .52 to .65 in the one-factor model, and .50 to .68 in the two-factor model. The other 6 items' (positively worded items) factor loadings ranged from .29 to .58 in one-factor model, and .43 to .71 in the two-factor model. However, to compare the measurement models between older adult and young adult samples, the one-factor model with 6 negatively worded

items from the SCS-SF became the final measurement model for SCS, one-factor which were the same items that created one self-compassion construct among young adult data, yield the best fit for the current data. Fit results for the final one-factor structure with 6 items in older adult sample were:  $\chi^2(9, N = 318) = 8.57, p = .478, CFI = 1.000, RMSEA = 0.000$  (90% CI: 0.000, 0.061), SRMR = .024, which indicate a good model fit that the model cannot be rejected. Significant standardized factor loadings ranged from .51 to .70 for the Self Compassion factor in older adult sample.

**Interpersonal Needs Questionnaire (INQ).** Previous literature on Suicidal Risks with INQ focused on the two-factor model with Perceived Burdensomeness and Thwarted Belongingness. However, according to the Interpersonal theory of suicide, it seems important to examine a status when Perceived Burdensomeness and Thwarted Belongingness exist at the same time, because they assert that people develop desire for suicide when they hold Perceived Burdensomeness and Thwarted Belongingness simultaneously. Thus, bifactor model with INQ was examined to measure this construct accurately. Bifactor model is a term used to describe a factor model with one general factor that reflects the common variance from all items in the scale and specific group factors that reflect additional common variance among clusters of items with highly similar content (Reise, 2012). The specific group factors measure conceptually narrow sub-constructs, whereas the general factor represents conceptually broad construct that the scale aimed to measure. This bifactor model is a more accurate representation of complex psychological constructs, because it represents ideal construct-relevant multidimensionality that occurs in the responses to instruments of constructs where distinct domains of item content are included to increase content validity (Chen et al., 2012; Reise, 2010; Reise, 2013). In previous studies, this bifactor model in evaluating the psychometric properties of the INQ 12 item version

was used to discern a general factor for overall distress and separate subfactors for Perceived Burdensomeness and Thwarted Belongingness (Freedenthal et al., 2011). However, alternative models including two-factor structure and bifactor structure were examined to find the best measurement model for INQ.

Fit results for the original two-factor structure of INQ in young adult sample were:  $\chi^2$  (89,  $N = 260$ ) = 239.43,  $p < .001$ , CFI = 0.793, RMSEA = 0.081 (90% CI: 0.068, 0.093), SRMR = .078. Standardized factor loadings ranged from .51 to .79 for Perceived Burdensomeness, and .34 to .69 for Thwarted Belongingness. The factor correlation between Perceived Burdensomeness and Thwarted Belongingness was .67 ( $p < .001$ ). After confirming poor fit of this original two-factor structure, the bifactor structure was introduced which is suggested to be more realistic representation of complex psychological constructs (Reise et al., 2013). Specifically, the bifactor model structured all items as loading on a general dimension (Suicidal Risk) and on one of two group factors (Perceived Burdensomeness and Thwarted Belongingness). Fit results in the young adult sample were:  $\chi^2$  (75,  $N = 260$ ) = 137.56,  $p < .001$ , CFI = 0.914, RMSEA = 0.057 (90% CI: 0.041, 0.071), SRMR = .048. Significant standardized factor loadings ranged from .29 to .73 for the general Suicidal Risk, .47 to .70 for Perceived Burdensomeness, and .29 to .67 for Thwarted Belongingness.

Fit indices for older adult sample for the original two-factor INQ model were:  $\chi^2$  (89,  $N = 319$ ) = 288.17,  $p < .001$ , CFI = 0.847, RMSEA = 0.084 (90% CI: 0.073, 0.095), SRMR = .101. Standardized factor loadings for Standards ranged from .64 to .91, and for Discrepancy ranged from .36 to .79. Because of generally weak fit results, the bifactor model was also examined for the older adult sample. Fit results for the bifactor model in old adult sample were:  $\chi^2$  (75,  $N = 317$ ) = 133.73,  $p < .001$ , CFI = 0.955, RMSEA = 0.050 (90% CI: 0.036, 0.063), SRMR = .047.

Significant standardized factor loadings ranged from .40 to .87 for the general dimension, .41 to .73 for Perceived Burdensomeness, and .54 to .73 for Thwarted Belongingness.

In the bifactor model, Explained Common Variance (ECV) – the proportion of all common variance explained by the factor – was calculated. Previous research with various datasets suggested that data with an ECV above .90 are unidimensional, whereas data with an ECV below .70 should be considered multidimensional (Quinn, 2014). ECV for the general Suicidal Risk factor was .50, whereas the ECV for specific factors were .29 for Perceived Burdensomeness and .20 for Thwarted Belongingness. Thus, it may be controversial to interpret both general factor and specific factors as unidimensional factors. However, the Omega - the model-based estimate of internal reliability of the construct - for the general factor was .92, and for the PB and TB were .90 and .88. The OmegaH was .68, which is the percentage of systematic variance in total scores that can be attributed to the individual differences on the Suicidal Risk general factor. When OmegaH is larger than .80, the total score can be considered as unidimensional. However, the current INQ bifactor model's OmegaH was lower than .80, so the group factor's OmegaH, OmegaHS, were also considered to evaluate the proportion of reliable systematic variance of a group scores after partitioning out variability attributed to the Suicidal Risk general factor. OmegaHS for Perceived Burdensomeness was .58, and .21 for Thwarted Belongingness. The relative Omega, the percent of reliable variance in the multidimensional composite due to the general factor, was small for the specific Thwarted Belongingness factor (.24) in this bifactor model, but relatively high for the Perceived Burdensomeness factor (.65). Therefore, I decided to explore the role of both general and specific factors, which are Suicidal Risk, Perceived Burdensomeness, and Thwarted Belongingness in the current studies' hypothesized models.

### ***Measurement Invariance***

Freely estimated factor loadings and intercepts based on the configural invariance model are presented in Table 6 for SAPS, Table 7 for SCS-SF, and Table 8 for INQ. The fit results for the series of cross-sectional measurement invariance models are summarized in Table 9.

For the SAPS, the metric invariance model was supported (e.g.,  $\Delta\text{MNCI} = -.002$ ). The initial scalar invariance model suggested room for adjustments to improve fit (e.g.,  $\Delta\text{MNCI} = -.025$ ). Allowing two indicators of Standards - item 1 “I have high expectations for myself” and 5 “I have a strong need to strive for excellence” - to have freely estimated loadings and intercepts between groups provided support for a partial scalar invariance model (e.g.,  $\Delta\text{MNCI} = -.005$ ). Note that the modifications resulting in freely estimated intercepts for half of the Standard items meant that qualifications were necessary for analyses of means differences involving Standards.

For the SCS-SF, the metric invariance model was supported (e.g.,  $\Delta\text{MNCI} = -.004$ ) but scalar invariance was not (e.g.,  $\Delta\text{MNCI} = -.036$ ). Intercepts in the metric model were compared to locate the largest differences between groups. Allowing intercepts for three items to be freely estimated between groups supported a partial scalar invariance model (e.g.,  $\Delta\text{MNCI} = -.005$ ). Those items were: item 1 “When I fail at something important to me, I become consumed by feelings of inadequacy”, item 8 “When I fail at something that’s important to me, I tend to feel alone in my failure”, and item 9 “When I’m feeling down, I tend to obsess and fixate on everything that’s wrong” were allowed to be freely estimated. Because those adjustments affected half of the SCS-SF items, caution was in order for inferences regarding mean differences involving that factor.

For the INQ bifactor model, the metric invariance model was supported (e.g.,  $\Delta\text{MNCI} = -.002$ ). Scalar invariance was not supported (e.g.,  $\Delta\text{MNCI} = -.025$ ). Freeing the intercepts for one

indicator of Perceived Burdensomeness (item 4 “These days, I think my death would be a relief to the people in my life”), and four indicators of Thwarted Belongingness (item 8 “These days, I feel like I belong”, item 11 “These days, I feel disconnected from other people”, item 12 “These days, I often feel like an outsider in social gatherings”, and item 14 “These days, I am close to other people”) provided support for a partial scalar invariance model (e.g.,  $\Delta\text{MNCI} = -.007$ ). Because the modifications resulted in freely estimated intercepts for one third of the INQ items, some qualifications could be in order for analyses of means differences involving INQ.

In short, the hypothesized measurement invariance model – minimum metric invariance model - was supported with the SAPS two-factor model, SCS-SF one-factor model, and INQ bifactor model. This result allows using the measurement models to compare the constructs between young and older adults.

Based on results from the partial scalar measurement invariance models, there were significant differences in factor means for Standards (estimate =  $-.61 (.16)$ ,  $p < .001$ ), indicating that the older adult participants had significantly lower Standards scores than young adult participants. Also, results showed significant differences in factor means for Self-compassion (estimate =  $.392 (.11)$ ,  $p < .001$ ), indicating that the older adult sample had significantly higher self-compassion than young adult sample. However, there were no significant differences in factor means for Discrepancy ( $p = .877$ ), Perceived Burdensomeness ( $p = .197$ ), Thwarted Belongingness ( $p = .984$ ), and the general Suicidal Risk ( $p = .659$ ). Although these results could be accurate, one-third to one-half of the item intercepts reflected potential bias, so these results should be considered tentative.

With these measurement models, hypothesized structural equation models aimed to investigate relationships between Suicidal Risks (Perceived Burdensomeness and Thwarted

Belongingness), Perfectionistic Strivings, Perfectionistic Concerns, and Self-Compassion. For models examining associations, main effects and interaction effects were examined.

### **Hypothesis 2: Associations between Perfectionistic Concerns, Perfectionistic Strivings, and Suicidal Risk.**

After estimating the proposed bifactor model with INQ, a model investigating Suicidal Risk predicted by Perfectionistic Concerns and Perfectionistic Strivings was tested. The model showed good fit (CFI = .954, RMSEA = .037). Perfectionistic Concerns was significantly and positively associated with Suicidal Risk ( $\beta = .22, p < .001$ ), PB ( $\beta = .11, p = .048$ ), and TB ( $\beta = .18, p = .003$ ). Perfectionistic Strivings presented a significant negative association with PB ( $\beta = -.22, p < .001$ ) and TB ( $\beta = -.16, p = .001$ ), but not with Suicidal Risk ( $p = .106$ ). Thus, the hypothesis that Perfectionistic Concerns positively relate to the Suicidal Risks and Perfectionistic Strivings negatively associate with PB and TB were met.

### **Hypothesis 3: Moderation effects of Self-Compassion in the relationships between Perfectionistic Concerns, Perfectionistic Strivings, and Suicidal Risk.**

I first tested a model with Perfectionistic Concerns interacting with Self-Compassion to predict Suicidal Risks (general factor, individual PB group factor, and TB group factor). In the model, Self-Compassion was significantly associated with Suicidal Risk ( $\beta = -.60, p < .001$ ) and PB ( $\beta = .38, p = .001$ ). There were no significant interaction effects in that model. In the next model, Perfectionistic Strivings, Self-Compassion, and their interaction were modeled as predictors of Suicide Risk. The interaction effect was significant ( $p = .027$ ). Perfectionistic Strivings had a stronger negative association with Suicidal Risk when participants had low Self-Compassion than it did for participants with high Self-Compassion ( $b = -.40, SE = .15, p = .008$ ).

However, participants with high Self-Compassion did not show significant relationship with Perfectionistic Strivings in predicting Suicidal Risk ( $b = -.05$ ,  $SE = .06$ ,  $p = .424$ ).

To summarize, results did not support Self-Compassion's moderating role in the relationship between Perfectionistic Concerns and Suicidal Risks. However, results supported the hypothesis involving the moderation effect of Self-Compassion in the relationship between Perfectionistic Strivings and Suicidal Risk for the total sample. Thus, participants with lower Self-Compassion level presented higher Suicidal Risk if they had lower Perfectionistic Strivings but presented lower Suicidal Risk when they reported higher Perfectionistic Strivings.

#### **Hypothesis 4: Moderation effects of Age in the relationships between Perfectionistic Concerns, Perfectionistic Strivings, and Suicidal Risk**

The results are included in Table 10. In young adult sample, Perfectionistic Concerns significantly positively affected Suicidal Risk ( $\beta = .47$ ,  $p < .001$ ), and Perfectionistic Strivings significantly predicted Suicidal Risk ( $\beta = -.25$ ,  $p < .001$ ). Perfectionistic Concerns and Perfectionistic Strivings did not significantly predict Perceived Burdensomeness, and the model including Thwarted Belongingness did not converge.

Among older adults, there also was a significant effect of Perfectionistic Concerns and Perfectionistic Strivings on Suicidal Risk ( $\beta = .30$ ,  $p < .001$ , and  $\beta = -.22$ ,  $p < .001$ , respectively). Perfectionistic Concerns did not significantly predict Perceived Burdensomeness, but Perfectionistic Strivings was significantly associated with Thwarted Belongingness ( $p = .02$ ). However, the model including Thwarted Belongingness did not converge for the older adult sample.

When compared between young and older adults, the difference in predicting Suicidal Risk from Perfectionistic Concerns and Perfectionistic Strivings was not significant but showed

inclination in difference ( $p = .075$ ). However, the relationship between Perfectionistic Concerns, Perfectionistic Strivings, and PB was significantly different between young and older adults ( $p = .006$ ).

The hypothesis was supported that the relationships were in the expected direction for Perfectionistic Concerns showing a positive association with Suicidal Risk, and Perfectionistic Strivings presenting a negative relationship with Suicidal Risk, in both young and older adult sample. However, expectations regarding higher levels of perfectionism and greater suicidal risk among older adults compared to young adults were not supported. That is, age did not significantly moderate the relationship between perfectionism and Suicidal Risk. However, age significantly moderated the association between perfectionism and Perceived Burdensomeness.

#### **Hypothesis 5: Moderation effects of Age and Self-Compassion in the relationships between Perfectionistic Concerns, Perfectionistic Strivings, and Suicidal Risk**

The results are in Table 10. In the young adult sample, there were no significant interaction effects of Perfectionistic Concerns, Perfectionistic Strivings, Self-Compassion on Suicidal Risk. Conditional main effects of Perfectionistic Strivings, Perfectionistic Concerns, and Self-Compassion on Suicidal Risk were significant in the young adult sample ( $p < .029$ ). Main effects predicting Suicidal Risk and TB were significant ( $p < .029$ ), except a main effect of Perfectionistic Concerns on TB ( $p = .913$ ).

However, in the older adult sample, there were few significant interaction effects. For older adults, Perfectionistic Concerns and Self-Compassion significantly interacted to predict PB ( $\beta = -1.672, p < .001$ ). Perfectionistic Concerns had a stronger positive association with PB when participants had low Self-Compassion ( $b = 1.76, SE = .45, p < .001$ ). Participants with high Self-Compassion also showed significant negative relationship between Perfectionistic Concerns and

PB ( $b = -1.58$ ,  $SE = .42$ ,  $p < .001$ ). The simple slopes analysis revealed that at low levels of Self-Compassion, the relationship between Perfectionistic Concerns and PB score was significant ( $b = .24$ ,  $SE = .12$ ,  $p = .05$ ). At average and high levels of Self-Compassion, no significant effect was found ( $b = .10$ ,  $SE = .10$ ,  $p = .31$ ; and  $b = -.03$ ,  $SE = .13$ ,  $p = .80$  respectively). Thus, there was a significant and positive association between Perfectionistic Concerns and PB, but only when Self-Compassion scores were low.

Also, Perfectionistic Strivings and Self-Compassion significantly interacted to predict Suicidal Risk ( $\beta = .452$ ,  $p = .006$ ). The simple slopes analysis revealed that at low and medium levels of Self-Compassion, the relationship between Perfectionistic Strivings and Suicidal Risk score was significant ( $b = -.59$ ,  $SE = .12$ ,  $p < .001$ ; and  $b = -.27$ ,  $SE = .06$ ,  $p < .001$  respectively). At high levels of Self-Compassion, no significant effect was found ( $b = .05$ ,  $SE = .07$ ,  $p = .47$ ).

There were significant main effects predicting TB from Perfectionistic Strivings and Self-Compassion ( $p < .024$ ). Main effects of Self-Compassion on Suicidal Risk and TB was also significant in the model including Perceived Concerns. However, the main effects of Perfectionistic Concerns on Suicidal Risk ( $p = .359$ ) and TB ( $p = .730$ ) were not significant.

When compared between young and older adults, the differences in the models were not significant ( $p$  values ranged from .134 to .717), except for the model predicting Suicidal Risk from Perfectionistic Strivings and Self-Compassion. The associations between Perfectionistic Strivings, Self-Compassion, and the Perfectionistic Strivings x Self-Compassion interaction were significantly different between the young and older adult sample in the prediction of Perceived Burdensomeness ( $p = .043$ ). This difference showed that higher Perfectionistic Strivings predicted lower Perceived Burdensomeness among older adults, but for young adults, the relationship was not significant. More specifically, the interaction between Perfectionistic

Concerns and Self-Compassion in predicting Perceived Burdensomeness was significantly different between the two age groups ( $p < .001$ ). Compared to the older adults with lower Perfectionistic Concerns, older adults with higher Perfectionistic Concerns showed higher Perceived Burdensomeness where they also had low Self-Compassion. However, older adults with higher level of Self-Compassion showed lower Perceived Burdensomeness when they had higher Perfectionistic Concerns. However, this interaction between Self-Compassion and Perfectionistic Concerns did not predict Perceived Burdensomeness in young adult sample.

For older adults, the hypothesis anticipating a moderating role of self-compassion in the relationship between Perfectionistic Concerns, Perfectionistic Strivings, and Suicidal Risk was supported. However, the moderating role of self-compassion in the relationship between perfectionism and suicidal risk was not significant in young adult population. Regardless of the significant difference in interaction effects between young and older adult sample, the hypothesized moderation models were not significantly different between the groups, except a model predicting Perceived Burdensomeness from Perfectionistic Strivings, Self-Compassion, and Perfectionistic Strivings x Self-Compassion.

## **Discussion**

The literature on perfectionism, self-compassion, and suicidal risk has disproportionately focused on the young adult population. However, previous studies have reported higher levels of perfectionism are related to a more significant psychological risk among older adults compared to young adults (Chang, 2000). Also, recent studies focusing on older adults suggested that elders may feel more isolated and experience higher perceived burdensomeness than young adults (Vanyukov et al., 2016). Self-compassion has also been considered a protective factor that moderates older adults' adverse reactions to challenges, failures, and losses (Allen et al., 2012).

The above literature has suggested increasing attention on research that investigates older adults' mental health, with emphasis on the importance of evaluating measurement invariance before conducting group comparisons and providing implications about the group differences (Bratt & Fagerström, 2020; Chang, 2000; Lutz & Fiske, 2017; Van Orden et al., 2012). Consistent with these growing needs, the purpose of the present study was first to examine the comparability of the measures across young and older adults by using measurement invariance approaches as a foundation for the hypotheses testing. After confirming the measurement models that supported invariance across groups, hypothesized models suggesting the moderation role of Self-Compassion between Perfectionistic Strivings, Perfectionistic Concerns, and Suicidal Risk (Perceived Burdensomeness and Thwarted Belongingness) were examined and compared for the young and older adult population.

### **Psychometric Implications**

For hypothesis 1, for the SAPS, the original two-factor model with four items in each factor was supported by both groups. However, several modifications to the measurement models for other scales were necessary to obtain a good model fit for both the young and older adult samples. The 12 SCS-SF items did not fit well with the data in either sample, so the final model included six items representing self-judgment, isolation, and over-identification. These included items were items that needed reverse coding to create the Self-Compassion construct, whereas the excluded items were positively worded items toward the construct (e.g., "When I'm going through a very hard time, I give myself the caring and tenderness I need.") measuring self-kindness, common humanity, and mindfulness. The results align with the current literature providing controversial mixed findings on the SCS-SF's psychometric properties (Babenko & Guo, 2019; Meng et al., 2019; Raes et al., 2011). Previous research reported a varied number of

sub-factors from SCS-SF. For example, some studies suggested having six factors (i.e., self-kindness, common humanity, mindfulness, self-judgment, isolation, and over-identification), but others suggested having two subfactors comprised of positively worded items and negatively worded items. These results suggested an unstable factor structure of SCS-SF and potential method effect in measuring Self-Compassion with SCS-SF. Having negatively worded items with positively worded items was known to create ambiguity in results rather than control response styles (DiStefano & Motl, 2006; Roszkowski & Soven, 2010). Researchers have suggested that having negatively worded items can be defined as a separate factor and lead to lower item-to-total correlations (Roszkowski & Soven, 2010). Also, some studies reported that negatively worded items performed better than positively worded items and that there could be a significant mean difference between positively worded items and negatively worded items (Williams et al., 2001). The previous meta-analysis also showed that negatively worded indicators of SCS-SF were significantly stronger linked to mental health problems than the positive indicators (Muris & Petrocchi, 2017). Considering the method effects, negatively worded items from the SCS-SF had better internal consistency and better model fit in representing Self-Compassion construct in the current study.

For the INQ, instead of the original two-factor model with Perceived Burdensomeness (PB) and Thwarted Belongingness (TB), the bifactor model was examined to capture a status when PB and TB exist at the same time to represent Suicidal Risk according to the Interpersonal Theory of Suicide. Previous research suggested PB, TB, and their interaction have predicted suicidal ideation and desire for death (Hill et al., 2015). The current study focused on the general factor that represents true Suicidal Desire according to IPTS but also examined the role of group factors (PB and TB) to find consistent results with literature and Suicidal Vulnerability.

The psychometric analyses supported the metric invariance model with the SAPS, SCS-SF, and INQ bifactor model without adjusting the measurement models. This result provided confidence in results where the latent factors and external variables were compared across young and older adults.

However, several modifications to the measurement models were necessary to obtain partial scalar invariance. First, for SAPS, two of the eight intercepts (two from the Standards factor) had to be freely estimated to support partial scalar invariance. For the Standards (Perfectionistic Strivings) factor, compared to the older adult sample, young adults reported more to agree with items relating to the pursuit of excellence and high expectations for themselves (i.e., "I have high expectations for myself" [item 1], and "I have a strong need to strive for excellence" [item 5]). These differences may have come from the characteristics of young adults who were undergraduate students in our sample. This group was working to earn course credit and in a performance environment at school. Compared to the young adult sample, none of the older adults in the current study was a student or taking any classes. Thus, even though the factor structure of the SAPS is equivalent between the young and older adult samples, there were some differences in item-level responses from the pressure to achieve and perform better in the academic environment as a student.

Second, for SCS-SF, three of the six intercepts had to be freely estimated to support partial scalar invariance. An undergraduate population of the young adult sample in the current study endorsed more to certain items to report experiencing inadequate feelings and loneliness when they fail (i.e., "When I fail at something important to me, I become consumed by feelings of inadequacy" [item 1], "When I fail at something that's important to me, I tend to feel alone in my failure" [item 8]). According to previous research, self-compassion seems to increase with

age, even though most studies included young or middle-aged adults (Neff & Vonk, 2009; Potter et al., 2014; Homan, 2016). This increasing tendency of self-compassion with age may be shown in the current data as well by young adults' more agreeable endorsement to the item such as "When I'm feeling down, I tend to obsess and fixate on everything that's wrong" [item 9]. Thus, although the factor structure of SCS-SF 6 items is equivalent across the young and older adult sample, some differences exist in their item-level responses due to the relationship between self-compassion and aging.

For the INQ bifactor model, five of the fifteen intercepts had to be freely estimated to support partial scalar invariance. Out of the five items that were freely estimated, one item was one of the six items of Perceived Burdensomeness, and four items were from nine items of Thwarted Belongingness. Among the items for Perceived Burdensomeness, the freely estimated item was the only item that directly asked about "death" to participants (i.e., "These days, I think my death would be a relief to the people in my life." [item 4]). Considering the participants in the current study are a non-clinical population who did not report suicidal thoughts, the answers to the question on death or suicide were skewed, which are common limitations in suicide research (Franklin et al., 2016; Goldsmith et al., 2002). Also, anecdotally, participants often tended to ask for clarification on item 4, especially regarding the word "death," which may suggest that the answers to item 4 could have included participants' reactions and interpretation of the question. The questions prior to item 4 were asking participants about their burdensomeness in relationships without connecting their interpersonal needs to suicide. So, when the question was directly asked about suicide, participants often commented that their interpersonal problems are not related to ending their lives. On the other hand, four freely estimated items of Thwarted Belongingness seemed to be influenced by the current pandemic. The content of the four items

included social gathering, closeness to others, general belongingness, and connection to others. When asked these questions, participants often shared their struggles due to the pandemic and their higher rating to the items compared to their usual selves before the pandemic. Other items of Thwarted Belongingness included their interaction with others where they feel cared for, which participants reported as a better representation of their belongingness because their relationship with family, significant other, and people who care about them stays stable regardless of the social distances in the current society. Therefore, some differences exist in their item-level responses reflecting current society with social distancing due to the pandemic and participants' skewed answers to the questions related to 'death.' However, the factor structure of the INQ bifactor model is equivalent across the young and older adult samples without making any adjustment to the measurement model.

### **Implications for Perfectionistic Concerns, Perfectionistic Strivings, and Suicidal Risks**

The result of the hypothesized model showed a positive association between Perfectionistic Concerns and Suicidal Risk in both young and older adult samples, which is in line with previous research findings (O'Connor, 2007; Blatt, 1995). Perfectionistic Strivings did not present a significant relationship with Suicidal Risk but showed a significant negative association with Perceived Burdensomeness and Thwarted Belongingness. In the multidimensional model of perfectionism, the Perfectionistic Strivings factor has been previously associated with satisfaction with life, personal growth, purpose in life, and subjective happiness (Suh et al., 2017; Smith et al., 2015; Stoeber et al., 2018). Both this literature and the current results suggest Perfectionistic Strivings may work as an adaptive, positive, healthy, and conscientious characteristic that negatively relates to interpersonal struggles. Stoeber et al.

(2017) also argued that not all perfectionists show social disconnection and interpersonal hostility, supporting Perfectionistic Striving's compensating role in interpersonal problems.

### **Implications for Moderating Role of Self-Compassion in the relationship between Perfectionistic Concerns, Perfectionistic Strivings, and Suicidal Risks**

In the total sample, Self-Compassion did not significantly moderate the relationship between Perfectionistic Concerns and Suicidal Risks. However, there was a significant interaction effect between Perfectionistic Strivings and Self-Compassion in predicting Suicidal Risk.

Results indicate that people with higher standards about themselves and a more self-compassionate mindset will have less Suicidal Risks. In contrast, people with lower standards about themselves will have more Suicidal Risk when they have higher self-compassion. As mentioned, current findings support the literature suggesting Perfectionistic Strivings as an adaptive characteristic. Furthermore, the results provide evidence that self-compassion can work as a facilitating factor in preventing suicide. The directions of Self-Compassion's moderating role in these results are also consistent with the previous research supporting that Self-Compassion is inversely related to Perceived Burdensomeness, Thwarted Belongingness, Suicidal Risk, and Suicidal Ideation (Umphrey et al., 2020). The moderation results also suggested that higher self-compassion and lower perfectionistic strivings may predict suicidal risk. In previous research, higher self-compassion was related to higher self-esteem (Neff, 2003). However, lower perfectionistic strivings have been associated with lower self-esteem (Taylor et al., 2016). Thus, high self-compassion and low perfectionistic strivings may have had compensating effect on suicidal risk, or perfectionistic strivings may have a higher power in predicting suicidal risk.

## **Implications for Perfectionistic Concerns, Perfectionistic Strivings, and Suicidal Risks between young and older adults**

Even though the results provided the possibility of the differences in terms of the strength of the association between Perfectionistic Concerns, Perfectionistic Strivings, and Suicidal Risk among young adult sample than in older adult sample, age did not significantly moderate the relationship between Perfectionistic Concerns, Perfectionistic Strivings, and Suicidal Risk. This result implies that the relationship between perfectionism and suicidal risk does not look different in the young and older adult populations. However, the association between Perfectionistic Concerns, Perfectionistic Strivings, and Perceived Burdensomeness was shown to be significantly different in the young and older adult populations.

For older adults, previous literature supports that anxiety stemming from burdening others is a shared experience of elders, especially as they observe their physical and mental health declines with limited resources and health disparities. Compared to the young adults who tend to have higher self-esteem and autonomy coming from healthier bodies and more physical abilities, it seems possible that the older adults are at higher risk of feeling burdened to others. Considering the importance of burdensomeness in older adults, the influence of perfectionistic strivings and perfectionistic concerns was significant among older adults but not in young adults. Thus, even though it may be unnecessary among young adults, it could be essential to investigate characteristics of perfectionism that elders possess to predict their burdensomeness in relationships and how that can lead to their mental health risk.

When Thwarted Belongingness was excluded from the Suicidal Risk, the result presented a significant difference across the group. In previous research, Perceived Burdensomeness has been a more salient predictor of suicidal ideation than Thwarted Belongingness (Cero et al.,

2015), especially among the older adult population (Cukrowicz et al., 2011; Van Orden et al., 2012). In the current study, older adults with higher standards reported feeling less burdened to others. Older adults with high-performance standards may possess autonomy, increased self-efficacy, hope for achievement, and motivations in life that can reduce their feelings of burden to others (Stoeber & Rambow, 2007).

### **Implications for Moderating Role of Self-Compassion in the relationship between Perfectionistic Concerns, Perfectionistic Strivings, and Suicidal Risks among young and older adults**

In previous research, older participants showed a stronger relationship between self-compassion and psychological well-being variables compared to younger participants (Zessin et al., 2015). In the current study, young adults' level of self-compassion did not affect the relationship between perfectionism and suicidal risk. However, the level of self-compassion exaggerated the relationship between perfectionism and suicidal risk among older adults.

The moderation model predicting Perceived Burdensomeness from Perfectionistic Strivings, Self-Compassion, and the interaction between Perfectionistic Strivings and Self-Compassion also presented significantly different patterns amongst young and older adult samples. This difference could have been caused by the prevalence of Perceived Burdensomeness and higher levels of Self-Compassion in the older adult population (Cukrowicz et al., 2011; Van Orden et al., 2012; Neff & Vonk, 2009). Also, when comparing the differences in interaction effects between the young and older adult sample, the moderating role of Self-Compassion in predicting Perceived Burdensomeness from Perfectionistic Concerns was significantly different across the group. The result implies that Self-Compassion may regulate the exacerbating relationship between anxiety stemming from not meeting high standards and

perceived burdensomeness in the older adult population but not in the young adult population. Older adults may benefit from having a self-compassionate attitude when their worries about not meeting their goals aggravate their feelings like a burden. A compassionate mind training intervention for older adults who are high in self-criticism and shame and an 8-week self-compassion skills training focusing on promoting a compassionate response to the aging process may be helpful for the older adult population (Gilbert & Proctor, 2006).

### **Limitations**

Results from the present study include several limitations beyond those already considered (e.g., samples of university students as a representation of young adults and samples of older adults who had specific resources limiting generalizability). The current study was conducted in the Southeastern area of the U.S. Future work can extend the study with samples recruited in different geographic regions of the U.S. and other countries. The samples had different distributions of racial/ethnic variation. It will be beneficial to recruit more broadly representative samples for generalizability and even numbers in proportions of different racial/ethnic groups to examine cultural factors relevant to risk factors for suicide. Furthermore, in future research, exploring the role of different identities (e.g., gender, sexual orientation, intersectionality) should yield more inclusive implications for diverse populations.

The Suicidal Risk data in the current study were positively skewed in both old and young adult samples, which can be considered an accurate representation of the suicide rate in the general population. However, previous suicide research literature included participants from higher-risk populations, whereas the current study focused on the non-clinical, general population, which may produce different results from those based on higher-risk samples. Also, the current study was a cross-sectional study. Future longitudinal studies would provide further

implications on the relationship between the constructs, such as precise patterns of perfectionism and the influence of self-compassion on interpersonal relationships. For example, weekly self-compassion intervention for 8 weeks could provide information on how or whether perfectionistic personality changes in predicting suicidal risks as participants gain more skills to be compassionate toward themselves.

The INQ bifactor measurement model included group factors that have interpretation limitations. In the current study, the group factors were interpreted based on their prominent role within the Interpersonal Theory of Suicide as separate predictors for suicide. However, the relative omega for Thwarted Belongingness was low, so cautions are needed regarding the implications of the current results.

In future studies, there are other variables that could be evaluated (e.g., fearlessness about death, depression, anxiety) in the relationship between perfectionism, self-compassion, and suicidal risks. Other personality characteristics (e.g., positive affect, wisdom, initiative, curiosity and exploration, agreeableness, extroversion, and conscientiousness) could be investigated in future research to understand personalities that can be a risk or protective factor for further mental health outcomes.

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Table 3

*Correlations, Means, Standard Deviations, and Cronbach's alpha for Variables*

Variables	Young adults (N = 260)						Older adults (N =319)					
	1	2	3	4	4-1	4-2	1	2	3	4	4-1	4-2
1. Standard	1						1					
2. Discrepancy	.02	1					.01	1				
3. Self-Compassion	-.05	-.64**	1				.04	-.51**	1			
4. Suicidal Risk	-.19**	.49**	-.43**	1			-.29**	.24**	-.38**	1		
4-1. Perceived Burdensomeness	-.13*	.39**	-.24**	.79**	1		-.27**	.21**	-.28**	.81**	1	
4-2. Thwarted Belongingness	-.20**	.47**	-.46**	.96**	.60**	1	-.22**	.22**	-.37**	.93**	.52**	1
<i>Mean</i>	6.29	3.46	3.20	1.94	1.33	2.35	5.63	3.45	3.68	1.80	1.52	2.00
<i>SD</i>	0.78	1.44	0.88	0.76	0.65	0.97	1.37	1.55	0.94	1.01	1.17	1.16
<i>Cronbach's alpha</i>	.81	.81	.80	.86	.82	.81	.80	.77	.78	.89	.91	.85

\* $p < .05$ , \*\* $p < .01$ , two-tailed.

Table 4

One- and Two-Factor Solution for Self-Compassion Scale Short Form among young adults

SCS-SF item	Unrotated	Promax Rotated Factor	
	Factor Coefficients	Pattern Coefficients	
	Factor I (SCS-SF)	Factor I (negatively worded items)	Factor II (positively worded items)
1. When I fail at something important to me I become consumed by feelings of inadequacy.	0.57	<b>0.54</b>	0.05
2. I try to be understanding and patient towards those aspects of my personality I don't like.	0.14	-0.18	<b>0.48</b>
3. When something painful happens I try to take a balanced view of the situation.	0.24	0.00	<b>0.37</b>
4. When I'm feeling down, I tend to feel like most other people are probably happier than I am.	0.67	<b>0.68</b>	0.01
5. I try to see my failings as part of the human condition.	0.20	-0.07	<b>0.40</b>
6. When I'm going through a very hard time, I give myself the caring and tenderness I need.	0.52	0.24	<b>0.45</b>
7. When something upsets me I try to keep my emotions in balance.	0.26	0.14	0.19
8. When I fail at something that's important to me, I tend to feel alone in my failure.	0.73	<b>0.81</b>	-0.09
9. When I'm feeling down I tend to obsess and fixate on everything that's wrong.	0.73	<b>0.75</b>	-0.01
10. When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people.	0.30	-0.07	<b>0.58</b>
11. I'm disapproving and judgmental about my own flaws and inadequacies.	0.59	<b>0.47</b>	0.18
12. I'm intolerant and impatient towards those aspects of my personality I don't like.	0.51	<b>0.33</b>	<b>0.27</b>

Table 5

*One-, Two-, and Three-Factor Solution for Self-Compassion Scale Short Form among older adults*

SCS-SF item	Unrotated Factor	Promax Rotated Factor Pattern Coefficients				
	Coefficients	Two-Factor Solution		Three-Factor Solution		
	Factor I	Factor I (negatively worded items)	Factor II (positively worded items)	Factor I (negatively worded items)	Factor II (positively worded items)	Factor III
1.	0.52	<b>0.63</b>	-0.07	<b>0.61</b>	-0.06	0.01
2.	0.40	-0.05	<b>0.64</b>	0.02	<b>0.67</b>	0.01
3.	0.45	-0.02	<b>0.68</b>	0.00	<b>0.65</b>	0.23
4.	0.53	<b>0.55</b>	0.03	<b>0.58</b>	0.05	-0.08
5.	0.33	0.00	<b>0.46</b>	0.03	<b>0.44</b>	0.10
6.	0.58	0.25	<b>0.48</b>	0.23	<b>0.44</b>	0.26
7.	0.48	-0.01	<b>0.71</b>	-0.12	<b>0.71</b>	<b>0.61</b>
8.	0.65	<b>0.68</b>	0.04	<b>0.77</b>	0.07	-0.22
9.	0.59	<b>0.65</b>	0.00	<b>0.64</b>	-0.01	0.03
10.	0.29	-0.02	<b>0.43</b>	0.04	<b>0.46</b>	-0.03
11.	0.57	<b>0.66</b>	-0.04	<b>0.63</b>	-0.06	0.10
12.	0.50	<b>0.50</b>	0.06	<b>0.43</b>	0.01	0.28

Table 6

*Short Almost Perfect Scale's Final Measurement Model - Configural Invariance Model of Sample Comparisons of Factor Loadings and Intercepts*

Factor	Item	Young adults (N = 260)				Older adults (N = 319)			
		B	SE	$\beta$	Intercept	B	SE	$\beta$	Intercept
<i>Short Almost Perfect Scale</i>									
STD	Item 1	0.75	0.09	0.81	6.41	1.34	0.11	0.71	5.49
	Item 3	0.86	0.09	0.80	6.14	1.57	0.11	0.87	5.60
	Item 5	0.69	0.07	0.66	6.20	1.35	0.12	0.70	5.27
	Item 7	0.53	0.06	0.63	6.42	0.74	0.11	0.56	6.13
DIS	Item 2	1.48	0.10	0.82	3.17	1.31	0.12	0.61	3.46
	Item 4	1.25	0.11	0.67	3.71	1.21	0.12	0.60	3.58
	Item 6	1.20	0.11	0.67	3.69	1.55	0.10	0.76	3.64
	Item 8	1.28	0.11	0.73	3.27	1.39	0.10	0.75	3.10

*Note.* B = Unstandardized factor loadings and  $\beta$  = Standardized factor loadings. All loadings were significant,  $p < .001$ .

Table 7

*Self-Compassion Scale Short Form's Final Measurement Model - Configural Invariance Model of Sample Comparisons of Factor**Loadings and Intercepts*

Factor	Item	Young adults (N = 260)				Older adults (N = 319)			
		B	SE	$\beta$	Intercept	B	SE	$\beta$	Intercept
<i>Self-Compassion Scale Short Form</i>									
SCS	Item 1	0.63	0.07	0.57	3.23	0.77	0.07	0.59	3.74
	Item 4	0.89	0.08	0.66	3.23	0.76	0.08	0.55	3.58
	Item 8	0.97	0.07	0.75	3.04	0.99	0.07	0.70	3.62
	Item 9	0.94	0.07	0.72	2.84	0.83	0.07	0.66	3.91
	Item 11	0.78	0.08	0.63	3.24	0.90	0.08	0.66	3.67
	Item 12	0.52	0.08	0.48	3.62	0.72	0.08	0.51	3.60

*Note.* B = Unstandardized factor loadings and  $\beta$  = Standardized factor loadings. All loadings were significant,  $p < .001$ .

Table 8

*Interpersonal Needs Questionnaire's Final Bifactor Measurement Model - Configural Invariance Model of Sample Comparisons of Factor Loadings and Intercepts*

Factor	Item	Young adults (N = 260)				Older adults (N = 319)			
		B	SE	$\beta$	Intercept	B	SE	$\beta$	Intercept
<i>Interpersonal Needs Questionnaire</i>									
INQ (General Factor)	Item 1	0.61	0.14	0.62	1.36	0.80	0.13	0.57	1.53
	Item 2	0.46	0.10	0.54	1.29	0.72	0.14	0.52	1.51
	Item 3	0.66	0.11	0.73	1.45	0.85	0.15	0.57	1.59
	Item 4	0.26	0.11	0.35	1.15	0.79	0.15	0.56	1.53
	Item 5	0.31	0.09	0.41	1.24	0.59	0.14	0.48	1.36
	Item 6	0.79	0.13	0.72	1.50	0.80	0.16	0.55	1.59
	Item 7	0.45	0.15	0.33	1.83	0.56	0.16	0.40	1.77
	Item 8	0.85	0.13	0.57	2.29	0.92	0.18	0.54	1.98
	Item 9	0.64	0.16	0.35	2.51	0.95	0.14	0.42	2.72
	Item 10	0.52	0.13	0.43	1.75	0.72	0.22	0.42	2.01
	Item 11	1.19	0.16	0.65	3.26	1.46	0.11	0.87	1.88
	Item 12	1.19	0.15	0.69	3.00	1.32	0.12	0.75	1.88
	Item 13	0.43	0.14	0.32	1.94	0.72	0.20	0.44	1.88

	Item 14	0.58	0.16	0.39	2.34	0.83	0.20	0.52	1.98
	Item 15	0.45	0.14	0.29	2.30	0.75	0.22	0.43	2.08
PB (Group factor 1)	Item 1	0.35*	0.19	0.36*		0.81	0.13	0.58	
	Item 2	0.51	0.14	0.60		1.00	0.12	0.72	
	Item 3	-0.12*	0.12	-0.14*		0.53	0.15	0.35	
	Item 4	0.51	0.16	0.70		1.00	0.11	0.71	
	Item 5	0.36	0.16	0.47		0.90	0.13	0.73	
	Item 6	0.24*	0.14	0.22*		0.60	0.15	0.41	
TB (Group factor 2)	Item 7	0.60	0.17	0.44		0.80	0.13	0.57	
	Item 8	0.54	0.15	0.36		0.80	0.16	0.48	
	Item 9	0.16*	0.15	0.08*		0.18*	0.17	0.08*	
	Item 10	0.63	0.15	0.51		1.25	0.16	0.73	
	Item 11	0.16*	0.26	0.09*		-0.14*	0.21	-0.09*	
	Item 12	0.34*	0.19	0.20*		-0.19*	0.19	-0.11*	
	Item 13	0.88	0.12	0.66		1.10	0.16	0.67	
	Item 14	0.98	0.18	0.67		0.86	0.18	0.54	
	Item 15	0.44	0.15	0.29		1.02	0.17	0.59	

Note. B = Unstandardized factor loadings and  $\beta$  = Standardized factor loadings. All loadings were significant,  $p < .05$  except \*.

Table 9

*Measurement Invariance Models Comparing the Young Adults and Older Adults*

Model	$\chi^2$	df	CFI	RMSEA (90% CI)	SRMR	MNCI	$\Delta \chi^2$	$\Delta$ df	p-value	$\Delta$ CFI	$\Delta$ MNCI
<i>Short Almost Perfect Scale (SAPS)</i>											
Configural	68.43	38	.969	.053 (.032 .072)	.042	.974					
Metric	76.24	44	.967	.050 (.031 .069)	.059	.972	8.26	6	.219	-.002	-.002
Scalar	112.12	50	.936	.066 (.049 .082)	.079	.948	40.98	6	.000	-.031	-.025
Partial Scalar <sup>1</sup>	86.10	48	.961	.052 (.034 .070)	.062	.968	10.48	4	.033	-.006	-.005
<i>Self-Compassion Scale Short Form (SCS-SF)</i>											
Configural	35.26	18	.970	.058 (.028 .086)	.036	.985					
Metric	44.52	23	.962	.057 (.031 .082)	.052	.982	9.10	5	.105	-.008	-.004
Scalar	92.10	28	.887	.089 (.069 .110)	.088	.946	55.79	5	.000	-.075	-.036
Partial Scalar <sup>2</sup>	52.73	25	.951	.062 (.038 .085)	.060	.976	9.65	2	.008	-.011	-.005
<i>Interpersonal Needs Questionnaire (INQ)</i>											
Configural	271.04	150	.941	.053 (.043 .063)	.048	.900					
Metric	300.33	177	.940	.049 (.039 .058)	.082	.899	36.41	27	.107	-.001	-.002
Scalar	345.13	189	.924	.053 (.044 .062)	.084	.873	57.02	12	.000	-.016	-.025
Partial Scalar <sup>3</sup>	316.96	184	.936	.050 (.041 .059)	.083	.891	20.61	7	.004	-.004	-.007

<sup>1</sup> Allowed factor loadings and intercepts for item 1 and item 5 of SAPS to be freely estimated between samples.

<sup>2</sup> Allowed factor loadings and intercepts for item 1, item 8 and item 9 of SCS-SF to be freely estimated between samples.

<sup>3</sup> Allowed factor loadings and intercepts for item 4, item 8, item 11, item 12, and item 14 of INQ to be freely estimated between samples.

*Note.* CFI = Comparative Fit Index. RMSEA = Root Mean Square Error of Approximation. SRMR = Standardized Root Mean Square Residual. MNCI = McDonald Noncentrality Index.

Table 10

*Main and interactive effects of Perfectionism and Self-Compassion on Suicidal Risk (Perceived Burdensomeness (PB), Thwarted Belongingness (TB) and co-occurring Frustrations of Interpersonal Needs)*

Predictors	Young Adults (N = 260)			Older Adults (N = 319)		
	PB	TB	Suicidal Risk	PB	TB	Suicidal Risk
	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)
Standard	.06 (.06)	-	-.25 (.08)**	-.17 (.07)*	-	-.22 (.07)**
Discrepancy	-.04 (.06)	-	.47 (.06)***	.14 (.09)	-	.30 (.08)***
Standard	.03 (.07)	-.17 (.07)*	-.26 (.08)**	-.14 (.09)	-.16 (.07)*	-.23 (.07)**
Self-Compassion	.12 (.08)	-.36 (.11)***	-.63 (.13)***	-.16 (.12)	-.43 (.11)***	-.50 (.10)***
Standard x Self-Compassion	-.06 (.07)	-.01 (.13)	.20 (.23)	.69 (.15)	.25 (.13)	.45 (.15)**
Discrepancy	.38 (.29)	-.01 (.09)	.26 (.12)*	.09 (.14)	-.05 (.15)	-.11 (.11)
Self-Compassion	.39 (.27)	-.27 (.10)**	-.26 (.12)*	-.05 (.15)	-.44 (.19)*	-.56 (.16)**
Discrepancy x Self-Compassion	-.01 (.18)	-.16 (.12)	-.09 (.08)	-1.67 (.41)***	-.01 (.17)	-.23 (.20)

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

## APPENDICES

### APPENDIX A: Demographics

1. What is your sex?
  - a. Male
  - b. Female
2. What is your gender?
  - a. Male
  - b. Female
  - c. Transgender
  - d. Other, please specify
  - e. Decline to answer
3. What is your age? (write the number)
4. Please indicate your race, the ethnic group(s) that you identify with the most (you can select more than one):
  - a. American Indian/ Alaska Native
  - b. Asian/ Asian American
  - c. Black/ African American
  - d. Latinx/ Hispanic
  - e. Multiracial
  - f. Native Hawaiian/ Pacific Islander
  - g. White/ European American
  - h. Other, please specify
5. What is your current marital status?

- a. Single
- b. Married/partnered
- c. Separated
- d. Divorced
- e. Widowed
- f. Other

APPENDIX B: Participant Measures

**Short Almost Perfect Scale (Rice et al., 2014)**

**Instructions:** The following items are designed to measure certain attitudes people have toward themselves, their performance, and toward others. It is important that your answers be true and accurate for you. Please enter a response from “strongly disagree” to “strongly agree” to describe your degree of agreement with each item

Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
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1. I have high expectations for myself.
2. Doing my best never seems to be enough.
3. I set very high standards for myself.
4. I often feel disappointment after completing a task because I know I could have done better.
5. I have a strong need to strive for excellence.
6. My performance rarely measures up to my standards.
7. I expect the best from myself.
8. I am hardly ever satisfied with my performance.

### Self-Compassion Scale Short-Form (Raes et al., 2011)

**Instructions:** Please read each statement carefully before answering. Indicate how often you behave in the stated manner, using the following scale:

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

## Interpersonal Needs Questionnaire (Van Orden et al., 2012)

**Instructions:** The following questions ask you to think about yourself and other people. Please respond to each question by using your own current beliefs and experiences, NOT what you think is true in general, or what might be true for other people. Please base your responses on how you've been feeling recently. Use the rating scale to find the number that best matches how you feel and circle that number. There are no right or wrong answers: we are interested in what you think and feel.

Not at all true for me			Somewhat true for me			Very true for me
---------------------------	--	--	-------------------------	--	--	---------------------

1. These days, the people in my life would be better off if I were gone.
2. These days, the people in my life would be happier without me.
3. These days, I think I am a burden on society.
4. These days, I think my death would be a relief to the people in my life.
5. These days, I think the people in my life wish they could be rid of me.
6. These days, I think I make things worse for the people in my life.
7. These days, other people care about me.
8. These days, I feel like I belong.
9. These days, I rarely interact with people who care about me.
10. These days, I am fortunate to have many caring and supportive friends.
11. These days, I feel disconnected from other people.
12. These days, I often feel like an outsider in social gatherings.
13. These days, I feel that there are people I can turn to in times of need.

14. These days, I am close to other people.

15. These days, I have at least one satisfying interaction every day.

Note: Items 7, 8, 10, 13, 14, and 15 are reverse coded.