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The role of compassion for meaning in life and life satisfaction

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Abstract

This study examined compassion for self and for others, and how these factors were related to meaning in life and life satisfaction among university students in Sweden. A total of 265 students from different faculties, most of them at Lund university, responded to a self-report questionnaire including the short form self-compassion scale (SCS-SF), the compassion scale (CS), the multidimensional existential meaning scale (MEMS) and the satisfaction with life scale (SWLS). Results revealed that both self-compassion and compassion for others were positively related to life satisfaction, and this relation was strongest for self-compassion. Results further suggested that meaning in life functions as a mediating mechanism. For self-compassion, the mediation was partial whereas the positive association between compassion for others and life satisfaction was fully absorbed by increased meaning in life. This suggests that compassion for self and for others are important factors in understanding meaning in life, meaning in life in turn being important to understand the association between compassion and life satisfaction. The results also indicated that women in particular, who had significantly lower levels of self-compassion than men, may benefit from self-compassion based interventions.

Keywords: self-compassion, compassion for others, meaning in life, life satisfaction

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The role of compassion for meaning in life and life satisfaction

According to recent accounts by the World Happiness Report (Helliwell et al., 2022), Sweden ranked 7th place out of 146 countries in average life evaluation (7.38 points), when study participants were requested to assess how closely their present life resembled what they perceived as the best possible life on a scale from one to ten. In the European Union, for individuals older than 16, women and men rated their life satisfaction equal or almost equal in a majority of the countries surveyed (Eurostat, 2021). Furthermore, life satisfaction is a valued goal for a lot of people, in a study of college students across countries, life satisfaction was for example frequently ranked higher in importance than money (Diener, 2000). This, together with life satisfaction being of interest from a health perspective, further underscores the importance of investigating the variables and mechanisms behind life satisfaction, which is part of the broader concept of subjective well-being (SWB), in order to develop strategies to further increase life satisfaction in Sweden and other countries.

While earlier studies, such as Wilson (1967), mainly considered social factors such as age, education level, health status, relationship status and income as variables having an influence on subjective well-being, later research instead emphasized the explanatory power of genetic and psychological factors, for instance personality, coping mechanisms and goals (Diener et al., 1999). Increasingly, self-compassion has as of lately been investigated more and more as such a psychological predictor of well-being (Zessin et al., 2015). Furthermore, burgeoning research on a related but distinct concept, compassion for others, has indicated it as another variable of interest in relation to subjective well-being, although the strength and direction of the relationship still remain unclear as research is scarce (López et al., 2018; Stoeber et al., 2020; Tendhar et al., 2022).

Both self-compassion and compassion for others may in turn be linked to meaning in life (MIL), which has been suggested to be one of the main psychological factors predicting subjective well-being (Zessin et al., 2015; Dakin et al., 2022; Li et al., 2021). As self-compassion and compassion for others are relatively new fields of research, this study aims to contribute to greater understanding by investigating the interrelation between these two variables as well as their relationship with meaning in life and life satisfaction. Most importantly, the main research questions in this study concerns whether meaning in life functions as a mediating mechanism in the relationship between self-compassion and life satisfaction as well as between compassion for others and life satisfaction.

Theoretical background

Meaning in life

A useful starting point in understanding meaning in life in regard to psychological research is the distinction between one, *the meaning of life*, which refers to meaning in regards to the grand scheme of life and which belongs to the philosophical realm, and two, *the meaning in life*, which is a subjective experience of thoughts and feelings, the notion of meaning that is used in psychological research (King & Hicks, 2021). Furthermore, meaning in life has been conceptualized in several different ways across studies and over time, which has been proven to be problematic as it restricts the comparability of results across studies and risks leading to inexact predictions with respect to meaning in life (George & Park, 2017). A breakthrough followed with the Meaning in Life Questionnaire (MLQ) by Steger et al. (2006) according to which meaning in life encompasses both the presence of meaning and the search for meaning (King & Hicks, 2021; Steger et al., 2006). Even though the MLQ has less problems with confounding with similar concepts than earlier measures, some conceptual ambiguity concerning meaning in life has remained with the use of the unsatisfactorily defined word “meaning” in its scale items, although research by George and Park (2017) suggests that participants’ conceptions of meaning in life correspond to present-day theoretical definitions, although more research may be needed (King & Hicks, 2021).

Although, as discussed, different conceptualizations of meaning in life have been plentiful and accompanied by various shortcomings, King and Hicks (2021) point out that, at the time, there is a converging standpoint among scholars that meaning in life consists of three main parts: comprehension/coherence, purpose and existential mattering/significance. Research suggests that an overall notion of meaningfulness emanates from each of these factors (George & Park, 2017). Consequently, in comparison to previous univariate meaning in life measures, the Multidimensional Existential Meaning Scale (MEMS) by George and Park (2017), which is adopted in this study, is one of the scales taking on a multidimensional approach. Consequently, the different facets of meaning are assessed independently from each other, every subscale corresponding to a single subconstruct, enhancing the comprehension of meaning in life and its association with other variables through greater conceptual flexibility, complexity, and precision (George & Park, 2017).

According to MEMS, meaning in life can be understood as measured through the degree to which one conceives that: sense can be made of one’s life (comprehension), one is

guided and stimulated by objectives of personal significance (purpose), and one is of importance to the world (mattering) (George & Park, 2017). These three different, complementary subconstructs together account for a majority of the variance in previous meaning in life definitions, suggesting that they approximately cover similar conceptual aspects as earlier measures of meaning in life (George & Park, 2017).

Life satisfaction

Well-being can generally be divided into an eudaimonic kind, namely psychological well-being, and a hedonistic kind, subjective well-being (SWB) (Ryan & Deci, 2001). Subjective well-being, relating to an individual's affective and cognitive assessment of their general life quality according to subjective criteria, has been a well-researched concept over the years, comprising the aspects of negative affect, positive affect, and life satisfaction (Diener, 2000). Whereas positive and negative affect constitute the emotional dimensions of subjective well-being, life satisfaction pertains to the cognitive-evaluative dimension (Diener et al., 1985). High subjective well-being corresponds to low levels of negative affect and high levels of positive affect and life satisfaction (Yalçın & Malkoç, 2015). Life satisfaction is the variable of interest in the present study as its relationship with presence of meaning in life has been shown to have a greater effect size than the affective components of subjective well-being (Li et al., 2021). Furthermore, there is a moderate to high correlation between life satisfaction as measured through the satisfaction with life scale (SWLS), which is widely used, and other measures of subjective well-being, indicating that scores regarding life satisfaction can give a good indication of subjective well-being in general (Diener et al., 1985).

Self-compassion

The concept of self-compassion has its origin from Buddhist philosophy and was a new concept for Western psychology when Kristin Neff first theorized it in 2003 and developed the self-compassion scale (SCS) to measure it. Previously, self-esteem was the primary measure for healthy attitudes and relationships to oneself, but Neff (2003a) argued that self-compassion is a more beneficial measure of self-attitudes since it does not involve comparing oneself to others.

When faced with experiences of suffering or personal failure, or when external life-circumstances are difficult, the theory of self-compassion includes three pairs of components that overlap and mutually interact. These are self-kindness versus self-judgment,

common humanity versus isolation, and mindfulness versus overidentification. The first element, *self-kindness*, refers to being caring towards oneself rather than critical or *self-judgmental*. Personal flaws and inadequacies are treated in an understanding manner, and the tone of language used towards the self is gentle and supportive (Neff, 2011). Rather than criticizing oneself for being inadequate, being self-compassionate means accepting the fact that one is imperfect. The second component, *common humanity*, involves recognizing that all people fail, make mistakes, and feel inadequate in some way. Self-compassion in this regard involves seeing imperfection as part of the shared human condition, so that one's weaknesses are seen from a broad, inclusive perspective, and difficult life circumstances make people feel connected to rather than *isolated* from others (Neff, 2011). The third component of self-compassion, *mindfulness*, involves having a balanced perspective so that one neither ignores nor ruminates on difficult life experiences or disliked aspects of oneself. Being mindful thus involves recognizing that one is suffering, but at the same time preventing oneself from being swept up in and carried away by pain, a process that Neff termed *over-identification* (Neff, 2003a; Neff, 2011).

According to Neff (2003b), self-compassion should be associated with increased well-being since self-compassionate people's experiences of pain and failure are not maintained or amplified through harsh self-judgments, feelings of isolation, or over-identification. Neff also argued that having compassion for oneself implies that individuals will try to prevent suffering in the first place, leading to proactive behaviors aimed at promoting or maintaining well-being (Neff, 2003b).

Compassion for others

The conceptualization of self-compassion has also been applied to compassion for others by Pommier (2010) and later developed by Pommier et al. (2020), with some necessary changes to be more relevant to other-focused attitudes. Whereas self-compassion is highly relevant in contexts of perceived inadequacy, compassion for others was conceptualized as being more focused on others' general life suffering. The three pairs of components first theorized as compassion for others were therefore (1) kindness versus indifference, (2) common humanity versus separation, and (3) mindfulness versus disengagement, all these in response to the suffering of others (Pommier et al., 2020). *Kindness* was conceptualized in terms of being caring toward and concerned for others who are in pain or feel a desire to support those in need, instead of being indifferent. *Common humanity* in the context of

compassion for others was concretized as recognizing that all people experience difficult times and connecting to those who are suffering, rather than feeling separated from them. Last, *mindfulness* was conceptualized as having a balanced awareness encompassing neither avoiding nor getting carried away by others' pain, and being willing to pay attention to others when they are suffering rather than being disengaged from their pain. However, the three components hypothesized by Pommier (2010) to represent uncompassionate attitudes toward others (indifference, separation, and disengagement) were not found to be empirically distinct and were therefore collapsed into the single component of *indifference* (Pommier et al., 2020). Compassion was thus operationalized as experiencing kindness, a sense of common humanity, mindfulness, and lessened indifference toward the suffering of others, and is measured through the 16-item compassion scale (CS) developed by Pommier et al. (2020).

Empirical background

Meaning in life

Contrary to popular beliefs, a number of studies have found meaning in life to be a rather common experience and life in general to be quite meaningful for people in many different contexts (Kings & Hicks, 2021). To illustrate, Oishi and Diener (2014), using Gallup World Poll data on 141 738 individuals from 132 nations in 2007, showed that 91 percent of respondents agreed that their life had a special purpose or meaning. Similarly, when investigating 122 mean scores of all studies using the MLQ to date with a total of 27 635 observations, King and Hicks (2021) found that all except 10 mean scores were equal to or higher than the center of the scale. When it comes to gender, Steger et al. (2009) found a significant difference, with men on average reporting lower presence of meaning in life and lower search for meaning in life than women. Yu et al. (2017) suggest a potential explanation for this difference to be that women in early to middle adulthood to a greater extent than men are engaged in the pursuit and realization of important objectives in life, such as a worthwhile occupation, successful marriage and parenthood, which subsequently may translate into a more extensive search for and experience of meaning in life. The high presence of meaning in life is of importance since meaning in life has been linked with several positive life outcomes, both physical and psychological, with individuals higher in meaning in life also being more fortunate in these other areas (King & Hicks, 2021).

In particular, a plethora of studies have confirmed a positive relationship between life meaning and subjective well-being, respectively life meaning and life satisfaction. To start

with, Schnell (2010) studied 135 German students and found that individuals classified as conceiving their lives as meaningful scored significantly higher on psychological well-being measures, here encompassing positive affect and satisfaction with life, than individuals who were deemed to be existentially indifferent. Furthermore, Krok (2018) studied meaning in life and subjective and psychological well-being among 384 late adolescents in Poland and found that personal meaning measured through The Personal Meaning Profile by Wong (1998) had a strong significant positive relationship with subjective well-being, in particular with life satisfaction ($r=0.51$) followed by positive affect ($r=0.37$) and negative affect ($r=-0.16$). Furthermore, Halama and Dedova (2007) investigated meaning in life, hope and personality traits in a group of 148 adolescents and their results supported the notion of meaning in life being an independent predictor of life satisfaction, accounting for 8 percent of the residual variance in life satisfaction that personality traits could not account for. Moreover, Wang et al. (2021) conducted a study on 245 Chinese undergraduates which also showed support for a significant positive relationship between meaning in life and subjective well-being.

Most importantly, Li et al. (2021) recently conducted a meta-analysis on the relationship between presence of meaning (POM), searching for meaning (SFM) and subjective well-being (SWB) through the examination of 147 studies which employed the Meaning in Life Questionnaire (MLQ) by Steger et al. (2006). This meta-analysis found that there was a significant positive relationship between POM and all SWB components ($r=0.395$) with a medium effect size, indicating that presence of life meaning could account for around 16 percent of variance in subjective well-being. Specifically, the effect size of the relationship between presence of meaning and life satisfaction ($d=.477$) was found to be relatively bigger than that between presence of meaning and the affective aspects of subjective well-being (positive affect: $d=0.423$, negative affect: $d=0.335$), arguably because of the cognitive characteristics that life meaning and life satisfaction have in common (Li et al., 2021). This finding underscores the importance of investigating life satisfaction in relation to life meaning. Lastly, the findings of this meta-analysis suggest that the search for life meaning may be negatively related to subjective well-being, although the effect was found to be small and contextual (Li et al., 2021). Finally, when life satisfaction was researched in relation to meaning in life according to MEMS by George and Park (2017), the comprehension aspect of meaning had the highest significant correlation with life satisfaction ($r=0.595$) compared to

purpose ($r=0.486$) and mattering ($r=0.422$), although this difference could not be accounted for but was proposed to be up to future research to explain (George & Park, 2017).

The direct linkage between life meaning and subjective well-being can according to Li et al. (2021) be explained by the meaning maintenance model by Heine et al. (2006), according to which meaning in life is of a cognitive character and comes with a set of cognitive capabilities and features that conserve an individual's notion of purpose, sense, and meaning, which in turn strengthen well-being in a direct way. Furthermore, meaning in life and subjective well-being may also be indirectly linked, meaning in life promoting other antecedents of subjective well-being, such as self-control (Li et al., 2021).

Self-compassion

Yarnell et al. (2015) show that men generally report higher levels of self-compassion than women, which they suggest may be linked to the fact that women tend to internalize negative emotions more than men (Leadbeater et al. 1999). Research also indicates that self-compassion increases with age (Neff & Pommier 2013, Neff & Vonk 2009), since the wisdom that comes from maturity allows for a more supportive and more balanced attitude toward oneself (Neff, 2022).

Empirical research has further shown that self-compassion is associated with positive mental health. MacBeth and Gumley (2012) conducted a meta-analysis on the relationship between self-compassion and psychopathology using 14 studies with a total of 4 007 participants and found strong, negative correlations between self-compassion and different measurements of psychopathology, including depression ($r= -.52$), anxiety ($r= -.51$) and stress ($r= -.54$). Marsh et al. (2018) found similar results in their meta-analysis using 14 samples of a total of 7 049 adolescents. There are also studies that have aimed at investigating the causal link of self-compassion therapies on psychopathology. For example, Krieger et al. (2016) examined the relation between self-compassion and depression in patients 6 and 12 months after being treated with cognitive-behavioral therapy. They found that increases in self-compassion scores predicted less depressive symptoms later, but depressive symptoms did not predict subsequent levels of self-compassion, suggesting a causal link between self-compassion and reduced psychopathology. Ferrari et al., (2019) further found in their meta-analysis on 27 experimental studies that self-compassion-based interventions produced a moderate and significant improvement in self-compassion scores, and a large effect size on rumination outcomes, supporting the conceptualization of self-compassion as something that

can be cultivated. They also found moderate effect sizes on depression and anxiety, suggesting the shift in cognitive patterns (through for example less rumination) being the mechanism through which self-compassion treats multiple psychopathologies.

As for well-being, Zessin et al. (2015) investigated 79 samples with a total of 16 416 participants in their meta-analysis on self-compassion and well-being. They found an overall magnitude of the relationship of $r=.47$, and the relationship was stronger for satisfaction with life and psychological well-being compared to affective well-being. There is thus extensive support for the association between self-compassion and mental health, including life satisfaction. Trying to understand the mechanisms between self-compassion and life satisfaction, self-compassion has further been linked to traits such as gratitude, hope, authenticity, and vitality (Gunnell et al., 2017; Neff et al., 2018; Zhang et al., 2019). Gunnell et al. (2017), using the self-determination theory (SDT) by Deci and Ryan (2000), also found in their longitudinal study on university students that an increased satisfaction of psychological needs is one possible mechanism that links self-compassion to enhanced well-being, where the three psychological needs according to SDT are competence (the perception that one can complete personally challenging tasks), autonomy (the perception that one is in control of his/her behaviors) and relatedness (the perception that one connects and belongs with important others). Thus, although self-compassion is aimed at reducing suffering, feelings of kindness, connectedness, and presence are satisfying and meaningful, which helps explain why self-compassion enhances mental well-being (Neff, 2022).

Looking further into the relation between self-compassion and life-meaning, studies included in the meta-analysis by Zessin et al. (2015) mainly use the psychological well-being scales by Ryff (1989) as well as by Ryff and Keyes (1995), which contain six dimensions among which one is the belief that one's life has meaning and purpose. Similarly, Homan (2018), also using the psychological well-being scale by Ryff (1989), found that self-compassion is positively related to psychological well-being, including the dimension of purpose in life. These findings are further in line with O'Dea et al. (2022) who found a strong positive correlation between presence of meaning in life and self-compassion ($r=.59$), and Chan et al. (2022) who found a moderately positive and significant association between self-compassion and meaning in life among university students ($r=.31$).

Chan et al. (2022) propose that self-compassion is linked to meaning in life in that self-compassion inclines individuals to respond to themselves with understanding, gentleness

and assurance when going through hardships, which facilitates emotional rebalancing. Together with an understanding that suffering is a normal feature of most people's lives this may give self-compassionate individuals more strength to face and overcome challenges in life which in turn may prompt individuals to see difficult experiences in a more positive light, less threatening and more meaningful, which promotes positive emotions and a sturdy sense of flourishing and life meaning. O'Dea et al. (2022) also support the notion that self-compassion is linked to meaning in life by functioning as a buffer during hard times and through the preservation and furthering of life meaning also shielding against the psychological harm associated with negative events. Furthermore, O'Dea et al. (2022) suggest that self-compassion, by unreservedly enhancing individuals' sense of worth and feelings of connectedness and fondness towards others, contributes to fulfilling two of the main requisites for sustaining a sense of meaning in life, namely self-worth and belongingness. Moreover, another underlying mechanism described is that self-compassion's positive effect on social relationships, such as that it disposes individuals to lend others a helping hand, can result in better social relationships which is regarded as highly important for a life of meaning (O'Dea et al., 2022).

Compassion for others

Pommier et al. (2020) found that women had significantly higher compassion for others scores than men, as was expected since women have been found to show more empathic concern than males (Eisenberg & Lennon, 1983). Although separate prosocial emotions, compassion for others and empathy are alike, both involving awareness, comprehension and resonance with other's emotions, only differing in that compassion also includes acceptance of one's own emotional responses and a drive towards taking measures to alleviate the suffering of others (Luberto et al., 2018). Furthermore, empathy and compassion have been shown to be positively associated (Lim & DeSteno, 2016). Pommier et al. (2020) further found that there was a nonsignificant association between compassion for others and age, and that individuals in general had higher levels of compassion for others than self-compassion. The correlation between the two just mentioned scales was small, although positive and significant. López et al. (2018) found in their study on 328 adults that compassion for others and self-compassion were not significantly related, which is in line with results of Neff and Pommier (2013) who found that self-compassion and other-focused concern were not correlated among students, although it might be expected that the link would

be stronger given the theoretical similarities between the compassion scale and the self-compassion scale.

As for the relationship between compassion for others and life satisfaction or other measures of well-being, the link is not as intuitive as the one between self-compassion and life satisfaction and the results are mixed. López et al. (2018) found that self-compassion was associated with lower levels of depressive symptoms and negative affect, and higher levels of positive affect, while compassion for others was not significantly related to any of them. Stoeber et al. (2020) used a sample of 311 undergraduate students, and found a significant correlation between self-compassion and satisfaction with life ($r=.41$) but an insignificant bivariate correlation between compassion for others and satisfaction with life ($r=.08$). Tendhar et al. (2022), however, investigated 651 undergraduate college students in the United States and found results indicating that self-compassion, compassion for others, and sense of well-being were all positively related.

Although there is a lack of research concerning the direct association between compassion for others and meaning in life, compassion has been regarded as a form of prosocial emotion that has been found to be positively associated with prosocial behavior (Luberto et al., 2018; Lim & DeSteno, 2016). Likewise, Pommier et al. (2020) found that compassion for others, although possibly being influenced by contextual characteristics, had a significant positive, albeit small, relationship with altruism. This is not surprising as, as previously noted, compassion for others among others encompasses a caring, attentive, and helpful attitude in relation to those others having a hard time (Pommier et al., 2020). Prosocial behavior has in turn been linked to meaning in life in several studies (Baumeister et al., 2013; Sherman et al., 2011; Klein, 2017), a relationship which Dakin et al. (2022) explain through three different pathways. Firstly, prosocial behaviors may, because of their favorable implications for others, elicit social approval for the executants which can feed into their mattering and purpose dimensions of meaning in life by enhancing the feeling of being of significance to the world around them. A different but linked pathway is that prosocial behaviors may be seen as important culturally and by acting prosocially a sense of meaning may be derived from the perception of living up to cultural expectations. Lastly, Dakin et al. (2022) propose that prosocial behavior may facilitate successful social connections, an important part of the meaningful life. All in all, prosocial behaviors may lead to meaning in life if supporting other's well-being is perceived as being of value and meaning to oneself

(Dakin et al., 2022). It may be suggested that compassion for others is related to meaning in life in a similar way. Lastly, implicit in the measure of compassion for others is as mentioned a sense of shared humanity and kindness towards others, which can be conceived as giving rise to the feelings of belongingness that were pointed out as a source of meaning by O’Dea et al. (2022) when explaining the linkage between self-compassion and life meaning. In some ways, the mechanisms behind self-compassion respectively compassion for others and life meaning may have some similarities.

Purpose, research questions and hypotheses

As noted, there is extensive support for the positive relation between self-compassion and life meaning, life meaning and life satisfaction, as well as between self-compassion and life satisfaction, including evidence of the causal relation from self-compassion to lower psychopathology. However, there are questions left unanswered around what the mechanisms between self-compassion and life satisfaction might be, and we argue that life meaning could be such a mechanism. Therefore, this study will investigate meaning in life as a potential mediating mechanism in the relation between self-compassion and life satisfaction. To our knowledge, this type of mediation analysis has not previously been conducted. Our empirical background gives support for investigating the relationship as going from self-compassion to life meaning, and not the other way around. There is support for reasoning that individuals who have higher self-compassion are more likely to be satisfied with life because a self-compassionate attitude brings feelings of meaningfulness.

Furthermore, the literature on compassion for others is sparse, with plenty of questions around the construct left insufficiently explored, such as why the link to life satisfaction often appears weak or insignificant and what the potential mechanisms between compassion for others and well-being might be. Thus, this study will also explore meaning in life as a mediating mechanism in the relationship between compassion for others and life satisfaction. Based on the previously discussed literature it is intuitive that being compassionate to others could be related to life satisfaction in a similar way as prosocial behavior is: because it is perceived as meaningful. This study thus aims to fill gaps in the literature by attempting to answer the following research questions with the accompanying, theoretically and empirically based, hypotheses:

(1) Are there gender differences in meaning in life, life satisfaction, self-compassion and compassion for others among university students in Sweden?

Hypotheses:

- a. There is a significant gender difference concerning meaning in life, with women having significantly higher meaning in life than men.
- b. There is no significant gender difference regarding life satisfaction.
- c. There is a significant gender difference in self-compassion, with men having significantly higher self-compassion than women.
- d. There is a significant gender difference in compassion for others, with women having significantly higher compassion for others than men.

(2) How do self-compassion, compassion for others, meaning in life and life satisfaction correlate among university students in Sweden?

Hypotheses:

- a. There is a significant positive correlation between meaning in life and life satisfaction.
- b. There is a significant positive correlation between self-compassion and life satisfaction.
- c. There is a significant small but positive correlation between compassion for others and life satisfaction.
- d. There is a significant positive correlation between self-compassion and meaning in life.
- e. There is a significant positive correlation between compassion for others and meaning in life
- f. There is a significant small but positive correlation between self-compassion and compassion for others.

(3) Given that there is a positive relation between self-compassion and life satisfaction among university students in Sweden, does meaning in life mediate this relationship?

Hypothesis: Meaning in life partially and significantly mediates the relationship between self-compassion and life satisfaction.

(4) Given that there is some positive relation between compassion for others and life satisfaction among university students in Sweden, does meaning in life mediate this relationship?

Hypothesis: Meaning in life partially and significantly mediates the relationship between compassion for others and life satisfaction.

Method

Participants

This study was designed as a cross-sectional, correlational study using a convenience sample of 265 university students above the age of 18 who fully or partially completed an online survey using Qualtrics. Students were recruited through social media and with help of professors from different faculties at Lund university. The data collection occurred from October to November 2022. Out of the 231 participants that fully completed the survey, 142 were female (61.5 %), 87 were male (37.7 %), and two individuals responded “other alternative” (0.9 %). The mean age of the sample was 23.2 years ($M=23.2$, $SD=3.90$) with range 18–50. Students were from different study backgrounds, with the dominating ones being “Social sciences/psychology/education/media” (29.4 %), “Technology/engineering” (23.8 %) and “Law/economics/business” (13.0 %), followed by “Medicine” (11.7 %), “Humanistics/humaniora/theology” (7.8 %), “Artistic studies” (3.9 %), “Natural sciences” (2.6 %), “Mathematics and statistics” (2.2 %) and “Other” (5.6 %). As for the students' origin, 87.9 percent of them had a Swedish background, 7.4 percent came from a different European background and the remaining 4.7 percent came from countries outside of Europe. The 34 participants that only partially answered the survey were similar to those that fully answered the survey in regard to demographic variables such as gender, age and country of origin.

Measures

All scales were translated from English to Swedish through a reverse translation process to verify the concordance of the translation in regards to the original text. The rest of this section will present the measures used in the questionnaire.

The multidimensional existential meaning scale (MEMS). Meaning in life was measured with the multidimensional existential meaning scale (MEMS) by George and Park (2017), assessing meaning in life with a multidimensional approach comprising the concepts of comprehension, purpose and mattering, which are measured as independent concepts through three subscales. MEMS consists of 15 items, rated on a 7-point Likert scale from 1 (very strongly disagree) to 7 (very strongly agree), with five items per subscale. Examples of items include “My life makes sense” (comprehension), “I have aims in my life that are worth striving for” (purpose) and “Even a thousand years from now, it would still matter whether I existed or not” (mattering). Item 2, “There is nothing special about my existence” was reverse coded. Subscale scores were calculated by averaging items on each subscale, higher total

scores indicating greater comprehension, purpose and mattering. A total meaning in life score was calculated by averaging the sum of all 15 items. George and Park (2017) found support that the MEMS subscales correlated strongly with other meaning in life measures, had good test-retest reliability and internal consistency as measured through Cronbach's alpha (comprehension: 0.90, purpose: ≥ 0.88 , mattering: ≥ 0.84).

The satisfaction with life scale (SWLS). The Satisfaction With Life Scale (SWLS) by Diener et al. (1985) is a self-report and multi-item scale measuring life satisfaction through the respondent's cognitive assessment of their life quality in general. The scale consists of five items ranked on a 7-point Likert scale ranging from 1 (disagree totally) to 7 (agree totally). In order, the items are "In most ways my life is close to ideal", "The conditions of my life are excellent", "I am satisfied with my life", "So far I have gotten the important things I want in life" and "If I could live my life over, I would change almost nothing". Summing together these five items, a life satisfaction score was created, with a total score of 5 responding to low satisfaction whereas a score of 35 equals high satisfaction. Diener et al. (1985) found evidence for high internal consistency (Cronbach's alpha: 0.87) and high temporal reliability for this scale.

The self-compassion scale short form (SCS-SF). To measure self-compassion, the 12-item self-compassion scale short form was used (Raes et al., 2011), which is a shorter form of the 26-item self-compassion scale (SCS) created by Neff (2003b). This is a self-report questionnaire that measures how often people engage in the various behaviors or thoughts that align with the different elements of self-compassion as theorized by Neff (2003a). The SCS-SF has been shown to correlate strongly with the SCS ($r \geq 0.97$) and as with the SCS, analyses of the SCS-SF support a structure of six factors (over-identification, self-kindness, mindfulness, isolation, common humanity and self-judgment) which in combination correspond to a sole higher-order self-compassion factor (Raes et al., 2011). Examples are "I try to be understanding and patient towards those aspects of my personality I don't like." (self-kindness), "I try to see my failings as part of the human condition." (common humanity), and "When something painful happens I try to take a balanced view of the situation." (mindfulness). According to the original SCS-SF, responses are given on a scale from 1 (almost never) to 5 (almost always). However, due to a clerical error, responses in this study were given on a scale from 1 (almost never) to 4 (almost always). Overall self-compassion scores were calculated by reverse coding the self-judgment, isolation, and over-identification

items and summing all six subscale means. This resulted in a self-compassion score that represents an individual's trait-like propensity to respond with self-compassion. There is extensive evidence for the validity and reliability of the SCS-SF with a Cronbach's alpha ≥ 0.86 (Neff & Tóth-Király, 2022; Raes et al., 2011).

The compassion scale (CS). Pommier et al. (2020) created the 16-item compassion scale which is a self-report questionnaire that measures how often people feel or behave in the various manners that align with the different elements of the conceptualization of compassion for others by Pommier et al. (2020). Examples are "If I see someone going through a difficult time, I try to be caring toward that person" (kindness), "Everyone feels down sometimes, it is part of being human" (common humanity), "I notice when people are upset, even if they don't say anything" (mindfulness) and "I think little about the concerns of others" (indifference). Responses are given on a scale from 1 (almost never) to 5 (almost always), and as with the SCS, the subscales are thought to be measured separately or as a total score. Overall compassion scores were calculated by reverse coding the indifference item and summing all four subscale means. Pommier et al. (2020) provide evidence regarding reliability, discriminant, convergent, construct, and known-groups validity for the 16-item CS used in this study. Furthermore, the internal consistency for CS was found to correspond to a Cronbach's alpha ≥ 0.77 (Pommier et al., 2020).

Procedure and ethical considerations

Informed consent was obtained prior to the start of the survey, the participants were informed that the study's purpose was to investigate how life meaning, well-being, self-compassion and compassion for others are related. Furthermore, it was stated that participation was voluntary and could be withdrawn at any time without an explanation, and that the data would be handled confidentially in line with local regulations. An email address was provided at the start and at the end of the survey in case participants had further questions, would like to withdraw their answers, or wanted to be informed about the study's results. The survey was not deemed to include any questions that posed any ethical risks to participants and measures were taken to ensure respondents anonymity, including not collecting any email addresses or names connected to the answers.

The survey took around ten minutes, and all students were required to respond to all items of each psychological measure to prevent missing data. However, 34 participants ended the questionnaire before completing all measures, and thus only partially answered the survey.

Psychological measures included, in order, the self-compassion scale (12 items), the compassion scale (16 items), the satisfaction with life scale (5 items) and the multidimensional existential meaning scale (15 items).

Data analysis strategy

The statistical program Jamovi 2.2.5 was utilized for the data analysis. The assumption of normality was controlled for by investigating histograms which indicated that the data followed a normal distribution. Skewness and kurtosis values were checked, and no values of importance stood out. Linearity was visually checked through scatterplots. The boxplots of the variables were investigated and four univariate outliers were identified, one in the self-compassion scale and another three in the compassion scale. The substitution technique used to correct for these was winsorization, which means replacing the outlier value with the closest value within the expected normal distribution (Tabachnick et al., 2007).

The data analysis that followed included tests of internal consistency through Cronbach's alpha for all measures. Correlations between MEMS, SWLS, SCS, CS and subcategories for MEMS were measured through Pearson's r and the gender analysis was conducted through independent samples t-test. The gender category of 'other' was not included in this test as there were only two individuals in this category. Furthermore, Jamovi's built-in regression-based techniques of mediation was used to assess meaning in life as a mediating variable in the relationship between self compassion and life satisfaction respectively compassion for others and life satisfaction. The used alpha level for all statistical tests was $\alpha=0.05$.

Results

Descriptive statistics and gender differences

Table 1 includes total mean values and standard deviations for all scales and subscales, with the corresponding means and standard deviations separated by gender. The number of observations differed between measures, since some participants completed only parts of the survey. However, a trial analysis using only data from participants that completed all survey questions indicated similar results, suggesting the usability of the partially answered survey responses which were hence retained in the analysis.

To answer research question 1 concerning gender differences, p-values from t-tests investigating whether differences in means are statistically significant were included. The results showed that there was no statistically significant difference in life satisfaction between

genders ($t(232)=1.76, p=0.080$), although the p-value was not far from the chosen threshold of $\alpha=0.05$. Women, however, did have higher meaning in life ($M = 4.66, SD = 1.08$) than men ($M = 4.26, SD = 1.11$), and this difference was significant ($t(227)=2.71, p=0.007$). Furthermore, women also scored significantly higher on compassion for others ($M = 16.7, SD = 1.64$) than men ($M = 15.8, SD = 1.74$), $t(235)=3.80, p<.001$. Contrary, men rated significantly higher on self-compassion ($M = 14.9, SD = 3.24$) than women ($M = 14.1, SD = 3.03$), $t(260)=-2.01, p=0.046$. This result seemed to be mostly driven by men's significantly higher mean scores on the subscale "mindfulness" ($M = 3.19, SD = 0.72$) in relation to women ($M = 2.93, SD = 0.68$), $t(260)=-2.92, p=0.004$, and women's significantly higher mean scores on the subscale "over-identification" ($M = 3.26, SD = 0.73$) in contrast to men ($M = 2.98, SD = 0.77$), $t(260)=3.02, p=0.003$.

The results largely corresponded to the hypotheses connected to research question 1, which expected significant gender differences as theorized in meaning in life, self-compassion and compassion for others but not for life satisfaction.

Table 1

Descriptive statistics for total sample and divided by gender

	N	Total Mean (SD)	Women Mean (SD)	Men Mean (SD)	Diff. p-value
Meaning in life (MEMS)	231	4.50 (1.11)	4.66 (1.08)	4.26 (1.11)	0.007
<i>Comprehension</i>	231	4.57 (1.24)	4.76 (1.14)	4.29 (1.34)	0.006
<i>Purpose</i>	231	5.38 (1.24)	5.48 (1.19)	5.24 (1.32)	0.155
<i>Mattering</i>	231	3.55 (1.54)	3.75 (1.56)	3.25 (1.47)	0.015
Life satisfaction (SWLS)	236	23.4 (6.05)	23.9 (5.73)	22.5 (6.46)	0.080
Self-compassion (SCS)	265	14.4 (3.13)	14.1 (3.03)	14.9 (3.24)	0.046
<i>Self-kindness</i>	265	2.50 (0.70)	2.51 (0.64)	2.48 (0.79)	0.717
<i>Self-judgment (n.r.)</i>	265	2.60 (0.82)	2.64 (0.79)	2.54 (0.88)	0.337
<i>Common humanity</i>	265	2.54 (0.76)	2.56 (0.78)	2.50 (0.73)	0.601
<i>Isolation (n.r.)</i>	265	2.94 (0.81)	3.02 (0.83)	2.81 (0.78)	0.034
<i>Mindfulness</i>	265	3.03 (0.70)	2.93 (0.68)	3.19 (0.72)	0.004
<i>Over identification (n.r.)</i>	265	3.15 (0.76)	3.26 (0.73)	2.98 (0.77)	0.003
Compassion for others (CS)	239	16.3 (1.73)	16.7 (1.64)	15.8 (1.74)	<.001
<i>Kindness</i>	239	4.30 (0.57)	4.42 (0.51)	4.10 (0.63)	<.001
<i>Common humanity</i>	239	4.11 (0.64)	4.11 (0.62)	4.11 (0.69)	0.997
<i>Mindfulness</i>	239	4.17 (0.54)	4.25 (0.55)	4.04 (0.50)	0.003
<i>Indifference (n.r.)</i>	239	2.26 (0.65)	2.14 (0.59)	2.47 (0.69)	<.001

Note: Cronbach's alpha was as follows: MEMS 0.907, SWLS 0.869, SCS 0.817, and CS 0.813. The number of observations by gender were: MEMS 142 women, 87 men; SWLS 146 women, 88 men; SCS 162 women, 100 men; CS 148 women, 89 men. n.r.=not reversed.

Pearson's correlations

To answer research question 2 regarding the correlations between all measures, Table 2 presents Pearson's correlations between meaning in life (with the three subscales comprehension, mattering and purpose), life satisfaction, self-compassion and compassion for others. The results revealed that meaning in life and life satisfaction were strongly to moderately correlated, $r(229)=0.566$, $p<.001$, and this relationship was strongest for the life meaning subscale of comprehension, $r(229)=0.649$, $p<.001$. As for self-compassion, this measure was moderately correlated with both meaning in life, $r(229)=0.381$, $p<.001$, and life satisfaction, $r(234)=0.412$, $p<.001$, suggesting that those who are self-compassionate tend to experience more meaning in life as well as being more satisfied with life in general. Last, compassion for others was weakly correlated with self-compassion, $r(237)=0.167$, $p=0.010$, and life satisfaction, $r(234)=0.151$, $p=0.020$, with a significance level of five percent. The correlation between compassion for others and meaning in life was somewhat stronger, $r(229)=0.270$, $p<.001$. The results thus confirmed the hypotheses connected to research question 2, namely that self-compassion, meaning in life and life satisfaction are positively correlated, and that compassion for others is positively related to self-compassion, life satisfaction and meaning in life, with a weaker connection to the former two factors.

Table 2

Pearson's correlations with p-values

	MEMS	SWLS	SCS	CS
Life meaning (MEMS)	1			
	—			
MEMS-Comprehension	0.880*** <.001	0.649*** <.001	0.395*** <.001	0.277*** <.001
MEMS-Purpose	0.787*** <.001	0.399*** <.001	0.222*** <.001	0.215** 0.001
MEMS-Mattering	0.815*** <.001	0.376*** <.001	0.324*** <.001	0.186** 0.005
Life satisfaction (SWLS)	0.566*** <.001	1 —		
Self-compassion (SCS)	0.381*** <.001	0.412*** <.001	1 —	
Compassion for others (CS)	0.270*** <.001	0.151* 0.020	0.167* 0.010	1 —

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

Meaning in life as a mediating mechanism

To answer research question 3, Table 3 presents pathways from a mediation analysis of life meaning on the relation between self-compassion and life satisfaction. The results show that life meaning did partially mediate this relationship ($\beta=0.352$, $SE=0.070$, $p<.001$); self-compassion positively predicted life meaning ($\beta=0.135$, $SE=0.022$, $p<.001$) and life meaning further positively predicted life satisfaction ($\beta=2.619$, $SE=0.310$, $p<.001$). The effect of self-compassion on life satisfaction through life meaning accounted for 44.4 % of the total effect. There was also a significant direct effect ($\beta=0.441$, $SE=0.110$, $p<.001$) independent of level of meaning in life and thus due to other mechanisms. The total effect on life satisfaction ($\beta=0.793$, $SE=0.116$, $p<.001$) is the sum of the indirect and the direct effect of self-compassion, and the size of the coefficient reveals that a one standard deviation increase in the score on the self-compassion scale was associated with a 0.793 standard deviation higher score on the satisfaction with life scale.

Table 3

Mediation model pathways, self-compassion

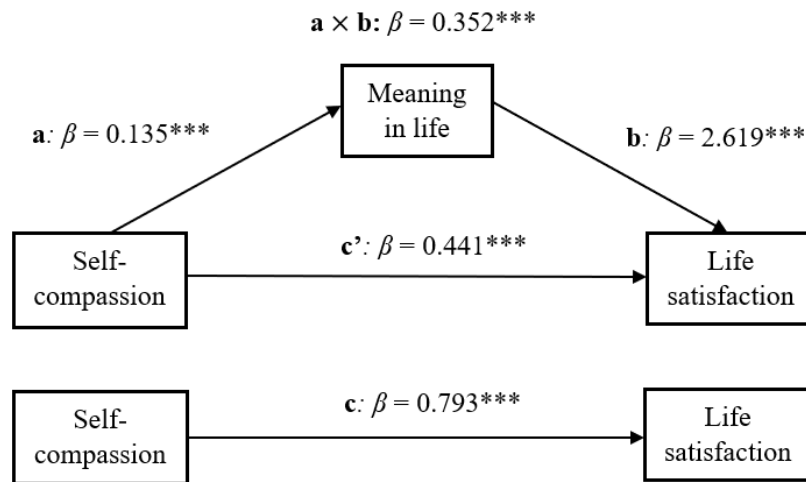
	Estimated effect	SE	p	% mediation
Direct effect				
Self-compassion → Meaning in life (a)	0.135***	0.022	<.001	
Meaning in life → Life satisfaction (b)	2.619***	0.310	<.001	
Self-compassion → Life satisfaction (c')	0.441***	0.110	<.001	55.6
Indirect effect				
Self-compassion → Meaning in life → Life satisfaction (a×b)	0.352***	0.070	<.001	44.4
Total effect				
Self-compassion → Life satisfaction (c = c' + a×b)	0.793***	0.116	<.001	100.0

Note: * $p<.05$, ** $p<.01$, *** $p<.001$. Standardized beta is used in the analysis.

Figure 1 illustrates the results from Table 3, where the indirect effect (ab) of self-compassion on life satisfaction is the product of the pathway self-compassion–meaning in life (a) and the pathway meaning in life–life satisfaction (b). The total effect (c) of self-compassion on life satisfaction is the sum of the indirect (ab) and the direct effect (c'). Consequently, the findings confirm the hypothesis related to research question 3; there is partial mediation whereby almost half of the effect of self-compassion on life satisfaction is mediated by meaning in life.

Figure 1

Self-compassion and life satisfaction, mediated by life meaning



To answer research question 4, Table 4 presents pathways from a mediation analysis of life meaning on compassion for others and life satisfaction. The results show that level of meaning in life was fully mediating the relationship ($\beta=0.543$, $SE=0.139$, $p<.001$) since compassion for others predicted positively life meaning ($\beta=0.176$, $SE=0.041$, $p<.001$) and life meaning predicted positively life satisfaction ($\beta=3.093$, $SE=0.308$, $p<.001$). The direct effect was not only insignificant but also zero in magnitude ($\beta=0.002$, $SE=0.201$, $p=0.992$). Thus, the effect of compassion for others on life satisfaction was due to the fact that compassion for others was positively related to meaning in life. The size of the coefficient for the total effect ($\beta=0.545$, $SE=0.232$, $p=0.019$) reveals that a one standard deviation increase in the CS score was associated with a 0.545 standard deviation higher score on the satisfaction with life scale.

Table 4

Mediation model pathways, compassion for others

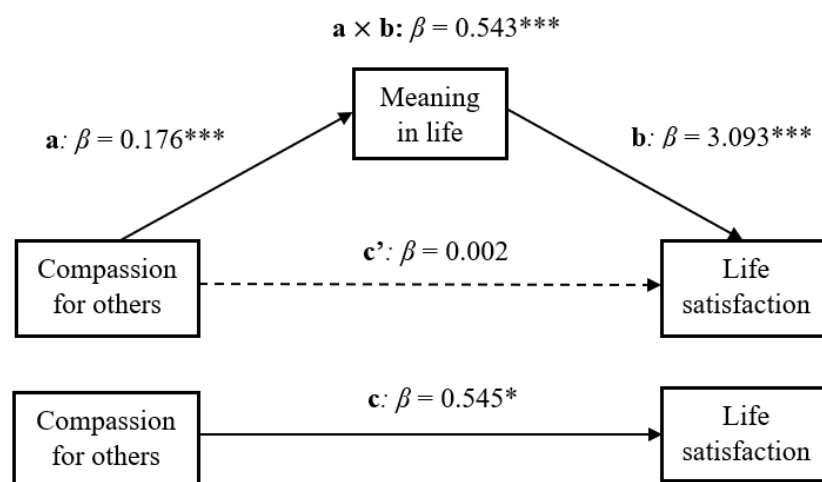
	Estimated effect	SE	p	% mediation
Direct effect				
Compassion for others → Meaning in life (a)	0.176***	0.041	<.001	
Meaning in life → Life satisfaction (b)	3.093***	0.308	<.001	
Compassion for others → Life satisfaction (c')	0.002	0.201	0.992	0.38
Indirect effect				
Comp. for others → Meaning in life → Life satisfaction (a×b)	0.543***	0.139	<.001	99.62
Total effect				
Compassion for others → Life satisfaction (c = c'+a×b)	0.545*	0.232	0.019	100.0

Note: * $p<.05$, ** $p<.01$, *** $p<.001$. Standardized beta is used in the analysis.

Figure 2 illustrates the results, where the dotted line represents the insignificance of the direct effect (c') of compassion for others on life satisfaction. Instead, the effect goes through life meaning ($c \approx ab$), which again is the product of path a and path b. Table 4 and Figure 2 thus shows that the findings are in line with the hypothesis related to research question 4 since meaning in life mediates the relationship between compassion for others and life satisfaction. However, this mediation was stronger than expected as it is a full instead of a partial mediation.

Figure 2

Compassion for others and life satisfaction, mediated by life meaning



Discussion

Findings: explanations

Research question 1. To start with, findings from our first research question suggested that women had significantly higher mean levels of meaning in life than men, which is in line with our hypothesis that anticipated women to have higher meaning in life than men. This is supported by similar results by Steger et al. (2009) that found women to have a significantly higher presence of meaning than men and the explanation by Yu et al. (2017) that attributed this disparity to differences in lifestyle choices and lifestyle development between men and women. Furthermore, no significant difference in life satisfaction between genders were found in this study, corresponding to the earlier reported Eurostat (2021) findings that women and men in the European Union rated their life satisfaction fairly equal.

Women in the present study did have significantly higher compassion for others than men, while the corresponding result for self-compassion was the opposite. This is in line with what was anticipated, and previous studies have linked women's higher compassion for others scores to the fact that women generally show more empathic concern than males (Pommier et al., 2020; Eisenberg & Lennon, 1983) and their lower levels of self-compassion to the fact that women tend to internalize negative emotions more than men (Yarnell et al., 2015; Leadbeater et al., 1999). Our results are in line with this rumination explanation, since differences in self-compassion scores in this study was suggested to be mainly driven by women's less balanced perspective on difficult life experiences or disliked aspects of themselves, such that they either tended to ignore or ruminate more on these experiences or aspects of their lives than men (mindfulness vs. over-identification). These findings suggest that women in general may have a greater need for self-compassion training and men from compassion for others exercises. However, future research is needed to examine if there also may be gender differences in the function that self-compassion and compassion for others have in regard to meaning in life in order to clarify if interventions to increase meaning in life should be designed differently for different genders.

Research question 2. Results of the second research question investigating correlations between our measures showed that meaning in life and self-compassion were moderately to strongly related to satisfaction with life, confirming previous literature that consistently has found that both meaning in life and self-compassion are predictors of well-being including life satisfaction (for example Zessin et al., 2015; Neff, 2022). Self-compassion was further moderately related to meaning in life, which gives indication that feelings of kindness, connectedness, and presence are not only satisfying but also meaningful, results that are in line with for example Chan et al. (2022) and O'Dea et al. (2022). The relation found between compassion for others and self-compassion was positive but weak in our study, as was the association between compassion for others and life satisfaction. This too was expected, since the literature generally shows weak or no associations between compassion for others and self-compassion as well as on compassion for others and life satisfaction (for example Pommier et al., 2020; López et al., 2018; Stoeber et al., 2020). However, our results suggested that compassion for others had a somewhat stronger relation to meaning in life than to life satisfaction. Although the literature in this area is scarce, some connections could be drawn from these results to the positive effects that prosocial behavior

has on meaning in life (Dakin et al., 2022). Furthermore, the results revealed that self-compassion had a stronger relation to meaning in life and life satisfaction than had compassion for others. That is, in line with previous studies, self-compassion was a better predictor of life satisfaction than was compassion for others.

Research question 3. Findings from this study's third research question suggested partial mediation of meaning in life in the relationship between self-compassion and life satisfaction. This is in line with our hypothesis and previous theoretical work which connected self-compassion with meaning in life and life satisfaction respectively, as well as linking meaning in life and life satisfaction. This finding is of importance as it suggests meaning in life as a possible explanatory variable in the relationship between self-compassion and life satisfaction, extending existing theoretical understanding of why self-compassion and life satisfaction are associated. Such a relationship between the variables is in consonance with the previously discussed reasonings by Chan et al. (2022), which conceived self-compassion as filling a safeguarding function of meaning in hard times, a notion that O'Dea et al. (2022) also proposed. The latter further argued that the self-compassion–meaning in life connection may be due to the enhancement of a sense of worth, feelings of connectedness and social relationships that self-compassion offers, which are sources of meaning. In turn, the link between meaning in life and life satisfaction can, as noted, be explained either directly through employing the meaning maintenance model by Heine et al. (2006) or indirectly through meaning in life's promotion of other underlying variables important to subjective well-being (Li et al., 2021).

In the present study, the finding that the positive effect of self-compassion on life satisfaction may go through meaning in life is of practical importance as it has implications for how interventions to increase life satisfaction are designed. To increase life satisfaction, more interventions should focus on increasing meaning in life among target populations, which highlights the importance of being knowledgeable of which factors strengthen meaning in life. As found and explained in this study, besides directly heightening life satisfaction, self-compassion is suggested to be such a factor that also increases life satisfaction by enhancing meaning in life, and future research should furthermore set out to further the understanding of how self-compassion specifically relates to the subdimensions of meaning in life. Earlier studies, such as by Ferrari et al. (2019), have as previously noted indicated that self-compassion can be successfully improved through self-compassion-based interventions,

making it a viable factor to focus on in interventions aimed at improving meaning in life and life satisfaction. Ferrari et al. (2019) also found that self-compassion based interventions have a significant impact on rumination outcomes. This suggests that women, who showed higher levels of the self-compassion subcategory of overidentification in this study, would benefit particularly from these types of interventions.

Besides self-compassion, King and Hicks (2021) have also pointed out positive affect, social connections, religion and worldviews, being in touch with oneself, mental time travel, mortality awareness as antecedents of meaning in life, underscoring the importance of addressing their interaction with meaning in life and life satisfaction in future research to further develop interventions aimed at enhancing life satisfaction. However, as the mediation of meaning in life is only partial, there are also other possible explanatory variables behind the relationship between self-compassion and life satisfaction, and as the research on self-compassion is still developing, these factors should be further identified and explored. As mentioned in the beginning, life satisfaction is for example influenced by many different psychological factors such as personality, coping mechanisms, and goals which besides meaning in life could be focused on in interventions to increase life satisfaction (Diener et al., 1999).

Research question 4. Lastly, the results from this study's fourth research question also indicated meaning in life as an explanatory variable in the relationship between compassion for others and life satisfaction. Surprisingly, the relationship between compassion for others and life satisfaction was entirely absorbed by meaning in life, suggesting this is an important mechanism. This finding is to some extent in accordance with the hypothesis, although only a partial and not a full mediating effect was expected. It could be argued that one reason for the relationship between compassion for others and life satisfaction often being weak is that meaning in life is a more important variable in regards to life satisfaction, although life satisfaction is indirectly affected by compassion for others in this way. These findings are supported by previous research that, as mentioned, has described compassion for others as a form of prosocial emotion associated with prosocial behavior (Luberto et al., 2018; Lim & DeSteno, 2016). Dakin et al. (2022) have connected prosocial behavior to life meaning as it may induce a feeling of being of significance to others and may facilitate successful social connections which are important components of a meaningful life. Also, a sense of meaning may be derived from prosocial behavior due to the perception of living up to cultural

expectations (Dakin et al., 2022). However, there is still a call for research further exploring how the link between compassion for others and meaning in life may be explained in a more straightforward manner, as this link has not been as extensively investigated as the one between self-compassion and life meaning. On that note, the linkages between compassion for others and the subdimensions of meaning in life should also be further addressed.

In the present case, meaning in life being suggested as an important explanatory variable in the relationship compassion for others–meaning in life is of theoretical importance in that it furthers the understanding for how compassion for others is related to other important variables relating to the optimal human life. Furthermore, it confirms earlier studies that identified meaning in life as a psychological factor that increases life satisfaction. Such an advancement in theoretical comprehension of variables associated with life satisfaction has the practical implication of shedding further light on what variables governments, organizations, researchers, and private individuals should consider when seeking to improve life satisfaction. In regard to compassion for others, this research indicates that meaning in life should be of primary importance in this respect, as compassion for others primarily seems to serve the function of being associated with meaning in life rather than in itself being important for life satisfaction, without trivializing the other social benefits compassion to others may have. Last, as meaning in life is indicated to be an important factor for life satisfaction as well as an important mechanism for the relation between compassion (both for self and for others) and life satisfaction, future research should investigate the concept of meaning in life in this setting more precisely. The results in the present study indicated that it is the subscale of comprehension that has the strongest connection to life satisfaction, which is in accordance to results by George and Park (2017), and future studies focusing on this aspect of meaning in life could increase the understanding of the compassion–meaning in life–life satisfaction relationship even more.

Strengths and limitations

An important limitation regards causality. Even though path analysis is an extension of regression where it is believed there is a causal order to the variables, it is not an actual causal model because it uses cross-sectional data and thus examines associations rather than time order relationships. A causal argument could be strengthened if longitudinal data had been used where compassion was measured first, then meaning in life, and last life satisfaction, or, even more preferably, if an experimental setting had been used. When all variables are

measured simultaneously the possibility that the true model goes in the opposite direction cannot be ruled out, nor can confounding variables be ruled out. For example, a person with a high level of life satisfaction might have it due to other reasons than self-compassion, and that may have led to a more self-compassionate behavior. Even though it is an important limitation that path models do not prove causality, they can still enrich the understanding of influence processes, especially in the case where the way that the variables are ordered is due to support of theoretical reasoning. Future studies employing an experimental design, for example by investigating the impact of self-compassion based techniques on meaning in life and life satisfaction, would allow for a stronger causal argument concerning the effect of compassion on meaning in life and life satisfaction. Furthermore, addressing in what way meaning in life may instead influence compassion to others, may be another future research area of value.

Another set of limitations pertains to the sample used in this study. As this study partially utilized convenience sampling via social media to recruit participants, the sample is not completely random. However, the sample was quite diverse in regards to representing students from several different study backgrounds, which can be seen as a strength as results are likely to be generalizable across students. As findings from the correlational analysis seem to be in line with other studies performed in other countries, to some extent the results may be generalizable outside of Sweden. Nevertheless, future research in other geographical and demographic settings is needed to establish if similar variables as in this study are of importance in improving life satisfaction in other countries and for other populations. Lastly, it could be likely that students that answered the survey are more likely to have higher compassion for others than the general population, since they agreed to help someone out by filling out their survey. As the survey was only around ten minutes long and the stakes for participating consequently were quite low, it is however questionable if this difference is of any gravity.

Furthermore, as pointed out in the method section, due to a clerical error, self-compassion was measured on a 4-point rating scale instead of a 5-point scale, as used by Raes et al. (2011). This essentially entailed omitting the neutral middle rating “sometimes/sometimes not”, impelling participants to instead rate their answer in a more negative or positive direction, and possibly rendering the results incomparable on a detailed level when it comes to means and standard deviations in comparison to earlier studies. Nonetheless, as these systematic higher or lower ratings are likely to have canceled each other

out and the results seem to be in line with previous empirical research and theoretical reasonings, the measure was still deemed as being a valid assessment of self-compassion. Furthermore, as for the student's t-tests, Pearson's correlation and meditation estimates, the error is insubstantial.

Lastly, life satisfaction was used instead of a full subjective well-being measure, which can be regarded as both a strength and a limitation. Previous studies on meaning in life, self-compassion and compassion for others have often measured all components of subjective well-being simultaneously but separately (life satisfaction, negative affect, positive affect). In order to gain a more in-depth understanding of the ways in which subjective well-being is linked to other variables, it is valuable to discriminate between the different components of subjective well-being and investigate their connections with other variables separately, since their respective connections can vary (Diener et al. 1999). However, this study has instead of investigating separate connections for all three components focused only on life satisfaction, as it has been deemed the most relevant variable in relation to the other variables studied, among others as both meaning in life and life satisfaction are cognitive in nature, evaluations concerning life satisfaction and meaning in life relating to a lot of similar brain functions (Li et al., 2021).

Conclusion

In short, this study indicates that meaning in life is an important explanatory factor in the self-compassion–life satisfaction and the compassion for others–life satisfaction relationships, although the mediation mechanism was stronger for the latter relationship. In turn, compassion for others and self-compassion are significant predictors of meaning in life, suggesting them as viable factors to increase meaning in life, which because of its aforementioned positive life outcomes is a valuable goal in itself but which subsequently also is positively associated with life satisfaction. However, to create effective interventions enhancing meaning in life it may be important to take into account what predictors of meaning in life are most effective to aim to increase for different populations and in different contexts. All in all, self-compassion, compassion for others and meaning in life are all important variables to focus on in relation to life satisfaction, which is a valued goal.

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