

# “Self-compassion and life satisfaction in Vietnamese adolescents: the mediating role of emotional and behavioral problems”

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## Abstract

**Purpose** – The current study aims to examine the relationship between self-compassion and life satisfaction in Vietnamese adolescents and investigate the possibility that emotional and behavioural problems mediate this relationship.

**Design/methodology/approach** – Quantitative means of data collection and analysis were used to investigate the relationship between self-compassion and life satisfaction and the underlying mechanism of this relationship. A set of questionnaires was presented to a sample of 828 adolescents ( $M$  age = 14.61;  $SD = 1.08$ ) aged 14–17 years from two secondary schools and two high schools in Thua Thien Hue Province, Vietnam. This helped to determine their self-compassion (self-compassion scale), emotional and behavioural problems (strengths and difficulties questionnaire) and life satisfaction (life satisfaction scale). Instruments reflected satisfactory reliability and validity.

**Findings** – The results show that self-warmth was positively associated with life satisfaction and that self-coldness was positively associated with emotional and behavioural problems and negatively associated with life satisfaction in Vietnamese adolescents. Emotional and behavioural problems fully mediated the negative relationship between self-coldness and life satisfaction.

**Practical implications** – It is implied that intervention programmes should be tailored to both promote self-compassionate behaviours and reduce self-coldness, to increase life satisfaction in adolescents.

**Originality/value** – The research available on the relationship between self-compassion and life satisfaction in adolescents, especially adolescents from Southeast Asia, is very sparse. More significantly, the underlying mechanisms behind this relationship are not yet fully understood.

**Keywords** Self-compassion, Life satisfaction, Emotional/behavioural problems, Vietnamese, Adolescents

**Paper type** Research paper

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## 1. Introduction

“Life satisfaction is the degree to which a person positively evaluates the overall quality of his/her life as a whole. In other words, how much the person likes the life he/she leads” (Veenhoven, 1996; p.13).

Life satisfaction is very beneficial for the lives of children and teenagers because it plays such an important role in enhancing positive social relationships and academic success and reducing the negative effects of stress and psychological problems and disorders (Marquez *et al.*, 2022; Piko, 2023; Ripoll-Nunez *et al.*, 2020; Tiwari and Saroj, 2021).

Most studies find that children and adolescents’ life satisfaction is in the positive range (e.g. Kelishadi, 2016; Kuntsche and Gmel, 2004; Nickerson and Nagle, 2004). However, it is

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noteworthy that research findings also demonstrate that global life satisfaction rapidly decreases during adolescence, and these findings are similarly supported by international research (Daly, 2022; Goldbeck *et al.*, 2007). Given the emphasis on the association of lower life satisfaction with psychological and social problems, these findings are crucial and call for a closer investigation concerning potential risk factors as well as protective influences (Goldbeck *et al.*, 2007).

Previous studies (e.g. Athanasakou *et al.*, 2020; Min *et al.*, 2022; Tran *et al.*, 2022) indicate that people with greater self-compassion have higher levels of life satisfaction, social relationships, emotional aptitude and happiness and lower scores on anxiety, depression, discomfort, fright or failure and anger. Practising self-compassion to enhance life satisfaction in adolescents is a reasonable approach (Boggiss *et al.*, 2020; Seekis *et al.*, 2023; Tweed, 2029; Yildirim and Sari, 2022); however, to our best knowledge, the research available on the relationship between self-compassion and life satisfaction in adolescents, especially adolescents from South East Asia, is very sparse. More significantly, the underlying mechanisms behind this relationship are not yet fully understood (Shin, 2019; Yang *et al.*, 2016). Therefore, this study aimed to determine the relationship between self-compassion and life satisfaction in Vietnamese adolescents. Moreover, the present study was extended to examine whether emotional and behavioural problems could mediate the positive relationship between self-compassion and life satisfaction in Vietnamese adolescents.

## 2. Self-compassion and life satisfaction

Neff (2003) defined self-compassion as kindness towards the self, which entails being gentle, supportive and understanding, especially when faced with difficult life struggles or confronting personal mistakes, failures and inadequacies (Neff, 2003). In designing this measure, Neff conceptualised this construct as comprising of three *self-warmth* facets – self-kindness (taking time to reflect on our situation as a part of life’s journey and embracing ourselves with warmth); common humanity (recognising that suffering and feelings of personal inadequacy are part of the shared human experience); and mindfulness (maintaining a non-biased awareness of experiences, even those that are painful) – as well as the absence of three *self-coldness* facets; namely, self-judgement (harshly criticising oneself), isolation (recognising that suffering happens to “me” alone) and over-identification (ignoring or exaggerating the effect of negative events) (Brenner *et al.*, 2018).

Self-compassion has been associated with life satisfaction in college students and adult samples but has rarely been assessed in adolescents. Overall, the results in these populations showed that self-compassion was significantly and positively related to life satisfaction across individualism and collectivism societies (Shin, 2019; Wang and Lou, 2022). Specifically, the results also showed that all three self-warmth components (i.e. self-kindness, common humanity and mindfulness) were positively related to life satisfaction (Fleming, 2021; Kim and Ko, 2018), while the two self-coldness components (i.e. self-judgement and isolation) were negatively related to life satisfaction (Anggraeni and Kurniawan, 2012). There was no correlation between over-identification and life satisfaction (Anggraeni and Kurniawan, 2012; Fleming, 2021).

As for the underlying mechanism in the relationship between self-compassion and life satisfaction among adults, we are aware of only three studies suggesting that positive automatic thought (Arimitsu and Hofmann, 2015), hope (Yang *et al.*, 2016; Tran, 2022) and anxiety (Shin, 2019) are mediators. However, Yang *et al.* (2016) criticised that automatic thought probably could not explain this relationship sufficiently, because it does not address how self-compassion conveys its beneficial effects of self-compassion for life satisfaction. Yang *et al.* (2016) speculated that hope mediates the self-compassion–life satisfaction relationship; therefore, it is reasonable for Yang *et al.* (2016) to explain that self-compassion allows individuals to take a non-judgmental attitude towards themselves and to

have adaptive coping strategies for failure. This helps individuals to set desired goals in life and strengthen their confidence to reach those goals through plausible pathways. This combination of hopeful thinking and goal-related motivation, in turn, leads to higher life satisfaction. In the same vein, considering the mental health of Vietnamese college students during the COVID-19 pandemic, [Tran et al. \(2022\)](#) also found that hope was a mediator of the relationship between self-compassion and life satisfaction, which suggests interventions on self-compassion enhance hope and subsequently increase students' mental health. In another aspect, [Shin \(2019\)](#) speculated that anxiety might account for the mechanism underlying the self-compassion–life satisfaction relationship. Accordingly, college students with high self-compassion tended to experience less employment anxiety, and, in turn, have greater life satisfaction. [Shin \(2019\)](#) explained this mechanism in three ways:

1. college students actively comfort themselves when fear of future unemployment arises and remain resilient in challenging situations;
2. shared normal and universal unemployment anxiety helps college students feel connected with their competitors; and
3. mindful awareness helps college students focus on the present moment rather than feeling overly worried about future employment.

### **3. Emotional and behavioural problems as a potential mediator between self-compassion and life satisfaction**

#### ***3.1 Self-compassion and emotional behavioural problems***

Emotional and behavioural problems, or disorders, is a broad category that is used commonly in educational settings, referring to a condition in which the behavioural or emotional responses of an individual in school are very different from his/her generally accepted, age-appropriate, ethnic or cultural norms and adversely affect performance in such areas as self-care, social relationships, personal adjustment, academic progress, classroom behaviour or work adjustment' ([National Association of School Psychologists, 2004](#); p.1). The key areas include disruptive, anti-social and aggressive behaviour; hyperactivity, attention and concentration problems; somatic, emotional and related symptoms; poor peer and family relationships; and school attendance ([Cole et al., 2003](#)).

Existing research provides empirical evidence regarding the negative link between self-compassion and emotional and behavioural problems. Results of a meta-analysis by [MacBeth and Gumley \(2012\)](#), composed of 14 studies on adult samples or a recent review by [Neff \(2022\)](#), indicated a strong negative association of self-compassion with symptoms of depression, anxiety and stress. Results of a meta-analysis by [Marsh et al. \(2018\)](#) from 19 relevant studies of adolescents (10–19 years) reveal that lack of self-compassion may play a significant role in causing and/or maintaining emotional difficulties in adolescents. Recently, a study by [Muris et al. \(2022\)](#) also shows that higher levels of self-compassion were associated with lower levels of anxiety and depression symptoms among adolescents.

More specifically, self-compassion components were found to link with emotional and behavioural problems. Results indicate that all three negatively worded subscales (self-judgement, isolation and over-identification) were positively associated with anxiety, depression, worry, stress and paranoid beliefs ([Brooks et al., 2012](#); [Mills et al., 2007](#); [Van Dam et al., 2011](#)). The positive subscales (self-kindness, common humanity and mindfulness) were found to be negatively associated with depression ([Mills et al., 2007](#); [Van Dam et al., 2011](#); [Muris, 2022](#)). Furthermore, by analysing the scale as two separate constructs (self-warmth versus self-coldness), [Brenner et al. \(2018\)](#) found that self-warmth was uniquely positively related to well-being, whereas self-coldness was uniquely positively related to distress. Similarly, results from the study by [Lopez et al. \(2018\)](#) also showed that self-coldness was more strongly related to depressive symptoms than self-warmth.

Accordingly, self-coldness was a stronger predictor of depressive symptoms, cross-sectionally and over a one-year timeframe, when compared with self-warmth.

### ***3.2 Emotional and behavioural problems and life satisfaction***

Existing research on high school students with emotional and behavioural problems indicates that they experience lower life satisfaction in domains such as peer relationships, family, self and environment, compared with their non-disabled peers (State and Kern, 2017). Other studies show that depression, anxiety and ADHD are significant predictors of life satisfaction in university students (Mehmood and Shaukat, 2014; Bateman, 2014). This makes sense, in that anxiety, depression and personal adjustment problems have a direct bearing on a person's quality of life (Huebner *et al.*, 2006), which affects the individual's life satisfaction. Other correlational studies show that increased rates of depression, anxiety, ADHD, self-destructive behaviour and other behaviour problems (including internalising and externalising problems), are strongly associated with lower life satisfaction in all domains (e.g. Marquez *et al.*, 2022; Meule and Voderholzer, 2020).

Therefore, it is reasonable to assume that self-compassion helps to reduce the risk of engagement of emotional and behavioural problems in adolescents by enhancing their ability to manage and transform their own negative emotions, to welcome rather than criticise experiences of anxiety and stress, and to let go of harsh judgements of themselves, which, in turn, increases life satisfaction over time. That is, emotional and behavioural problems are expected to mediate the positive relationship between self-compassion and life satisfaction.

Based on the studies mentioned above, we proposed the following hypotheses:

- H1.* Self-warmth would be negatively associated with emotional and behavioural problems and positively associated with life satisfaction.
- H2.* Self-coldness would be positively associated with emotional and behavioural problems and negatively associated with life satisfaction.
- H3.* Emotional and behavioural problems would be negatively associated with life satisfaction.
- H4.* Emotional and behavioural problems would mediate the relationship between self-warmth/coldness with life satisfaction.

## **4. Methods**

### ***4.1 Participants and procedure***

A total of 828 adolescents participated in the study, with 413 males and 415 females and an average age of 14.63 ( $SD = 1.08$ ). The participants were from two secondary schools and two high schools located in both rural and urban areas of Thua Thien Hue Province, Vietnam. The study collected data on gender, family structure, family size, rank in family, family income, location and academic achievement. Before participating in the survey, written consent was obtained from the school authority, parents and the adolescents themselves. Students who received consent from their parents were allowed to complete the survey during school time, with 30 min given to complete it. The survey was administered by teachers in classrooms with the help of survey proctors. Before starting the survey, the proctors read the survey cover letter aloud, reassuring the participants that their participation was voluntary and that all responses would be treated confidentially for the study's educational purposes.

### ***4.2 Measures***

The three following measures are all available in the Vietnamese language and demonstrated to be reliable and valid measures in assessing self-warmth/self-coldness, life

satisfaction and emotional and behavioural problems in Vietnamese adolescents by [Nguyen and Nguyen \(2020\)](#).

The self-compassion scale short-form (SCS-SF, [Raes et al., 2011](#)) was used to measure the self-warmth and self-coldness of Vietnamese adolescents. This is a 12-item self-report questionnaire with a five-point response scale (from 1 = rarely, to 5 = almost always). The survey aims to measure various components: (e.g. *I'm kind to myself when I'm experiencing suffering*), self-judgement (e.g. *I'm disapproving and judgemental about my flaws and inadequacies*), common humanity (e.g. *I try to see my failings as part of the human condition*), isolation (e.g. *When I think about my inadequacies it tends to make me feel more separate and cut off from the rest of the world*), mindfulness (e.g. *When I'm feeling down I try to approach my feelings with curiosity and openness*) and over-identification (e.g. *When something upsets me I get carried away with my feelings*). In the study by [Nguyen and Nguyen \(2020\)](#), confirmatory factor analysis results suggested that the two-factor model (self-warmth versus self-coldness) ([Hayes et al., 2016](#)) best fitted the data for Vietnamese adolescents, with the three positive components (self-kindness, common humanity and mindfulness) grouped into "self-warmth", and the three negative components (self-judgement, isolation and over-identification) grouped into "self-coldness". Accordingly, in this present study, self-warmth and self-coldness were separately scored and examined in further analyses. The Cronbach's alpha scores of self-warmth and self-coldness scales were 0.70 and 0.71, respectively. An overall self-warmth score was calculated by averaging all six positively – worded items with a higher mean score indicating more self-warmth and an overall self-coldness score was calculated by averaging all six negatively – worded items with a higher mean score indicating more self-coldness ([Hayes et al., 2016](#)).

The self-rated version of the strengths and difficulties questionnaire (SDQ-[Goodman, 1997](#)) for adolescents aged 11–17 years, was used to assess the emotional and behavioural problems amongst Vietnamese adolescents. This questionnaire is composed of 25 items. In line with the manual ([Goodman and Goodman, 2012](#)), in this study, we used 20 items covering four domains of adolescent difficulties: emotional symptoms (five items; e.g. *I worry a lot*); conduct problems (five items; e.g. *I take things that are not mine*); hyperactivity/inattention (five items; e.g. *I think things out before acting*); and peer problems (five items; e.g. *I have one good friend or more*). These items were rated on a three-point Likert scale (0 = *not true*; 1 = *somewhat true*; 2 = *certainly true*). Cronbach's alpha in our data was 0.72. An overall adolescent difficulties score was calculated by averaging all 20 items (after reverse scoring appropriate items), with a higher mean score representing more problems ([Tran, 2006](#)).

The satisfaction with life scale (SWLS, [Diener et al., 1985](#)) was used to assess the overall life satisfaction of the participants rather than specific satisfaction domains. The five items are all phrased positively (e.g. *So far I have gotten the important things I want in life*), and answered using seven-point ratings (1 = *strongly disagree* to 7 = *strongly agree*). In this present study, Cronbach's alpha of the scale (0.76) was acceptable. Scores were determined by calculating the mean of 05 item responses with a higher mean score representing more satisfaction with life ([Pavot and Diener, 2003](#)).

### 4.3 Data analysis

SPSS 22.2 was used to calculate descriptive statistics and correlations of key variables. Mediation analyses were carried out using the PROCESS macro for SPSS (Model 4), developed by [Hayes \(2012\)](#). This macro uses bootstrap confidence intervals (CIs) to estimate the mediation of the indirect effect of the independent variable on the dependent variable. Bootstrapping, a non-parametric method based on a resampling procedure, is advocated for testing mediation that does not impose the assumption of normality of the sampling distribution. This procedure involves repeatedly sampling from the data set and estimating the indirect effect in each resampled data set ([Preacher and Hayes, 2004](#)). By

repeating this process thousands of times (e.g. 5,000 times), an empirical approximation of the sampling distribution of  $a*b$  is generated and used to construct a CI for the indirect effect. When the 95% CI for an indirect effect  $a*b$  did not include zero, the indirect effect was significant (Preacher and Hayes, 2004).

## 5. Results

### 5.1 Preliminary analyses

To confirm whether controlling variables should be included in the correlation analysis, a two-way MANOVA was run with seven sociodemographic variables (gender, family structure, family size, rank in family, family income, location and academic achievement) as the independent variables, with life satisfaction as the dependent variable. The cut-off at  $p < 0.01$  was also used for determining significance. Significant multivariate effects were found only for family economic conditions [ $F(6.1522) = 6.57, p < 0.001$ ; Wilks'  $\Lambda = 0.97$ , partial  $\eta^2 = 0.03$ ]. Accordingly, adolescents from rich and average-income families had higher levels of life satisfaction than those from lower-income families [ $F(3.792) = 10.32, p < 0.001$ ;  $b = 0.23$ ]. Based on these results, we decided to conduct the partial correlation test to examine the relationship between self-compassion and life satisfaction, whilst also controlling for the effect of the family economic condition. The findings showed that most of the relationships were meaningful in the expected directions as stated in the hypotheses (Table 1). Self-compassion was positively correlated, and self-coldness was negatively correlated with life satisfaction ( $H1$  and  $H2$ ). Emotional and behavioural problems were negatively associated with life satisfaction ( $H3$ ). However, unexpectedly, while self-coldness was positively correlated with emotional and behavioural problems, self-warmth was found to have no significant relationship with emotional and behavioural problems ( $H2$ ).

### 5.2 Mediation analysis

As hypothesised (Table 2), the total effect of self-warmth on life satisfaction in the absence of emotional and behavioural problems was significant ( $\beta = 0.37, p < 0.0001$ ). However, unexpectedly, self-warmth had no significant negative relationship with emotional and behavioural problems ( $\beta = 0.06, p = 0.106$ ). As expected, emotional and behavioural problems were negatively related to life satisfaction in the presence of self-warmth ( $\beta = -0.79, p < 0.0001$ ), but the direct effect of self-warmth on life satisfaction was very highly significant after controlling for the mediator ( $\beta = 0.35, p < 0.0001$ ). Moreover, the indirect effect of emotional and behavioural problems was non-significant, with zero included in the 95% CI (-0.005; 0.048). It was found that emotional and behavioural problems did not mediate the relationship between self-warmth and life satisfaction.

In another analysis, as expected, the total effect of self-coldness on the life satisfaction of adolescents, ignoring the mediator, was significant ( $\beta = -0.19, p < 0.001$ ). The regression of self-coldness on the mediator, emotional and behavioural problems, was also significant ( $\beta = 0.15, p < 0.0001$ ). The mediation process showed that regression of the mediator in

**Table 1** Descriptive statistics and intercorrelations

Variables	1	2	3	4
Self-warmth (1)	–			
Self-coldness (2)	0.04	–		
Emotional and behavioural problems (3)	-0.07	0.37***	–	
Life satisfaction (4)	0.24***	-0.13***	-0.22***	–
<i>M</i>	3.14	2.8	0.70	4.10
<i>SD</i>	0.66	0.73	0.28	1.06

Notes: \* $p < 0.05$ ; \*\* $p < 0.001$

Source: Table by authors

**Table 2** Path coefficients, indirect effects and 95% bias-corrected confidence interval predicting life satisfaction scores

Path	Effect	BOOTLLCI	BOOTULCI	SE	t	p-value
<i>Self-warmth-Emotional &amp; behavioural problems-life satisfaction</i>						
Total effect (c)	0.37	0.254	0.479	0.057	6.41	0.0000
Direct effect (c')	0.35	0.236	0.456	0.056	6.19	0.0000
a	-0.03	-0.055	0.005	0.015	-1.61	0.10
b	-0.79	-1.051	-0.531	0.132	-5.97	0.0000
Indirect effect	0.02	-0.005	0.048	0.014		
<i>Self-coldness-Emotional &amp; behavioural problems-life satisfaction</i>						
Total effect (c)	-0.19	-0.295	-0.087	0.053	-3.61	0.0003
Direct effect (c')	-0.08	-0.191	0.029	0.056	-1.43	0.152
a	0.15	0.120	0.171	0.013	11.10	0.0000
b	-0.76	-1.048	-0.473	0.146	-5.19	0.0000
Indirect effect	-0.11	-0.161	-0.065	0.024		

**Notes:** <sup>a</sup>Regression coefficients of self-warmth/self-coldness; b = regression coefficients of emotional and behavioural problems; BootLLCI = bootstrapping lower limit confidence interval; BootULCI = bootstrapping upper limit confidence interval; SE = standard error  
**Source:** Table by authors

the presence of self-coldness was also significant ( $\beta = -0.76$ ,  $p < 0.0001$ ). Moreover, after accounting for mediating effect, self-coldness was not a significant predictor of life satisfaction ( $\beta = -0.080$ ,  $p = 0.15$ ). In addition, the bootstrap estimation procedure (with 5,000 bootstrapping samples) was adopted to test the mediating effect, showing that the 95% CI [-0.161; -0.065] did not include zero, indicating that the mediating effect of emotional and behavioural problems was significant. However, this represented a relatively small effect,  $\kappa^2 = 0.038$ , 95% BCa CI [-0.008, -0.104]. Thus, as expected in *H4*, it could be concluded that emotional and behavioural problems significantly mediate the relationship between self-coldness and life satisfaction.

## 6. Discussion

Life satisfaction is among the variables influenced by self-compassion and has gained more importance with the trend for positive psychology. However, this relationship, as well as its underlying mechanism, has only been investigated in college students and adult samples. Therefore, this present study sought to expand the prior research in the field to the adolescent population, with two primary goals. Firstly, to determine the relationship between self-compassion and life satisfaction in Vietnamese adolescents. Secondly, to identify the role of emotional and behavioural problems in this relationship.

The findings were in line with the proposed research hypothesis, namely, that there was a positive relationship between self-warmth and life satisfaction and a negative relationship between self-coldness and life satisfaction. Adolescents with higher self-warmth reported higher life satisfaction, while those with higher self-coldness reported lower satisfaction. These results align with studies on adult populations in both Western and Eastern countries (e.g. Brenner *et al.*, 2018; Fleming, 2021; Kim and Ko, 2018; Lopez *et al.*, 2018; Tran *et al.*, 2022). Together with previous studies, our findings consistently support Neff's *et al.* (2008) conclusion that despite cultural differences, self-compassion was pan-culturally correlated with life satisfaction across Western and Eastern samples. Thus, globally, individuals who show kindness to themselves when they are suffering or feeling inadequate understand and accept failure and pain as part of the human experience without drama or pity, and obtain a greater global evaluation of life. In contrast, those who respond to difficult thoughts and feelings with harsh judgement, exaggerate their distress and become engulfed by it, tend to experience lower life satisfaction. The key issue may only lie in the fact that the relationship between self-compassion and life satisfaction is stronger in samples collected from more individualistic (Western) societies

(Wang and Lou, 2022). In their work, Wang and Lou (2022) presented two theoretical perspectives to explain their divergence. Firstly, they proposed that a person's subjective well-being may be improved by having a good fit with their culture. The concept of self-compassion overlaps with personal empowerment, meaning that individuals with higher levels of self-compassion may be more likely to compromise instead of subordinating their needs during a conflict. This element of self-compassion makes it more suitable for individualistic societies and strengthens the relationship between self-compassion and life satisfaction. Secondly, Wang and Lou (2022) suggested that individualistic and collectivist communities have different definitions of well-being. In individualistic cultures, well-being is more closely associated with self-esteem, positive emotions, personal accomplishments and happiness, while in collectivist societies, well-being is more closely related to maintaining relational harmony, balance and tranquillity. Self-compassion is particularly beneficial for the former.

Unexpectedly, emotional and behavioural problems did not mediate the positive relationship between self-warmth and life satisfaction. This indirect effect, based on the boundaries, was marginally non-significant, which is probably caused by the fact that there was no significant negative relationship between self-warmth and emotional and behavioural problems (path a). However, this finding supports previous studies (e.g. Brenner *et al.*, 2018) that, when measured separately from self-coldness, self-warmth may more strongly relate to aspects of positive mental health, whereas self-coldness, when measured separately from self-compassion, may more strongly relate to distress aspects of mental health. In general, the mediation analysis in this study implies that self-warmth directly leads to life satisfaction in adolescents. By cultivating self-sympathy and self-acceptance, adolescents have fewer social comparisons, do not engage in contingent self-worth and narcissism by self-judgement (Neff and Vonk, 2009; Donald *et al.*, 2018) and personal standards are equally high but adolescents are not as upset when they do not meet them (Neff, 2003), and adolescents are likely to experience a higher level of life satisfaction. Indeed, empirical evidence shows that self-acceptance and self-control predict life satisfaction for both early and middle adolescents (Barcelata-Eguiarte and Rivas, 2016; Noman and Siddiqui, 2021). Moreover, by accepting that they are not alone in their suffering and comforting them with feelings of inclusivity rather than alienation, they feel more connected, self-confident, optimistic and persist in efforts after failure (Breines and Chen, 2012). Thus, they increasingly like the life they lead.

In another path, significant indirect effects of self-coldness on life satisfaction through emotional and behavioural problems were adequately supported. Consistent with previous research (e.g. Marsh *et al.*, 2018; Muris *et al.*, 2022; State and Kern, 2017), the findings reinforced ties between self-coldness and emotional and behavioural problems and suggested a particularly strong negative association between self-coldness and life satisfaction. Self-coldness seems to convey its negative effect on life satisfaction through emotional and behavioural problems. In processing self-coldness, adolescents are judgemental towards themselves or their failings and criticise themselves for various inadequacies or shortcomings rather than accept failure as part of the human process. A systematic review by McIntyre *et al.* (2018) of 16 studies, provides evidence that there is a significant relationship between self-criticism and symptoms of psychopathology amongst a student sample with the strongest evidence for depression. More significantly, self-criticism is one of the causes of depression, but depression also increases self-criticism (Shahar *et al.*, 2004). This creates a vicious circle which submerges adolescents into an ocean of depression. Furthermore, in processing self-coldness, adolescents tend to exaggerate uncomfortable emotions or ignore them, rather than observe, accept and transform them. Lack of self-regulation causes adolescents to become emotionally reactive, and they cannot manage their disruptive emotions and impulses and experience negative consequences such as failure to make friends, aggression, violence-related behaviour, relationship conflicts, poor self-esteem and reduced resilience (Artuch-Garde



*et al.*, 2017; Bao *et al.*, 2016; Curşeu *et al.*, 2012; Gomez *et al.*, 2018; Kim *et al.*, 2022; Ross and Fontao, 2007). All of these emotional and behavioural problems prevent adolescents from achieving positive psychological health, healthy inter- and intra-personal relationships, social connections, positive relationships and life meaningfulness, all of which are indicators of life satisfaction (Barcelata-Eguiarte and Rivas, 2016; Huebner *et al.*, 2006).

Consistent with studies by Brenner *et al.* (2018), Lopez *et al.* (2018) and Chio *et al.* (2021), our research suggests that self-coldness is a risk factor for emotional and behavioural difficulties, while self-warmth may not be a protective factor for depressive symptoms. The mechanism underlying the relationship between self-coldness and life satisfaction confirms the risky force of self-coldness. To promote positive aspects of adolescent well-being (e.g. life satisfaction and the meaning of life), self-compassion interventions should focus on enhancing self-warmth while reducing self-coldness features simultaneously. Conversely, to reduce negative aspects of well-being (e.g. stress, depression and anxiety), interventions should focus on reducing self-coldness through activities that address self-judgment, isolation and over-identification. Previous self-compassion interventions (e.g. Smeets *et al.*, 2014; Dreisoerner *et al.*, 2021) have focused only on promoting self-warmth, with limited success in reducing depressive symptoms. A recent review by Neff (2022) also suggests that cognitive therapy that promotes a kinder and less judgmental approach to suffering may be more effective in reducing psychiatric symptoms and interpersonal problems. Our present study, therefore, contributes to a more differentiated understanding of how self-warmth and self-coldness distinctly link to the well-being of adolescents. Capturing and communicating this mechanism might enable future researchers to learn how to focus their activities in self-compassion intervention programs for impact to take place.

## 7. Conclusion

Overall, the findings generally support the assumption that adolescents' self-warmth is positively associated with life satisfaction, whereas adolescents' self-coldness is negatively correlated with life satisfaction. However, compared to the hypothesis, only emotional and behavioural problems mediating the negative relationship with self-coldness correlate with life satisfaction. Moreover, our findings also suggested that self-warmth and self-coldness are two distinct experiences that can both exist in adolescents. It is implied that intervention programmes should be tailored to both promote self-compassionate behaviours and reduce self-coldness, to increase life satisfaction in adolescents.

We must acknowledge two significant limitations to our preliminary study. Firstly, we relied on self-report questionnaires for data collection, which may lead to survey errors such as measurement errors and social desirability bias, despite our efforts to design and test the instruments thoroughly. Some respondents may have given inaccurate responses due to the abstract and complex nature of certain items on the SCS (Muris *et al.*, 2016), which is designed for students aged 14 and above with an eighth-grade reading level (Raes *et al.*, 2011). Additionally, our survey proctors had limited ability to explain the presented information to each participant individually due to the structured nature of our survey in a school setting with a time constraint. Secondly, our findings were limited by the use of a cross-sectional design, which calls for future research to implement experimental designs to interpret the relationship between self-compassion; emotional and behavioural problems; and life satisfaction more carefully. Future studies can also incorporate various data collection methods such as questionnaires, structured interviews and mixed analysis to reduce biases. Fortunately, initial pilot intervention studies have shown that self-compassion interventions may improve life satisfaction and emotional well-being among adolescents (e.g. Boggiss *et al.*, 2020; Seekis *et al.*, 2023; Tweed, 2019; Yildirim and Sari, 2022). Future researchers can build on these studies to replicate or expand their research in this field.

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