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Self-compassion as mediator between coping and social anxiety in late adolescence: A longitudinal analysis

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ABSTRACT

Introduction: Previous research uncovered that self-compassion is related to coping strategies elicited during stressful situations, and might also contribute to less biased perceptions of social situations. Hence, the current study's objective was to investigate longitudinally the mediator role of self-compassion in the relation between coping and social anxiety in late adolescence, with emphasis on the first months of adjustment to college life.

Methods: The sample included 63 first-year students (75% women) from Romania with a mean age of 18.76 years. They filled out the Coping Orientation to Problems Experienced Inventory at Time 1 (beginning of the first semester), as well as the Self-Compassion Scale-Short Form and the Leibowitz Social Anxiety Scale-Short Form at both T1 and Time 2 (3 months after the baseline assessment).

Results: The results of the mediation analyses showed that both approach and avoidant coping at T1 exhibited a significant indirect effect on social anxiety levels at T2 through self-compassion measured at T2 controlling for the effects of gender, self-compassion and social anxiety at T1. These findings suggested that approach coping increases the likelihood of more compassionate views of oneself, which are likely to contribute to less social anxiety; conversely, avoidant coping decreases self-compassionate attitudes, which in turn increase social anxiety symptoms.

Conclusions: These results provided added evidence to the fact that during the transition from adolescence to adulthood, teaching college students a more self-accepting and kind perspective on one's imperfections could play a significant role in preventing and treating social anxiety.

1. Introduction

Social anxiety is a type of emotional disorder characterized by intense fear elicited by social situations and the possibility of being negatively evaluated by others (Clark & Beck, 2010). Social anxiety disorder (SAD) affects about 3–5% of the adult population (Grant et al., 2005), but its onset usually occurs by the age of 15 with increased risk of evolving into a chronic mental health condition during the transition from adolescence to young adulthood (Bruce et al., 2005; Pine, Cohen, Gurley, Brook, & Ma, 1998). Social anxiety symptoms have been associated with increased risk of depression, other anxiety disorders, and substance abuse (Beidel & Turner, 2007; Kessler, Petukhova, Sampson, Zaslavsky, & Wittchen, 2012), as well as with difficulties in establishing healthy social connections and adjusting to the academic environment (Dempsey & Storch, 2008; Lee, Shellman, Osmer, Day, & Dempsey, 2015). Cognitive models of social anxiety in both children and adults postulate that such negative mental health outcomes occur as a result of information processing characteristics which influence responses to ambiguous or negative events (Banerjee, 2008; Clark & Beck, 2010). In the case of social anxiety, dysfunctional beliefs are thought to give way to heightened perceptions of threat in social

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situations resulting in increased avoidance, a mechanism which offers temporary relief from negative emotions, but in the long term actually perpetuates feelings of anxiety (Heimberg, Brozovich, & Rapee, 2010; Hofmann, 2007). Empirical evidence suggests that there are inter-individual differences in the way people cope with stressful social situations, which might increase or decrease risk of maladjustment (Allen & Leary, 2010).

2. Coping and social anxiety

Coping represents a set of conscious efforts directed towards adjusting, minimizing or tolerating stressful circumstances which are perceived as exceeding a person's resources (Monat & Lazarus, 1991). One classification of coping distinguishes between approach and avoidant strategies, with the former aimed at reducing the source of distress by actively processing and understanding the stressful situation, whereas the latter involving efforts to ignore, to escape or to distort a particular stimulus perceived as threatening (Moritz et al., 2016).

Among the approach coping strategies, those which have been more consistently investigated in the context of social anxiety are problem-solving, support seeking, cognitive restructuring, and acceptance. Problem-solving is a strategy meant to actively manage and change the threatening situation, and it seems that it is associated with decreased social anxiety in adults (Penley, Tomaka, & Wiebe, 2002; Pozzi et al., 2015). Also, children who are more worried (a feature of social anxiety) tend to be less successful in finding and implementing appropriate solutions to a problem situation (Muris, Merckelbach, Mayer, & Snieder, 1998; Szabó & Lovibond, 2004). Although support seeking is usually considered an adaptive coping strategy involving efforts to elicit either instrumental or emotional assistance from others, findings indicated that more support is actually associated with increased anxiety in both adults and adolescents (Pozzi et al., 2015; Wright, Banerjee, Hock, Rieffe, & Novin, 2010). One possible explanation for this outcome is that this type of coping might be favored by adults/adolescents due to their increased dependency and need for reassurance, which are more likely to enhance anxiety rather than lower it. On the contrary, efforts which are consciously directed towards changing the way a situation is interpreted (i.e., cognitive restructuring) or acknowledging the source of the stress without attempting to change it (i.e., acceptance), have been associated with decreased anxiety and avoidance in adult samples (Campbell-Sills, Barlow, Brown, & Hofmann, 2006; Pozzi et al., 2015). Additionally, where cognitive restructuring is concerned, the above mentioned results were also uncovered in a sample of preadolescents (Garnefski, Rieffe, Jellesma, Meerum Terwogt, & Kraaij, 2007), but in the case of acceptance some research on children suggests that this strategy entails a certain degree of resignation and avoidance, and hence, it is associated with more anxiety (Legerstee, Garnefski, Jellesma, Verhulst, & Utens, 2010).

Avoidant coping includes strategies such as: cognitive disengagement (i.e., redirecting attentional resources from a negative stimulus), behavioral disengagement (i.e., engaging in different behaviors as a way of avoiding to deal with the stressful situation), wishful thinking (i.e., denying the stress even in light of evidence), or venting (i.e., focusing on and discussing negative emotions/events). Previous findings regarding cognitive disengagement were rather inconsistent. For instance, some research concluded that cognitive disengagement was inversely associated with anxiety (Garnefski et al., 2007; Kocovski, Endler, Rector, & Flett, 2005), whereas other findings suggested that attentional disengagement was not qualitatively different from behavioral disengagement, and was positively associated with anxiety (Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001; Wright, Banerjee, Hoek, Rieffe, & Novin, 2010). While it is unclear whether cognitive disengagement is an approach or an avoidant type coping strategy, the results for behavioral disengagement, wishful thinking and venting seem to point out that these are consistently associated with increased social anxiety in adults (Aldao, Nolen-Hoeksema, & Schweizer, 2010; Kocovski, Endler, Rector, & Flatt, 2005; Pozzi et al., 2015).

3. Social anxiety and self-compassion

One consistent feature of people with high social anxiety is their overly critical, harsh and judgmental stance towards the possibility of underperforming or failing in a social situation (Heimberg, Bozovich, & Rapee, 2010; Hofmann, 2007). A potential mechanism for overcoming the negative consequences of such biases on social adjustment is represented by self-compassion. According to Neff (2003), self-compassion includes: treating oneself with kindness in the face of failure, perceiving negative circumstances as a potential to gain insight and shared understanding of human experiences, as well as accepting negative emotions as part of the experience instead of identifying with it.

To date, findings support the notion that indeed adults with diagnosed SAD score significantly lower than healthy controls on self-acceptance (Werner et al., 2012), and that self-compassion is inversely associated with anxiety (Marsh, Chan, & MacBeth, 2018; Potter,Yar, Francis, & Schuster, 2014). Furthermore, the latter results were replicated with adolescent samples further supporting the notion that self-compassion is associated with less anxiety (Gill, Watson, Williams, & Chang, 2018; Neff & McGehee, 2010; Zeller, Yuval, Nitzan-Assayag, & Bernstein et al., 2015). Taken together, these results suggest that fostering more accepting views of one's imperfections could in fact account for reduced fear and shame in social situations. This inference is supported by some previous findings from mindfulness-based interventions, positing that self-compassion is a potential mechanism explaining the effectiveness of such interventions in social anxiety (Gu, Strauss, Bond, & Cavanagh, 2015).

4. Coping and self-compassion

Some of the extant literature has already focused on attempting to understand how more self-compassionate attitudes are related to different forms of coping in adults, as very little is known about such specific relations in adolescence. For instance, self-

compassion was positively associated with optimism and curiosity, precursors of problem-solving coping (Neff et al., 2007), but when associated directly with problem-solving coping the relation emerged as non-significant (Allen & Leary, 2010; Neff, Hsieh, & Dejitterat, 2005). Similarly, no differences were found between people with high and low levels of self-compassion in terms of eliciting support seeking strategies (Allen & Leary, 2010; Neff et al., 2005). In situations in which coping involved some degree of change in the way a certain situation was perceived, participants with higher levels of self-compassion were more likely to endorse strategies such as acceptance or positive interpretation (Allen & Leary, 2010; Neff et al., 2005). And finally, research found mixed evidence either suggesting that people exhibiting high levels of self-compassion employ more frequently disengagement strategies involving redirection of their attentional resources from stressful events (Leary, Tate, Adams, Allen, & Hancock, 2007), or that self-compassion was not associated with disengagement (Allen & Leary, 2010). Also, less self-compassion was associated with more use of avoidant strategies and escape strategies (Allen & Leary, 2010).

These findings were replicated in more recent research suggesting that approach coping (i.e., active coping, positive reframing and acceptance) were positively associated with self-compassion, whereas negative associations were found between avoidant coping (i.e., mental disengagement, behavioral disengagement and denial) and self-compassion in adults managing stressful circumstances such as chronic illness or caregiving to elderly members of the family (Lloyd, Muers, Patterson, & Marczak, 2019; Sirois, Molnar, & Hirsch, 2015).

5. Aims and hypotheses

Evidence from research on children and adults generally suggests that the use of more approach coping (i.e., problem-solving, reinterpretation) is associated with more adaptive outcomes such as reduced anxiety (Campbell-Sills et al., 2006; Pozzi et al., 2015; Szabó & Lovibond, 2004), whilst more avoidant coping (i.e., denial, wishful thinking, behavioral disengagement) is related to heightened anxiety (Aldao et al., 2010; Compas et al., 2001; Kocovski et al., 2005). However, results from several studies indicated that the strength of the relation between coping and anxiety is small with correlation coefficients usually not exceeding .40 (Crockett et al., 2007; Lee et al., 2015; Wright et al., 2010). This would suggest that the relationship between coping and anxiety could be better explained by other variables. One potential candidate is self-compassion, an attitude encompassing more tolerant views of one's imperfections, which is the opposite of self-judgmental and overly critical beliefs which have been linked to increased symptoms of social anxiety (Heimberg et al., 2010; Hofmann, 2007). More precisely, preference for more approach coping strategies during stressful situations could create the premises of more accepting views of oneself, and thus activate more nuanced, less anxiety-provoking interpretations in social circumstances; conversely, the opposite rationale would apply for avoidant coping, which might trigger less self-compassionate views and more anxiety in social evaluative situations.

Considering the previous rationale, as well as the fact that the literature only reported on associations between coping and self-compassion (Allen & Leary, 2010; Lloyd et al., 2019), self-compassion and anxiety (Gill, Watson, Williams, & Chan, 2018; Marsh et al., 2018), and coping and anxiety (Aldao et al., 2010; Wright et al., 2010), the aim of the current study was to investigate the mediator role of self-compassion in the relation between coping and social anxiety. This might be especially relevant during the transition from adolescence to adulthood. As suggested by previous findings from the literature, increases in symptoms related to social anxiety are associated with increased exposure to stress (Arthur & Hiebert, 1996; Crockett et al., 2007). One particularly stressful circumstance, which is likely to impact social anxiety symptoms and requires efforts to cope is represented by the need to adjust to the requirements of attending college (Zivin, Eisenberg, Gollust, & Golberstein, 2009).

Therefore, this study's objective was to investigate the mediation relation between coping, self-compassion and social anxiety in a sample of first-year college students at two time points: the first month of the first semester of college and three months later, before the exam session at the end of the first semester. More specifically, two exploratory hypotheses were proposed: 1) approach coping at Time 1 (T1) predicts increased self-compassion at Time 2 (T2), and in turn increased self-compassion at T2 predicts decreased social anxiety at T2; and 2) avoidant coping at T1 predicts decreased self-compassion at T2, and decreased self-compassion at T2 predicts increased social anxiety at T2.

6. Method

6.1. Participants

Out of the approximately 140 first-year students approached through an Educational Psychology class, 75 provided consent and participated in the first data collection wave. Three months later, after the second data collection wave, the final sample consisted of 63 participants, predominantly women (75%) with a mean age of 18.76 years (SD = 0.43). Although no consensus is proposed, research on sample size requirements indicated that between 55 and 70 participants would be needed to achieve a significance level of .05, and a power of 80% to detect moderate effect sizes in two-wave longitudinal designs when employing bootstrapping as a statistical procedure (Pan, Liu, Miao, & Yuan, 2018; Wang & Xue, 2016).

6.2. Design

In the current study a two-wave longitudinal design was employed, which allows testing of one specific ordering of variables over time (Jose, 2016). More precisely, the predictor variable (coping) was measured at T1, whereas the mediator variable (self-compassion) and the dependent variable (social anxiety) were measured at both T1 and T2.

6.3. Procedure

At the beginning of the first semester, first-year students from Babeș-Bolyai University (Romania) were approached during an Educational Psychology class taught as part of the Teacher Certification Program and presented the aims and scope of the current research. Then, students were provided via email access to a Google docs link containing the informed consent, as well as the questionnaires. Baseline measures at T1 (October 2017) included the Coping Orientation to Problems Experienced (COPE) Inventory, the Self-Compassion Scale-Short Form (SCS-SF), and the Leibowitz Social Anxiety Scale-Short Form (LSAS-SF). Out of approximately 140 students who were given access to the link, 75 filled in the questionnaires at T1. Three months after the initial assessment (T2), before entering their first exam session (January 2018) students were requested to participate in the second data collection wave. At T2 students were sent via email another Google docs link, and were asked to fill in two out of the initial three questionnaires, namely the SCS-SF and the LSAS-SF.

6.4. Measures

The COPE Inventory (Carver, Scheier, & Weintraub, 1989) consists of 15 scales, each including 4 items, which are intended to evaluate the use of different types of coping strategies. Items are measured employing a 4-point Likert scale, where 1 = *usually do not do this at all* and 4 = *usually do this a lot*, and scale scores are obtained by summing the answers for items belonging to a particular construct. Considering the literature review on the associations between coping and self-compassion (Allen & Leary, 2010; Lloyd et al., 2019), as well as coping and social anxiety (Pozzi et al., 2015; Wright et al., 2010), 5 out the 15 COPE scales were not employed in the current study (i.e., Substance use, Humor, Turning to religion, Restraint, Suppression of competing activities). A principal component analysis (PCA) with a Varimax rotation was conducted for the purposes of determining the higher order factor structure for the 10 selected scales. The emerging factors were labeled as follows: 1) *Approach coping* (score range: 16–64) including the Positive reinterpretation, Active coping, Acceptance, and Planning scales; 2) *Avoidant coping* (score range: 16–64) comprising the Mental disengagement, Behavioral disengagement, Venting, and Denial scales; and 3) *Social* support (score range 8–32) consisting of the Instrumental social support and the Emotional social support scales. The Social support scale was dropped from the analyses due to the small and non-significant associations with both self-compassion ($r = -.14$ to $-.15$, $p > .05$), and social anxiety ($r = .08$ to $.09$, $p > .05$).Internal consistency coefficients for each scale were similar to those reported by Carver et al. (1989), as well as by Crașovan and Sava (2013) who adapted the COPE Inventory for use with Romanian participants. The obtained internal consistency coefficients ranged from $\alpha = .71$ to .86.

The Self-Compassion Scale-Short Form (SCS-SF; Raes, Pommier, Neff, & Van Gucht, 2011) is the 12-item version of the original SCS (Neff, 2003). The short version includes the same factors as the long version, but it is recommended for use when researchers are interested in global scores such as the case of this study (Raes et al., 2011). Participants are required to respond to each item using a 5-point scale ranging from 1 (*almost never*) to 5 (*almost always*). An overall self-compassion score (range: 1–5) was computed based on mean scores for all the scales of the measure. Additionally, based on empirical evidence suggesting that inclusion of the negative scales of the SCS-SF might lead to an overestimation of the negative association between self-compassion and scales measuring psychopathology (Muris, van den Broek, Otgaar, Oudenhoven, & Lennartz, 2018), separate scores were computed for Positive Self-Compassion (Self-Kindness, Common Humanity, Mindfulness) and Negative Self-Compassion (Self-judgment, Isolation, Over-identified). Internal consistency coefficients for assessments at T1 and T2 were high, ranging from .81 to .87. These results are similar to those reported by Raes et al. (2011), and for the SCS long version which was validated for use with Romanian samples (Podina, Jucan, & David, 2015).

The LSAS-SR (Fresco et al., 2001) is a 24-item questionnaire, which was adapted and validated in Romanian (Miu, Vulturar, Chiș; Ungureanu, & Gross, 2013). LSAS-SR measures anxiety and avoidance elicited by social interactions (11 items) and performance situations (13 items). Items are scored separately on a 4-point Likert scale for fear/anxiety (0 = *none*; 3 = *severe*), and avoidance (0 = *never*; 3 = *usually*). A total score of social anxiety (range: 0–144) was computed by summing the scores across fear and avoidance items and it showed high levels of internal consistency, with Cronbach's α raging from .88 at T1 to .91 at T2.

6.5. Analytic plan

Data were analyzed with Model 4 from the Process macro for SPSS. The analyses were conducted employing a bootstrapping procedure with 95% confidence intervals (CIs), and if the CIs did not include 0, the effects were interpreted as statistically significant (Hayes, 2013). Also, it is noteworthy that this approach to testing mediation is not dependent upon the presence of a significant total effect, but rather a significant indirect effect is considered proof of mediation (Hayes, 2013). Prior to testing the longitudinal mediation, measures from T1 were included in a simple mediation model to test two paths: 1) approach/avoidant coping, self-compassion and social anxiety; and 2) self-compassion, approach/avoidant coping, and social anxiety. Following, the longitudinal models were tested and the variables were entered as follows: approach/avoidant coping at T1 was the *independent variable* (*X*), self-compassion (total score) at T2 as the *mediator* (*M*), and social anxiety at T2 as the *dependant variable* (*Y*), whereas gender, self-compassion (total score) at T1 and social anxiety at T1 were entered as *covariates*. All entered variables in the model were *continuous*, except for gender which was dummy-coded (1 = *men,* 0 = *women*). Controlling for gender differences is supported by findings from meta-analyses suggesting that women report higher social anxiety compared to men (Caballo et al., 2014). Also, these analyses were performed including only the positive self-compassion score, to exclude the possibility that the results are overestimated due to the potentially higher predictive value of negative self-compassion in relation to social anxiety.

Table 1
Means, standard deviations and pearson correlation coefficients between the variables.

Variables	1	2	3	4	5	6	7	8	9	10
1. Approach coping (T1)	1.00									
2. Avoidant coping (T1)	-.17	1.00								
3. Self-compassion (T1)	.52**	-.51**	1.00							
4. Positive Self-compassion (T1)	. 56**	-.34**	.86**	1.00						
5. Negative Self-compassion (T1)	-.37**	.54**	-.89**	-.54**	1.00					
6. Social anxiety (T1)	-.13	.26*	-.46**	-.25*	.53**	1.00				
7. Self-compassion (T2)	.56**	-.56**	.82**	.66**	-.77**	-.45**	1.00			
8. Positive Self-compassion (T2)	.60**	-.48**	.77**	.81**	-.56**	-.28*	.87**	1.00		
9. Negative Self-compassion (T2)	-.40**	.53**	-.63**	-.33**	.76**	.48**	-.86**	-.55**	1.00	
10. Social anxiety (T2)	-.13	.21	-.46**	-.29*	.50**	.91**	-.51**	-.28**	.48**	1.00
M	48.98	33.32	3.26	3.24	2.56	36.25	3.28	3.30	2.62	34.29
SD	6.39	7.05	0.72	0.77	0.86	22.30	0.82	0.88	0.92	20.58

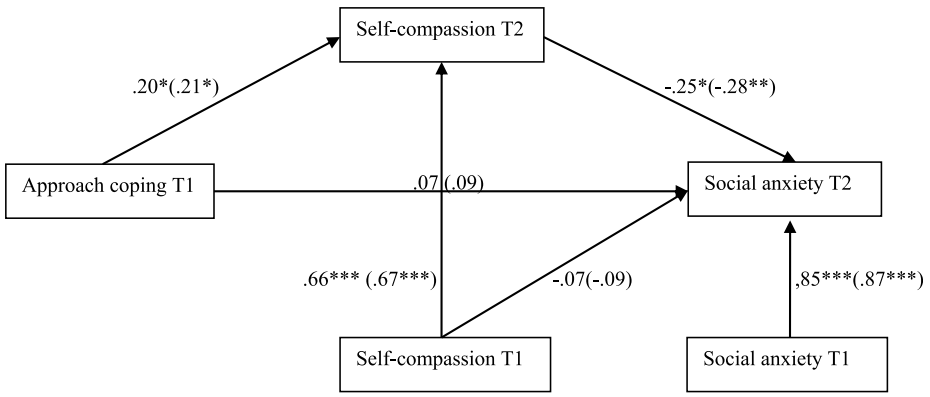
*$p < .05$,**$p < .01$.

7. Results

Means, standard deviations and Pearson correlation coefficients for all variables are reported in Table 1. Additional information concerning means and standard deviations of the subscales included in the approach and avoidance coping factors is presented in the Supplementary Material. The results for bivariate correlations support the notion that approach coping showed moderate positive associations with self-compassion (total score) both at T1 and T2 ($r = .52$ to .56, $p < .01$), whereas avoidant coping showed moderate inverse correlation coefficients with self-compassion (total score) at T1 and T2 ($r = -.51$ to - .56, $p < .01$). Additionally, self-compassion (total score) at T1 exhibited a moderate negative correlation with social anxiety at T1 and T2 ($r = -.46$ to $-.51$, $p < .01$). When the separate scores were employed for self-compassion, positive self-compassion at T1 and T2 showed small, negative correlation coefficients with social anxiety at both time points ($r = -.25$ to $-.28$, $p < .05$), whereas negative self-compassion at T1 and T2 exhibited moderate, positive correlation coefficients with social anxiety ($r = .48$ to .53, $p < .01$).

Preliminary findings for the mediation models based on measures from T1 indicated that when approach/avoidant coping was introduced as the mediator, the indirect effects of self-compassion on social anxiety were not significant, $B = .03$, $SE = 2.11$, 95%CI [4.21, −.42], and $B = 2.00$, $SE = 2.40$, 95%CI [-2.85, 6.95], respectively.

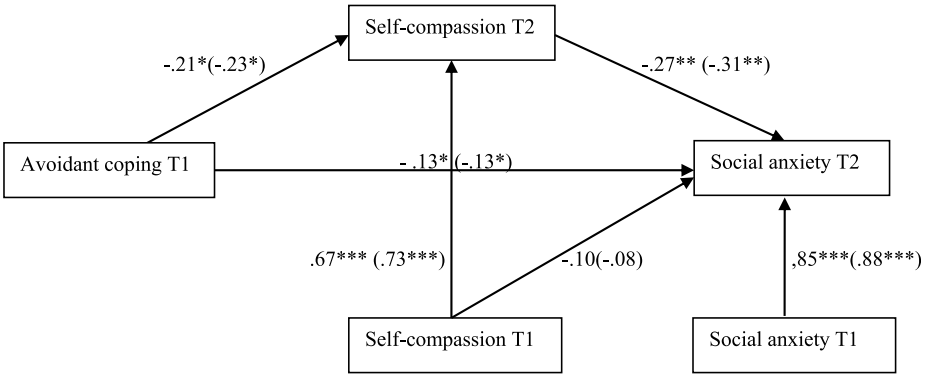
For the first longitudinal meditation model depicted in Fig. 1, the results indicated that increased approach coping at T1 was a significant predictor of increased self-compassion at T2 controlling for gender and self-compassion at T1, $B = .20$, $SE = .13$, 95%CI [.04, .57]. In turn, increased self-compassion at T2 predicted lower social anxiety symptoms at T2 controlling for the effects of gender, self-compassion at T1 and social anxiety at T1, $B = -.25$, $SE = .20$, 95%CI [-.91, −.12]. Approach coping at T1 did not significantly predict lower social anxiety at T2 (controlling for gender and self-compassion), $B = .08$, $SE = .20$, 95%CI [-.33, .48], hence no significant total effect was found. However, a significant indirect effect of approach coping at T1 on social anxiety at T2 through self-compassion at T2 was found, $B = -.16$, $SE = .11$, 95%CI [-.41, −.00]. When instead of the total self-compassion,



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

Longitudinal Mediation Model between Approach Coping, Self-Compassion and Social Anxiety

Fig. 1. Longitudinal Mediation Model between Approach Coping, Self-Compassion and Social Anxiety.
Note. *$p < .05$,**$p < .01$, ***$p < .001$.



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

Longitudinal Mediation Model between Avoidant Coping, Self-Compassion and Social Anxiety

Fig. 2. Longitudinal Mediation Model between Avoidant Coping, Self-Compassion and Social Anxiety.
Note. *$p < .05$,**$p < .01$, ***$p < .001$.

positive self-compassion was included as the mediator in the model, the outcomes indicated that the results obtained in the previous analyses were supported. There was a significant longitudinal indirect effect, in which positive self-compassion at T2 mediated the relationship between approach coping at T1 and social anxiety at T2, $B = -.19$, $SE = .12$, 95%CI [-.46, −.00]. Standardized coefficients for this model are presented in parentheses in Fig. 1.

The second longitudinal mediation model is depicted in Fig. 2. As expected, increased avoidant coping at T1 significantly predicted lower self-compassion at T2 controlling for gender and self-compassion at T1, $B = -.21$, $SE = .12$, 95%CI [-.53, −.06]. Also, lower self-compassion at T2 significantly predicted higher social anxiety at T2 controlling for gender, self-compassion at T1, and social anxiety at T1, $B = -.27$, $SE = .19$, 95%CI [-.96, −.19]. The total effect from avoidant coping at T1 to social anxiety at T2 (controlling for gender and self-compassion) was not significant, $B = -.21$, $SE = .18$, 95%CI [-.58, .16]. However, there was a significant indirect effect of avoidant coping at T1 on social anxiety at T2 through self-compassion at T2, $B = .17$, $SE = .11$, 95%CI [.01, .43]. A second mediation model was conducted, employing positive self-compassion as the potential mediator. The results suggested that indeed positive self-compassion at T2 exhibited a significant indirect effect in the relation between avoidant coping at T1 and social anxiety at T2, $B = .20$, $SE = .10$, 95%CI [.02, .42]. Standardized regression coefficients for this model are presented in parentheses in Fig. 2.

8. Discussion

The aim of the current study was to investigate longitudinally the mediator effect of self-compassion in the relation between coping and social anxiety in a sample of college students. Furthermore, the tested effect was assessed at two time points: after the beginning of the first semester of college and before the start of the exam session at the end of the first semester, respectively. Choosing these circumstances was driven by research suggesting that perceptions of increased stress associated with adjustment to college life and academic expectations in first-year college students is related to heightened risk of elevation in symptoms of social anxiety (Crockett et al., 2007; Zivin et al., 2009).

Before discussing the findings, it would be important to note that the underlying theoretical rationale of the current study draws from the distinction between approach and avoidant coping strategies. The results of the PCA conducted for the purposes of this study were consistent with some previous results suggesting that planning, active coping, positive reinterpretation and acceptance clustered together in a single factor as reported by Kapsou, Panayiotou, Kokkinos, and Demetriou (2010) and Miyazaki, Bodenhorn, Zalaquett, and Ng (2008), but were dissimilar to those of Pozzi et al. (2015), who found that each scale represented a factor on its own. Conversely, in this study denial, venting, behavioral and cognitive disengagement loaded on a single factor, a conclusion which largely resembles outcomes from other studies (Myazaki, Bodenhorn, Zalaquett, & Ng, 2008; Pozzi et al., 2015). Moreover, although some authors argue that cognitive disengagement could be viewed as an adaptive coping strategy (Garnefski et al., 2007; Kocovski et al., 2005), these results seem to add to the evidence suggesting that it is a measure tapping mostly into the avoidant component of coping (Compas et al., 2001).

According to the first hypothesis, more adaptive coping at T1 predicts increased self-compassion at T2, and increased self-compassion at T2 predicts decreased social anxiety at T2. Conversely, the second hypothesis stated that more avoidant coping at T1 predicts decreased self-compassion at T2, which in turn predicts increased social anxiety at T2. Both hypotheses were supported by the data, making this research the first, to our knowledge, to provide empirical support for a longitudinal indirect effect of self-compassion in the relation between coping and social anxiety.

First, according to our findings, eliciting more active efforts to manage distressing situations (approach coping) could be a

predictor of the extent to which during future stressful situations, college students are able to engage in more self-compassionate attitudes, whilst strategies meant to avoid confronting the distress predicted less self-accepting and non-judgmental attitudes. Previous studies in adult samples relying on cross-sectional designs have shown that some approach strategies such as re-interpretation and acceptance were positively associated with less self-critical and judgmental interpretations (Allen & Leary, 2010; Lloyd et al., 2019; Sirois, 2014); conversely, denial, wishful thinking and disengagement were associated with attitudes consistent with less kindness and acceptance towards oneself (Allen & Leary, 2010; Lloyd et al., 2019; Sirois, 2014).

Also, the results from the current study suggest that more self-compassionate attitudes lead to lower social anxiety, whereas less self-compassion leads to more social anxiety. These results are unsurprising given that previous research on adults and adolescents already indicated that more self-compassion is associated with lower social anxiety (Gill et al., 2018; Neff & McGehee, 2010; Werner et al., 2012), and the opposite, less self-compassion is associated with increased social anxiety (Marsh et al., 2018; Potter, Yar, Francis, & Schuster, 2014). One potential explanation of such effects is related to the fact that treating oneself with kindness and accepting failures as a part of common human experience could act as a mechanism which deactivates biased interpretations about how others judge and perceive their behavior in social or evaluative situations, whereas the opposite, less acceptance might activate negative interpretations in similar situations (Banerjee, 2008; Clark & Beck, 2010).

In addition, the outcomes of the current study indicate that self-compassion mediated the longitudinal relation between approach/avoidant coping and social anxiety. Interestingly, no significant total effects for the paths between coping and social anxiety were found. Such outcomes can be interpreted in light of the currently available data indicating that coping and social anxiety exhibit relatively low correlation coefficients (Crockett et al., 2007; Lee et al., 2015; Wright et al., 2010). Taken together these outcomes provide support for the notion that endorsing particular types of coping has long-term implications for social anxiety symptoms, but this effect is explained by self-compassion. More precisely, more approach type coping could trigger more self-compassionate attitudes involving a more accepting perception of own limitations and failures, which decrease the likelihood of negative self-evaluations specific for social anxiety. Conversely, preference for more avoidant coping might in fact increase the likelihood of self-critical and judgmental cognitions known to be involved in maintaining and heightening social anxiety symptoms (Heimberg et al., 2010; Hofmann, 2007).

Moreover, the mediator role of self-compassion was replicated employing two separate measures: a total score encompassing the positive and negative poles of the SCS-SF, and a score including only the positive components of self-compassion (i.e., self-kindness, common humanity, mindfulness). In this study, indeed the positive association between negative self-compassion and social anxiety was two times higher than that of the negative association between positive self-compassion and social anxiety, thus partially replicating previous findings (Muris, 2016; Muris et al., 2018). However, even when the negative self-compassion scores were removed from the total score, the results of the mediation model employing the total score were replicated. This might also support the contention that conceptually the positive and the negative components of self-compassion are opposing factors on a continuum from low to high self-compassion (Neff, 2016; Neff, Whittaker, & Karl, 2017).

8.1. Limitations

Several limitations of the current study need to be acknowledged. First, for the purposes of this research a half-longitudinal design was employed. Therefore, gathering data on each of the variables at more than two time points, would allow deciphering the longitudinal relations between all variables, considering all potential predictive associations. Second, an increase in the sample would also be advisable for investigating coping strategies as latent variables in a longitudinal mediation model, which would permit estimating the relative contribution of each type of coping strategy. Additionally, considering the fact that this was a convenience sample and the rather low percentage of men included in the study, it would be important to gather data on a more heterogeneous and gender balanced sample, which would help increase the generalizability of the current findings. Third, this study's main focus was on the total self-compassion score, hence the relative contribution of positive and negative self-compassion was not estimated. Perhaps future research could investigate this relation in a multiple mediation model including both components of self-compassion. A fourth limitation is related to the fact that the current findings rely on self-report measures, and it would be interesting to see if these results could be replicated with behavioral and/or physiological measures of social anxiety.

9. Conclusions

Findings from the current study provide some initial evidence suggesting that the way young adults cope (more or less adaptively) with stressful circumstances, could either increase or decrease the likelihood of self-compassionate attitudes, and these in turn might be responsible for lowering or heightening symptoms of social anxiety. This contention needs to be considered within the context of findings suggesting that self-compassion could also act as a mechanism explaining the effectiveness of mindfulness-based interventions (Gu et al., 2015). Hence, it could be argued that enhancing adaptive coping skills together with cultivating self-acceptance represent potential preventive tools for mental health problems such as social anxiety which arise particularly during the transition from adolescence to adulthood (Bluth & Eisenlohr-Moul, 2017; Galla, 2017).

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2. Declarations of interest: none.
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4. The data reported in the current study can be accessed using the following link from Open Science Framework: https://mfr.osf.io/

render?url = https%3A%2F%2Fosf.io%2F7rv9b%2Fdownload

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.adolescence.2019.08.013.

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