Suicidality and self-compassion in patients with major depressive disorder: the mediating role of the avoidant attachment type

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ABSTRACT

Despite recent studies establishing self-compassion and secure attachment to be vital protective factors against suicidality, the role of attachment as a psychological mechanism that may mediate the relationship between self-compassion and suicidality has not been investigated to date. This study aims to address this gap by investigating whether attachment styles, specifically avoidant attachment, mediate the link between self-compassion and suicidality in patients with major depressive disorder (MDD). 273 adult patients with MDD completed the Suicidal Behaviors Questionnaire-Revised (SBQ-R), the Beck Depression Inventory (BDI-II), the Experiences in Close Relationships Scale (ECRS), and the Self-Compassion Scale (SCS) along with sociodemographic and clinical questions. Statistical analyses included correlation analysis and Mann-Whitney U tests to examine the relationships and possible differences between the non-suicidal group and the suicidal group of patients in terms of attachment style, self-compassion, and self-destructive behaviors. A mediation analysis to assess the role of attachment avoidance in the relationship between self-compassion and suicidality was also conducted. Both attachment anxiety and avoidance were positively associated with suicidality and depression and negatively with self-compassion. The patients with increased suicidality differed significantly in the levels of depression, self-compassion, and attachment compared to those who were non-suicidal. The protective mechanism of self-compassion against suicidality was mediated by attachment avoidance. Research findings highlight the need for considering attachment-related issues to understand suicidality and tailor interventions in the field of suicide prevention and treatment while they gauge treatment priorities in working with depressed patients with suicidal thoughts and behaviors.

Key words: suicidality, major depressive disorder, attachment style, self-compassion, suicidal ideation.

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Introduction

According to the World Health Organization (WHO, 2023), more than 700,000 people die by suicide every year, underlining the necessity to identify specific risk and protective factors as well as their interaction with suicidality to improve the prevention and treatment of suicidal thoughts and behaviors (Franklin *et al.*, 2017). Suicidality is identified as a continuum ranging from suicidal ideation to suicide attempt, and completed suicide (Clayden *et al.*, 2012). As such, it is related to multiple, complex, and interacting social, economic, cultural, and psychological factors, whereas its etiology has not been fully understood.

A substantial number of studies in both clinical and general populations highlight depression as the strongest predictor of suicidality (WHO, 2023). Particularly, the prevalence of suicidality in patients with major depressive disorder (MDD) is high (*i.e.*, 10-15%), with 60-70% of patients in a major depressive episode experiencing suicidal ideation (Möller, 2003). Furthermore, people who have MDD are at a higher risk of attempting suicide than those who do not, across the lifespan (Holma *et al.*, 2010). Overall, suicidality is mainly attributed to MDD symptoms, such as feelings of hopelessness and anhedonia (Pompili, 2019), as well as depressive thoughts, increased anxiety, and sleep difficulties (Franklin *et al.*, 2017). Given the critical relationship between depression and suicidality, research to promote suicide prevention in people with mood disorders has become a key component of suicide prevention overall.

Uncovering the risk factors that differentiate individuals according to their position on the suicide continuum may help to hinder the transition from suicidal ideation to suicide planning and suicidal attempt. Along with the severity of depression, other risk factors for suicidal ideation in people diagnosed with MDD have been found to be young age, female gender, lack of support system, and past suicide attempts (Schaffer *et al.*, 2000). Having a suicide plan was found to be associated with older age, loneliness, impaired cognitive functioning, and male gender (Li *et al.*, 2017). Increased risk of suicide attempts was also linked to pre-existing suicidal ideation, insomnia, and low socio-economic background (Eikelenboom *et al.*, 2018). Completed suicide has been associated with male gender, suicidal ideation, history of suicide attempt, helplessness, severity of depression, and comorbidity, that is, co-existence of MDD with personality disorder, anxiety disorder, and/or substance use (Hawton *et al.*, 2013). Although such empirical support may reinforce the field of suicide prevention through the development of stepped-care mental healthcare delivery, the complex framework of suicidality underscores the need to examine the interaction of specific psychological variables that may have an impact on suicidality, taking into account that single factors as well as dealing only with the mental disorder can only partially predict the likelihood of suicidal ideation or behavior (Franklin *et al.,* 2017).

In recent years, self-compassion has been evoked in suicide prevention research to be an adaptive mechanism for patients with affective disorders, as it has been linked with lower emotional distress, increased resilience, and better emotion regulation (Cleare *et al.*, 2019; Diedrich *et al.*, 2014; Zhang *et al.*, 2019). Self-compassion is a multifaceted concept that entails the individual's intention to hold and apply a positive, self-accepting attitude toward personal failures, shortcomings, or suffering (Neff, 2003). Having an inherently affiliative nature, self-compassion involves responding in difficult times with self-kindness and support rather than being judgmental and self-critical. It also entails working through and making sense of painful experiences in a mindful and balanced way instead of being overwhelmed by negative emotions and absorbed in frustration. Lastly, it includes a wise attitude toward suffering or discomfort, which recognizes life struggles to be common experiences to all humans instead of being isolated from others and feeling alone (Neff, 2023). The various dimensions of self-compassion, as originally introduced by Neff (2003), represent six interconnected elements, including three positive components of self-compassion as well as their negative counterparts. A meta-analysis of Muris and Petrocchi (2017) showed that the positive components of self-compassion (*i.e.*, self-kindness, common humanity, and mindfulness) that refer to self-care, forgiveness, and a balanced approach to painful emotions were negatively correlated with psychopathology, while the respective negative aspects of self-compassion (*i.e.*, self-judgment, isolation, and over-identification) have been positively associated with psychopathology. Although there was a debate about using both positive and negative aspects of self-compassion due to potential biases of tautology in understanding self-compassion in relation to psychopathology (MacBeth & Gumley, 2012), an array of research provides empirical support for the theoretical and conceptual coherence of self-compassion, which stands as a valid overarching factor that encompasses the positive and negative interrelated dimensions (*e.g.*, Neff *et al.,* 2019). Based on the respective evidence, self-compassion was examined in the current study as an overall construct, but also specifically with regard to its positive and negative aspects.

Previous studies have shown that overall self-compassion might buffer against suicidality by means of various mechanisms, such as reducing the impact of stressful life events and social threat-based emotions (*e.g.*, self-criticism, perfectionism, shame, and isolation), which constitute common psychological risk markers of suicidal thoughts and behaviors (O'Connor & Nock, 2014). Furthermore, higher levels of self-compassion have been associated with lower depression, anxiety, and stress and higher mental well-being (MacBeth & Gumley, 2012), indicating that self-compassion may prevent suicidality by minimizing, on the one hand, the emotional burden from mental distress symptoms, and on the other, by increasing positive affect and life satisfaction (Sommers-Spijkerman *et al.*, 2018). Evidence from meta-analytic studies also highlighted that self-compassion might protect against suicidality by improving adaptive strategies of emotion regulation and interpersonal functioning (Ferrari *et al.*, 2019; Wilson *et al.*, 2019). Emotion regulation is strongly linked to mentalized affectivity, that is, the mentalizing processes of making sense of one's own emotions and interpreting both their own and others' behaviors, which seems to share common ground with shaping of interpersonal relationships (Lioti *et al.*, 2024) and developing epistemic trust (*i.e.*, the ability to interpret external information as trustworthy, relevant, and applicable in many contexts) and act as a buffer against emotional dysregulation (Parolin *et al.*, 2023). These mechanisms promote emotion regulation together with enhancing interpersonal functioning and offer additional insights into how self-compassion may act as a protective factor against suicidality.

Self-compassion has been linked with a reduced risk of suicidal ideation and attempts (Cleare *et al.*, 2019; Suh & Jeong, 2021). On the contrary, low self-compassion has been found to be a predictor of suicidality, especially in people with recent onset (*i.e.*, last 12 months) of suicidal ideation or behavior (Per *et al.*, 2022). It also appears that self-compassion mediates the relationship between shame and depressive symptoms in adults

with suicide attempts, as it reduces the effect of shame on depressive symptoms (Zhang *et al.*, 2019), while it is associated with fewer depressive symptoms overall in adults with a recent attempt (Zhang *et al.*, 2019). Particularly, with respect to the positive vs negative dimensions of self-compassion, it has been found that the latter predicted suicide risk (O'Neill *et al.*, 2021). These results highlight the need for suicide prevention interventions that may focus on strengthening overall self-compassion with special emphasis on promoting its positive aspects as a buffer against suicidality. Yet, little is known about the psychological mechanisms that may underpin the relationship between self-compassion and suicidality.

In their systematic review, Amari et al. (2023) found a straightforward relationship between self-compassion and secure attachment in individuals with mental health difficulties, indicating that the ability to be self-compassionate is linked with early attachment experiences (Naismith *et al*., 2019; Raque *et al.*, 2023). Furthermore, a recent meta-analysis (Huang & Wu, 2024) revealed strong negative associations between self-compassion and insecure attachment (*i.e.*, anxious and avoidant attachment), as well as significant associations between each of the six positive and negative dimensions of self-compassion and attachment insecurity. Similarly, although both attachment anxiety and attachment avoidance were found to be correlated with depressive symptomatology, the negative aspects of self-compassion mediated the relationship between attachment anxiety and depressive symptoms, whereas the positive aspects of self-compassion mediated the relationship between attachment avoidance and depressive symptoms (Yang *et al.*, 2024).

These findings provide robust empirical support to the theoretical link between self-compassion and attachment. Attachment theory (Bowlby, 1988) suggests that early experiences with the primary caregivers constitute the basis for the internal representations about others' trustworthiness, based on their availability, responsiveness, and reliability in caregiving, as well as self-worthiness in self- and other- relating. Depending on the parents' early responses to the infant's needs for care and support (Ainsworth *et al.*, 1978), these internal working models reflect the attachment style that will be employed in adult interpersonal relationships. Based on Ainsworth *et al.*'s (1978) pioneering work on mother-infant interactions, adult attachment style was initially classified into four categories, namely secure, dismissing (*i.e.*, avoidant), preoccupied (*i.e.*, anxious), and fearful (or else, disorganized) attachment. Securely attached individuals hold positive representations of self and others and perceive the significant other as a stable trustworthy figure. Thus, they find it easy to rely on others in times of need and feel safe in close relationships. On the contrary, those with dismissing–avoidant attachment are emotionally guarded and self-reliant, urged by a positive model of self and a negative model of others. Adults with a preoccupied–anxious attachment style seek emotional proximity with others. Nonetheless, their anxiety about being rejected or abandoned prevails, reflecting a negative model of self and a positive model of others. Lastly, those with fearful attachment have a strong desire for closeness, but they also have difficulty in maintaining intimate relationships and a fear of being abandoned due to a negative internal model of both self and others (Bartholomew, 1990).

Along with this categorical approach to adult attachment, a prevalent dimensional approach has also been developed to depict the several dimensions of attachment along the two axes of attachment anxiety and attachment avoidance (Brennan *et al.*, 1998). The former is related to the preoccupied attachment style, whereas attachment avoidance is analogous to the dismissing attachment style, with those high on both dimensions exhibiting the fearful attachment style and adults with lower scores on both dimensions expressing secure attachment. Each of these dimensions (*i.e.*, secure, anxious, and avoidant attachment) influences interpersonal functioning in different ways. This is important considering that interpersonal factors (*i.e.*, interpersonal sensitivity, aggression, and lack of sociability) have been found to mediate suicidal ideation and the transition to suicidal behavior (Stepp *et al.*, 2008). Particularly, negative self-views and beliefs of self-inadequacy (anxious attachment) or mistrust in tolerating emotional connection with others (avoidant attachment) may cause elevated interpersonal sensitivity and lack of expressed anger in close relationships, or lack of social closeness, all of them indicating a high suicide-risk (MacNeil *et al.*, 2023; Stepp *et al*., 2008).

It appears that insecure attachment is associated with feelings of doubt as well as conditioned negative responses to connectedness, preventing the taming of fears of social closeness and developing skills for compassion relating to self and others. Nevertheless, the Integrated Motivational–Volitional (IMV) model of suicidal behavior (Klonsky & May, 2015) postulates the key role of connectedness in minimizing suicidal ideation and protecting against suicidal attempt. Particularly, social support and belongingness may be crucial in mediating the transition from pre-motivational suicide-related risk factors (*e.g.*, deprivation, invalidation, stressful or traumatic life events) to self-harm and suicidal behavior (Klonsky & May, 2015; O'Connor & Kirtley, 2018). Furthermore, the social mentalities model (Gilbert, 2000) suggests that inadequate caregiving in early relational experiences that underlies insecure attachment may cause an overstimulation of the "threat system", as opposed to the "soothing system" that is reflected in secure attachment. Consequently, insecure attachment may influence suicidal ideation and behavior not only because of the negative internal models of evaluating others as possible sources of frustration (anxious attachment) or threat (avoidant attachment) leading to thwarting social connectedness but also due to the underdevelopment of self-soothing and self-caring psychological mechanisms, such as self-compassion.

The existing research has shown that individuals with an insecure attachment style are at a higher risk for suicidal ideation and attempts compared to those with secure attachment (MacNeil *et al.*, 2023; Miniati *et al.*, 2017; Zortea *et al.*, 2021). Despite this unequivocal relationship between insecure attachment and suicide-related outcomes, the results are contradictory regarding the type of insecure attachment (*i.e.*, anxious *vs* avoidant) in relation to suicidality. Several studies showed that anxious attachment, including fearful and preoccupied classifications, was associated with a history of suicide attempts and increased risk for suicide in the future (Li *et al.*, 2017; Turton *et al.*, 2022). In contrast, Grunebaum *et al.* (2010) found that the avoidant attachment style was associated with an increased risk of suicide attempt. Also, Turton *et al.* (2022) showed that attachment avoidance was directly related to suicidal ideation after controlling for age, gender, and depressive symptoms, which underscores the need to help people develop closer relationships with significant others to reduce suicidal ideation.

Hence, further research is deemed necessary to explore the interaction between adult attachment, especially avoidant attachment, with potential resilience factors against suicidality, such as self-compassion, as this appears to be a developing research field in suicide prevention and treatment. Considering the piv-

otal role of connectedness in protecting against suicidality (Klonsky & May, 2015) and that self- and other- representations in relation to connectedness ingrained in the various attachment styles are strongly related to self-compassion (Huang & Wu, 2024), the current study aims to examine attachment as a mediator between self-compassion and suicidal outcomes. Emphasis is given to the potential mediating role of attachment avoidance based on existing evidence that although anxious attachment was associated with conflicts in close relationships, people with avoidant attachment have a lower sense of social support and connectedness (Candel & Turliuc, 2019).

Avoidant-attached adults' tendency to distance themselves from others (*i.e.*, "lone wolves") may indicate their attempt to protect themselves from a perceived threat due to others' untrustworthiness/unsupportiveness. Thus, attachment avoidance may cause a lack of self-compassion not only because of internalization of others' emotional unavailability but also as an unconscious narcissistic defense for self-protection (Banai *et al.*, 2005) by repressing emotions, vulnerability, and the need for support and care. In other words, avoidant attachment may reflect an overstimulation of the threat system preventing the activation of the soothing system, as this could be possible through self-compassion. Of note, Mackintosh *et al.*'s study (2018) highlighted that low self-compassion was uniquely predicted by attachment-related avoidance in patients with comorbid depression and anxiety. Likewise, attachment avoidance was significantly correlated with fear of compassion toward self in a clinical sample of patients with personality disorders (Naismith *et al.*, 2019). These findings imply that the relationship between self-compassion and insecure attachment in psychopathology appears to be complex and warrants further empirical attention.

Table 1. Sociodemographic and clinical characteristics of participants.

Characteristics	*N*	%
Gender		
Male	93	34
Female	180	66
Marital status		
Single	112	41
Married	109	40
Divorced/separated	40	15
Widowed	12	4
Educational level		
Primary school	26	10
Secondary school	19	7
High school	114	42
Higher education/university	93	34
Postgraduate studies	20	7
Working status		
Full-time employee	97	36
Part-time employee	19	7
Unemployed	47	19
Household chores	30	11
Student	38	14
Retired	42	15
Hospitalizations[a]	76	28
Counselling-Psychotherapy[a]	165	60
Suicide attempts[a]	76	28

N=273; participants were on average 44.1 years old (SD=15.9); [a]reflects the number and percentage of participants answering "yes" to this question.

Aims and research questions

There is a growing body of literature indicating the protective role of self-compassion and secure attachment in preventing suicidal thoughts and behaviors. However, to the authors' knowledge, there has been no previous research to examine the interaction of attachment style and self-compassion in suicidality. Aiming at bridging this research gap, we examined how attachment and self-compassion (as an overall construct, but also considering its positive and negative aspects) may be associated with suicidality in a clinical population of patients with major depressive disorder. We also investigated the mediating role of attachment in the relationship between suicidality and self-compassion. Hence, the present cross-sectional study aims to add to the scarce evidence regarding the relationship of suicidality with attachment and self-compassion and provide new empirical data that could inform suicide prevention by addressing the following specific research questions: (i) How attachment style, self-compassion, and suicidality correlate in patients with MDD? (ii) Are there differences between MDD patients with suicidality and those with no suicidality in relation to self-compassion and attachment as well as their socio-demographic and clinical characteristics? (iii) How attachment mediates the relationship between self-compassion and suicidality?

Methods

Participants

A total sample of 273 patients with a diagnosis of MDD participated in the study. At the time of enrollment, patients were either hospitalized in the psychiatric inpatient unit (*n*=76) or were followed up on an outpatient basis (*n*=197) at a university general hospital in Greece (Table 1). The questionnaires were completed two to four weeks after their admission to the hospital by the inpatient participants and within the first one to three months of treatment during the regular follow-up appointment with the therapeutic team by those who were outpatients. Diagnosis of MDD was assessed by experienced psychiatrists of the university general hospital using standard procedures of clinical evaluation, including the Mini International Neuropsychiatric Interview based on the DSM-5 criteria (American Psychiatric Association, 2013; Sheehan *et al.*, 1998). Alongside an MDD clinical diagnosis, additional inclusion criteria were: (i) aged 18 or older, (ii) be stabilized or in remission of symptoms, and (iii) have a good understanding of the Greek language. Patients were excluded if they were diagnosed with severe conditions other than MDD (*e.g.*, catatonic or psychotic features, organic mental disorders, intellectual disability, substance use disorder, severe borderline, antisocial, or other personality disorders).

Most participants (66%) were women. Their age ranged between 18 to 80 years old (*M*=44.1, *SD*=15.9). In terms of their educational level, 42% of them were high school graduates, followed by 34% who were university or higher education graduates. Most of the participants (60%) had received in the past or were currently receiving psychotherapy or counseling services, and 183 patients (67%) were under psychiatric medication. The majority (72%) had no history of suicide attempts, while 76 patients (28%) had attempted suicide at least once (Table 1).

Measures

Suicidal Behaviors Questionnaire-Revised

The total score of the Suicidal Behaviors Questionnaire-Revised (SBQ-R) was used to measure suicidality. SBQ-R includes four items of suicidality: (a) suicide ideation and/or suicide attempts lifetime, (b) frequency of suicidal ideation in the past year, (c) threat of suicide attempt, and (d) self-reported likelihood of suicidal behavior in the future (Osman *et al.*, 2001). The possible range for the four dimensions of suicidality is 3 to 18. A total SBQ-R score equal to or greater than seven indicates suicidality (Osman *et al.,* 2001). The SBQ-R was translated into the Greek language through a forward-backward translation by independent bilingual experts, and differences in translation were resolved by full agreement among the translators and the authors. The SBQ-R showed adequate reliability in our study, as Cronbach's α was .78 (*Appendix 1*).

Beck Depression Inventory

The Beck Depression Inventory (BDI) consists of 21-item multiple-choice questions assessing depressive symptomatology according to DSM-IV (Beck *et al.*, 1996). Responses to the BDI range from 0 to 3 (possible range 0-63). The BDI has been translated into Greek by bilingual persons and validated in the Greek population (Giannakou *et al.*, 2013). The Greek version of the BDI-II has very good internal consistency (Cronbach's α=.85), test-retest reliability, and validity, highlighting that the translation and adaptation of the BDI-II to the Greek context has yielded a valid and reliable tool.

Self-Compassion Scale

The Self-Compassion Scale (SCS) contains 26 questions rated on a 5-point Likert scale (Neff, 2003). It consists of two dimensions, including the positive and the negative aspects of self-compassion, with three subscales each (*i.e.*, self-kindness, common humanity, mindfulness, and self-judgment, isolation, over-identification, respectively). The scale was translated and validated for use in the Greek population, where a forward-backward translation was conducted. Differences were resolved with the researchers and two independent translators reaching full agreement. The Greek version of the SCS was found to have very good psychometric properties (*i.e.*, reliability and validity, including the factorial structure) (Mantzios *et al.*, 2015), which have been previously confirmed in numerous studies with large sample sizes (*i.e.*, above 500 items). In the present study, exploratory factor analysis (EFA) was also performed for additional validation with our sample population. The results were indicative of the questionnaire's good fit considering the rather small sample size (< 300 items), with EFA analysis showing good internal reliability of the SCS, in accord with the respective literature (*Appendix 2*). Also, in this study, Cronbach's alphas were found to be .90 for the total score, .89 for the positive aspects, and .86 for the negative aspects of self-compassion.

Experiences in Close Relationships Scale (ECRS)

The Experiences in Close Relationships Scale (ECRS) includes 36 items to assess the two anxiety-avoidance dimensions of insecure attachment on a 7-point Likert scale (Brennan *et al.*, 1998). Each of these two attachment styles (*i.e.*, anxious and avoidant) is assessed with 18 items of the total scale. The secure attachment style results from low levels of both insecure attachment dimensions. The ECRS has been translated and validated to be used in the Greek population. The translation in the Greek language was initially conducted by the researchers of the validation study, and the back-translation was conducted by two independent psychologists who were bilingual to ensure conceptual equivalence between the original and translated items (Tsagkarakis *et al.*, 2007). The Greek version of the ECRS is deemed to be a valid and reliable tool to be used in the Greek context, including its factorial structure. In our study, the ECRS total (α=.93), as well as the ECRS – Anxiety (α=.92) and the ECRS – Avoidance (α=.93), showed excellent consistency. In addition, to confirm further the factorial structure of the ECRS-Greek version in our study and validate the robustness of the results in our sample, we conducted an EFA analysis. The loadings of the ECRS questions in the EFA were found in this study to be completely aligned with those of the original scale and the validated Greek version (*Appendix 2*).

Sociodemographic and Clinical Characteristics

A structured questionnaire was designed for this study to collect information about patients' socio-demographics (*e.g.,* gender, age, educational level, marital status, working status) and clinical characteristics (*e.g.,* illness duration, hospitalizations, pharmacotherapy, psychotherapy, suicide attempts).

Procedure

The present study was approved by the Research Ethics Committee of the University General Hospital "Attikon", Athens, Greece (registration number: PSY, EBD500/17-07-2018). All participants were fully informed of the study's aims and methods, and they provided written informed consent to participate in the study, according to the Declaration of Helsinki. Participants were assured of confidentiality and their right to withdraw from the study at any time without consequences. Confidentiality of personal data was strictly respected, and anonymous participation in the study was ensured. The questionnaires were administered to patients with MDD in individual sessions by the first author and two trained graduate-level psychologists.

Statistical Analysis

An exploratory factor analysis (EFA) was conducted to further confirm the factorial structure of the Greek versions of SCS and ECRS scales used in our study. Prior to conducting EFA, the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's test of sphericity were calculated to determine whether the data was suitable for factor analysis. The results of high KMO score (KMO 0.89>0.7 and KMO 0.92>0.7, respectively) and statistically significant Bartlett's test of sphericity (p<0.001) showed that the data collected from the SCS and ECRS questionnaires were suitable for EFA (*Appendix 2*).

Frequencies and percentages of the sample were calculated based on demographic and clinical characteristics. Descriptive statistics, including the means, standard deviations, and minimum and maximum values for the scales, were calculated (*Appendix 3*). A normality test was performed according to Kolmogorov-Smirnov and Shapiro-Wilk criteria. The variables did not follow a normal distribution at the p=0.05 level of statistical significance; therefore, non-parametric criteria (*i.e.*, Mann -Whitney U test) were used in order to examine possible differences between the non-suicidal group and the suicidal

group of patients in terms of self-compassion (as an overall construct, but also including its positive and negative aspects), depression and attachment type (both dimensions: anxiety and avoidance) and their socio-demographic and clinical characteristics. A Spearman's correlation was conducted to evaluate the relationships between the variables.

Mediation analysis was performed to evaluate possible mediating roles between the variables and suicidality. Causal mediation analysis was employed due to its advantages over traditional mediation analyses. Through causal mediation, necessary assumptions can be evaluated to establish a valid causal role of the mediator of interest. Also, the causal mediation analysis surpasses the limitations of traditional mediation approaches regarding non-linearities and interactions, focusing on the decomposition of direct and indirect effects. The method computes the Average Causal Mediated Effect (ACME) (the effect of the mediator alone), the Average Direct Effect (ADE) (the unmediated effect), and the Total Effect (ADE+ACME). The bootstrap method was applied to estimate direct, indirect, and total effects. All paths were estimated via Ordinary Least Squares (OLS) regression. To examine the normality of the mediation model's residuals, we used a QQ plot where it was confirmed that the residuals followed a normal distribution. Statistical analyses were performed using the Python 3.10 programming language along with the stats models 0.14.1 library (https://www.statsmodels.org/) and the mediation method.

Results

Correlations of suicidality in patients with MDD

As shown in Table 2, suicidality was found to have a positive significant correlation with anxious attachment (ρ=.24, p<0.001) and avoidant attachment (ρ=.23, p<0.001). On the contrary, a negative significant correlation was found between both dimensions of insecure attachment with overall self-compassion (ρ=-.36, p<0.001 and ρ=-.22, p<0.001 for attachment anxiety and attachment avoidance, respectively). Similarly, depressive symptomatology had a significant positive correlation with both dimensions of insecure attachment (ρ=.27, p<0.001 and ρ=.27, p<0.001 for avoidant attachment style and anxious attachment style, respectively), while a negative correlation between suicidality and overall self-compassion (ρ=-.38, p<0.001) was found. Particularly, the positive SCS dimensions appeared to have a statistically significant negative correlation with both depressive symptomatology (ρ=-.48, p<0.001) and suicidality (ρ=-.29, p<0.001), and the contrary occurred with the negative SCS dimensions (Table 2).

Differences between patients with MDD in relation to suicidality

Based on the suicidality cutoff score of the SBQ-R, a total number of 136 patients appeared to be in the "non-suicidality" group (*i.e.*, Group 1), whereas 137 patients reported to be suicidal (*i.e.*, Group 2). The distribution of participants based on the two dimensions of the ECRS showed that most of the participants belonging to the non-suicidal group (55.1%) scored low on both the avoidance and anxiety subscales, thus distinguished by a secure attachment style (Figure 1). On the contrary, most of the participants in the suicidal group (29.2%) had the highest score on the anxious-fearful attachment type but broadly high scores on both dimensions of avoidance-anxiety attachment (Figure 1).

The Mann-Whitney tests showed that there was a statistically significant difference between the two groups (*i.e.*, non-suicidal *vs* suicidal) in terms of the depressive symptoms (U=5169.5, p<0.001), attachment type (U=6381, p<0.001), the partial types of attachment both in the dimension of avoidance (U=6948.5, p<0.001), and the dimension of anxiety (U=6987.5, p<0.001), self-compassion (U=12477.5, p<0.001), and the subscales of self-compassion both in terms of positive aspects (U=11896, p<0.001) and negative aspects (U=12126.5, p<0.001). As expected, statistically significant differences were also found between the two groups in suicide attempts (U= 14006, p<0.001) and hospitalizations (U=11342.5, p<0.001). However, no statistically significant differences were found between the non-suicidal group and the suicidal group in terms of age, gender, marital status and working status, educational level, psychotherapy provision, and onset of depressive symptoms. Based on these results, the participants' socio-demographic and clinical characteristics were not included in further analyses.

Mediators in the suicidality and self-compassion relationship

A mediation analysis was conducted to check whether the effect of self-compassion (*i.e.*, as an overall construct) on suicidality in patients with major depressive disorder can be explained by the mediating variable of avoidance attachment, followed by a bootstrap method to test the statistical significance of the results. In our model, the dependent variable was suicidality (SBQ-R), the independent variable was self-compassion (SCS), and the mediator was avoidant attachment style (ECRS avoidance). First, a Generalized Linear Model (GLM) was per-

Table 2. Correlations between study variables.

Variable	1	2	3	4	5	6	7	8
1. Attachment total	—							
2. Anxious attachment	.81***	—						
3. Avoidant attachment	.82***	.34***	—					
4. Suicidality	.29***	.24***	.23***	—				
5. Self-compassion	−.35***	−.36***	−.22***	−.38***	—			
6. Negative aspects of self-compassion	.39***	.44***	.21***	.36***	.84***	—		
7. Positive aspects of self-compassion	−.23***	−.21***	−.17**	−.29***	.86***	−.48***	—	
8. Depression	.34***	.27***	.27***	.47***	−.60***	.55***	−.48***	—

**p<.01; ***p<.001.

formed to model the effect of the independent variable X (self-compassion) on the dependent variable Y (suicidality). The results showed that c=-2.54 was statistically significant (p<0.001), indicating that self-compassion affects suicidality. Then, an Ordinary Least Square model (OLS) was applied to examine the effect of self-compassion (*i.e.*, the independent variable) on attachment avoidance (*i.e.*, the mediator). The results showed that α=-0.48 was statistically significant (p<0.01), so self-compassion affects avoidance. Finally, an OLS was applied to examine the effect of the independent variable (*i.e.*, self-compassion) and the mediator (*i.e.*, attachment avoidance) on the dependent variable (*i.e.*, suicidality) (*Appendix 4*). From the results, it was shown that b=0.59 was statistically significant (p<0.01), and c'=-2.25 remained statistically significant (p<0.001) with a smaller size (c'<c). Therefore, the total effect c=-2.54 was divided into the indirect (mediated) effect α*b=-0.29 plus the direct effect c'=-2.25 (Figure 2).

In order to examine whether the mediation effect was statistically significant, the bootstrapping method was used to calculate the causal mediation effects. As depicted in Table 3, the total effect was -2.559. The direct effect (ADE) was -2.274 and the mediation effect (ACME) was -0.285, indicating that the results were statistically significant. The effect size measure R^2 was also calculated (-0.00198<0.01). Therefore, the R^2 measure was considered unbiased, indicating that the difference between the population value and the sample estimate of the R^2 measure was less than 1% of the total variance accounted for in the mediation model. In other words, the sample estimates of this ef-

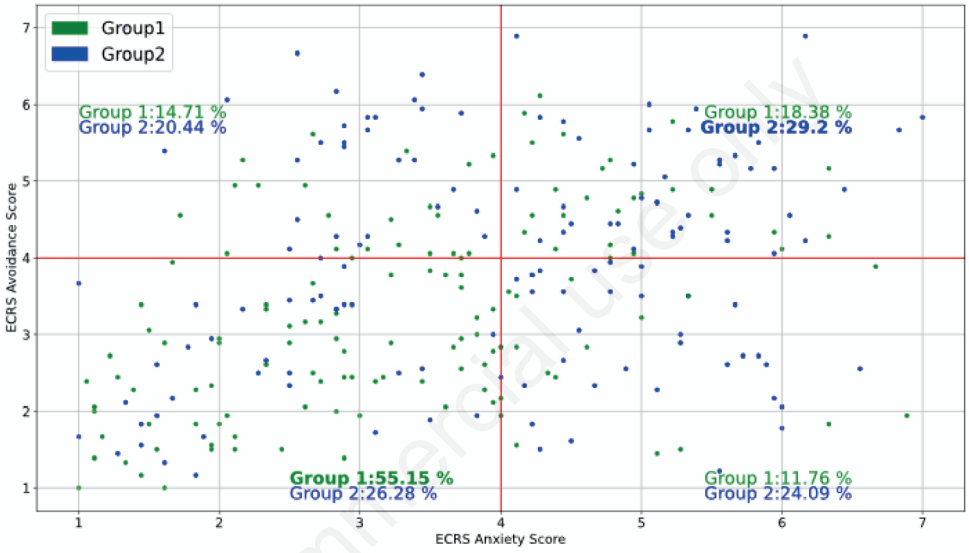

Figure 1. Distribution of participants' groups on two axes of attachment avoidance and anxiety.

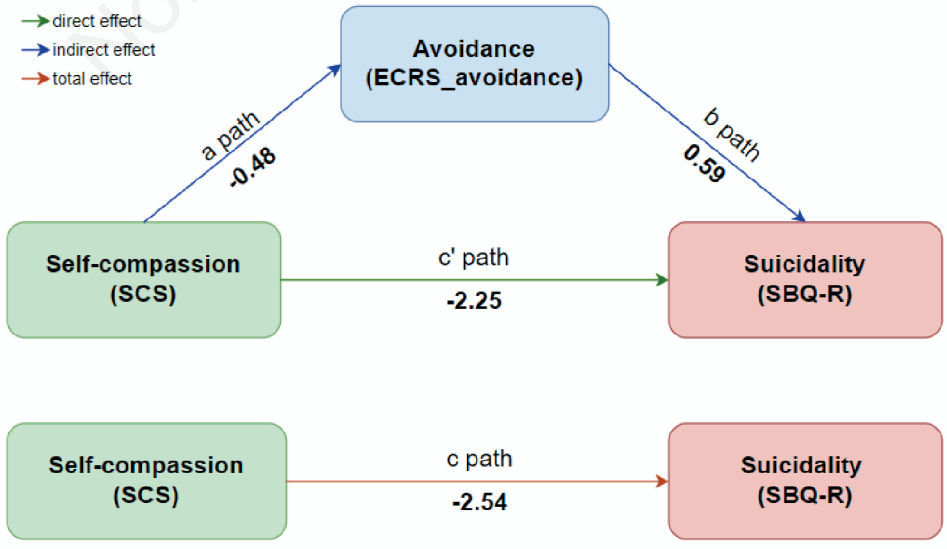

Figure 2. Effects of mediation analysis.

fect-size measure were an adequate gauge of the magnitude of individual paths within 1% of the total variance observed in either M (mediator) or Y (dependent variable). Of note, in a preliminary analysis examining anxiety attachment as a mediating variable, no statistical significance was yielded (*i.e.*, *p*-value of ACME being 0.176>0.05).

Discussion

The aim of the present study was to investigate the relationships between suicidality, self-compassion, and attachment style in patients diagnosed with major depressive disorder. To the best of our knowledge, this is the first study examining the interplay between self-compassion and attachment in depressed patients with respect to suicide-related issues. The results from the mediation analysis in our study revealed that low self-compassion may lead to a high risk of suicidality, while the protective function of high self-compassion on suicidal ideation and suicide attempts is mediated by attachment avoidance, which appears to be a risk factor of suicidality. The practical implications of this finding primarily lie in the importance of increasing self-compassion as a buffer against suicidality. However, in doing so, a clinician should also consider patients' avoidance attachment issues since the latter may interfere with the ability of people with MDD to be self-compassionate when they struggle with suicidality.

Despite recent studies establishing both self-compassion (Cleare *et al.*, 2019; Suh & Jeong, 2021) and secure attachment (MacNeil *et al.*, 2023; Zortea *et al.*, 2021) to be vital protective factors against suicidality, the role of attachment as a psychological mechanism that may mediate the relationship between self-compassion and suicidality has not been investigated to date. Being self-compassionate appears to help people diagnosed with MDD to better regulate their emotions (Diedrich *et al.*, 2014), while emotion regulation contributes to preventing suicidal thoughts and behaviors, especially among individuals with an anxious attachment style (Turton *et al.*, 2021). Such empirical evidence highlights the need for suicide prevention interventions that focus on strengthening self-compassion. Nevertheless, self-compassion may not be a panacea or "a size-fits-all solution" for every client in psychotherapy. Our study adds to the current body of knowledge by demonstrating the mediating role of attachment avoidance between suicidality and self-compassion, a finding that may have important clinical implications for tailoring interventions in the field of suicide prevention and treatment.

Firstly, the results of this study revealed that insecure attachment, including anxious and avoidant attachment styles, were positively associated with depression and suicidality and negatively with self-compassion. Additionally, the patients who reported increased suicidal thoughts and behaviors differed significantly in the levels of depression, self-compassion, and attachment (*i.e.*, secure *vs* insecure attachment) compared to those patients who were non-suicidal. Although most patients with suicidality were found to have the highest score on the anxious-fearful attachment type, there were overall high scores on both dimensions of avoidance-anxiety attachment in this specific group compared to the "non-suicidal group" who were mainly characterized by a secure attachment style.

These findings are in line with previous empirical evidence from several studies and systematic reviews (MacNeil *et al.*, 2023; Zortea *et al.*, 2021), suggesting that individuals with an insecure attachment style are at an increased risk for suicidal ideation and behavior. Furthermore, although a few MDD patients with secure attachment were found to exhibit suicidal ideation and suicide attempts as well, their suicidality might be of lower severity, or they may respond better to psychotherapy and overall treatment compared to patients with insecure attachment styles. This is an area that warrants further quantitative and qualitative research to inform suicide risk prevention and treatment with specific attachment-related strategies to combat suicidality (Holmes, 2011).

Similarly, previous studies have documented that depression is significantly predicted by attachment insecurity (Dagan *et al.*, 2018; Messina *et al.*, 2023). A plausible explanation for such an association relates to the way people with insecure attachment understand and interpret their interpersonal relationships as a source of stress and dissatisfaction rather than an important external resource that they can trust, learn from, and rely on. Of note, a meta-analysis (Dagan *et al.*, 2018) demonstrated that insecure-preoccupied individuals and not insecure-dismissing individuals (*i.e.*, avoidant) exhibited significantly more depressive symptoms than the secure-autonomous individuals, indicating that the various insecure attachment types (anxious *vs* avoidant) may impact depression in different and complex ways.

Avoidant attachment appears to offer some sort of defensive "armoring" against emotional pain (Banai *et al.*, 2005), although this is achieved by disregarding one's own struggles and needs rather than employing adaptive emotion regulation strategies. In this respect, interpersonal emotion regulation has been found to play a significant mediating role between attachment insecurity and depression (Messina *et al.*, 2023), with anxious attachment having positive associations with the use of interpersonal emotion regulation and avoidant attachment having negative associations with interpersonal emotion regulation. This assumption of emotion regulation could probably explain the negative relationship that was found in our study between depression and self-compassion (as an overall construct and the positive aspects of self-compassion) since self-compassion appears to facilitate emotion regulation in patients with affective disorders (Diedrich *et al.*, 2014; Zhang *et al.*, 2019).

Also, the negative relationship that was found in our study between insecure attachment and self-compassion is well-established in the relevant literature. Particularly, a systematic review demonstrated that both anxious and avoidant attachment styles

Table 3. Results of the casual mediation effects based on bootstrapping method.

	Estimate	95% CI		*p*
		LL	*UL*	
Total effect	-2.559	-3.426	-1.641	<.001
ACME (average)	-0.285	-0.638	-0.047	.012
ADE (average)	-2.274	-3.125	-1.313	<.001
Prop. Mediated (average)	0.106	0.019	0.272	.012

have been associated with lower self-compassion (Amari *et al.*, 2023). Also, Murray *et al.* (2021) showed that individuals with high levels of avoidant attachment have low levels of self-compassion, which contribute to increased levels of depression. Hence, internal factors pertaining to an individual's way of relating to oneself and others should be seriously considered in suicide prevention and treatment. Along these lines, suicide risk assessment needs to be empirically supported for clinicians to be able to discern the different effects that may emerge from each specific attachment type to adjust their interventions accordingly.

An intriguing finding from our study was that the protective mechanism of self-compassion against suicidal ideation and suicide attempt was mediated by a risk factor of suicidality, that is, attachment avoidance. Primarily, the direct effect of self-compassion on suicidality was found to be negative, while it was also found that the higher self-compassion a patient had, the lower the attachment avoidance would be. The relationship between avoidance and suicidality was also found to be directly proportional, indicating that depressed patients with higher attachment avoidance were also at a greater risk for increased suicidal ideation and suicide attempts. To date, no previous research has provided evidence regarding the interplay between attachment, self-compassion, and suicidality. In a relevant study, Mackintosh *et al.* (2018) found that self-compassion mediated the relationship between attachment-related avoidance and emotional distress and anxiety. Furthermore, Turton *et al.* (2022) showed that the avoidant attachment type was directly related to suicidal ideation, whereas attachment anxiety was directly related to suicidal attempts. Based on these findings, the researchers claimed that interventions aimed at reducing suicide attempts should focus on developing skills in emotion regulation to assist people to deal with their attachment anxiety, thus preventing suicidal behaviors. On the other hand, interventions aiming at reducing suicidal ideation should focus on reducing attachment avoidance by promoting skills in how to establish close relationships with others and promote social connectedness.

Overall, in the treatment of suicidality, it is important for a therapist to identify the motivation of a person who has suicidal ideation or suicidal behavior (Moselli *et al.*, 2021) as well as what psychological purposes suicidality may serve in one's internal and external life and self-esteem (Ronningstam *et al.*, 2024). This is of conceptual and clinical importance in relation to avoidant attachment and emotion dysregulation, as it has been postulated that an avoidant-attached individual minimizes the value of close relationships and creates an idealized sense of self as a defense mechanism to protect self-worth (Bartholomew, 1990). Thus, attachment avoidance may represent an unconscious defensive effort to preserve self-esteem and cover narcissistic needs of worthiness and coherence in an overly self-sufficient way (Banai *et al.*, 2005), which disavows one's vulnerability and expression of emotions to others due to inherent negative beliefs about their trustworthiness. As the results of our study have demonstrated, in avoidantly attached patients with MDD, this "defensive armoring" (*i.e.*, attachment avoidance) appears to interfere with the patient's ability to be self-compassionate when they struggle with suicidality. Hence, it is likely that the negative internalized representations about others' responsiveness and reliability held by a person with avoidant attachment deter a more lenient and self-compassionate attitude in depressed adults with increased suicidality.

As Bowlby's (1988) attachment theory suggests, people with insecure attachment are more likely to react with self-destructive behaviors when they deal with separation from significant others. Furthermore, individuals with an avoidant attachment style may reject the value of intimacy and closeness with significant others, using avoidance as a way of a narcissistic defense against deeper psychic vulnerability, which may hinder them from exhibiting self-compassion as a resilience factor against suicidal tendencies (Music, 2019). In other words, even though self-compassion has a direct negative effect on suicidality, one's deeper narcissistic needs pertaining to one's relationship with significant others (*i.e.*, to maintain emotional unavailability and self-sufficiency as a means to safeguard a sense of worth and control) prevail over its importance for suicide prevention. This appears to align with the finding of the study of Zhang *et al.* (2019) that a judgmental attitude toward self negatively interacts with self-compassion in adults with a recent suicide attempt. Attachment avoidance, then, may echo covert self-blame tendencies when a person is frustrated by the significant others, an assumption that could explain its mediating role between self-compassion and suicidality in patients with MDD.

The aforementioned findings resonate with the need for interventions aimed at enhancing psychological resilience factors, including self-compassion, as well as ameliorating negative expectations in interpersonal relationships in people with suicidality. Still, based on the findings of our study, it appears that when a therapist works with a depressed, suicidal client who has an avoidant attachment style, a treatment priority should be to address relational issues and their narcissistic value (*i.e.*, understand emotional distance as a defense to protect self-esteem and coherence due to mistrust in others' availability and supportiveness), rather than focus on developing intrapersonal resources such as self-compassion. In this regard, the therapeutic relationship may function as a "vehicle" of corrective emotional experiences that will help patients to develop an emotional bond of trust and openness in a safe environment, which appears to counteract suicidality (Holmes, 2011). Lastly, the findings of the present study lay bare the need to expand attachment-related research in understanding suicidality, especially concerning the role of attachment avoidance. Through exploring clients' attachment avoidance in relation to specific factors of the therapist-client relationship (*e.g.,* therapeutic alliance, empathy, client attachment to therapist), novel effective therapeutic skills and strategies in addressing suicide risk in psychotherapy could be provided to clinicians. Finally, identifying the possible relationships between attachment avoidance and broader sociocultural factors (*e.g.*, positive attitudes toward attachment avoidance in a society or social distance due to increased alienation in interpersonal relations) with regard to suicidality is of clinical value. Such a comprehensive assessment of individual functioning that takes into account relational and broader psychosocial stressors could contribute toward designing more effective individualized interventions for MMD suicidal patients.

Limitations and directions for future research

This was a cross-sectional study in a clinical sample of both inpatients and outpatients recruited from a university general hospital clinic. Hence, longitudinal studies in a representative sample with the aim of examining the potential causal relationships among the variables and claiming causality and representativeness of the findings are warranted. Also, this study used exclusively self-reported measures, evoking the possibility of bias. Another limitation of this study was that the data did not present a normal distribution. Thus, in the examination of the potential differences

between the patients with suicidality and those with no suicidality, we used several separate Mann-Whitney tests. Therefore, the possibility of Type 1 error should be considered. Moreover, taking into account that the socio-demographic factors were not found to be significant in relation to suicidality, future studies with a larger sample and greater distribution in the socio-demographic variables would be necessary, as these results may be due to the fact that the participants in the current study were categorized in a single group (*e.g.*, 66% were female) in several cases. On the other hand, the age range of the participants was wide (*i.e.*, 18-80 years old), which, although it may allow for more generalizable findings, should also be a note of caution since self-compassion may be experienced differently across the lifespan.

In this study, the focus was on the mediating role of attachment avoidance between self-compassion and suicidality in patients diagnosed with MDD. Further investigation of these variables in other psychiatric groups (*e.g.*, unipolar vs bipolar disorders, borderline personality disorder, etc.) is necessary for a more comprehensive suicide risk assessment to be promoted that would consider the distinct psychopathological conditions. Additionally, the specific variables of the study could be further examined in relation to the different dimensions of suicidality (*i.e.*, suicidal ideation, suicidal plan, and suicidal attempt) to investigate their role in the suicidal process, an underdeveloped research area so far. Future studies could also examine additional protective psychological factors (*e.g.*, emotion regulation, resilience) as well as sociocultural factors (*e.g.*, comparative data from multi-center surveys from different cultures) to provide clinical work with a better understanding of the complex phenomenon of suicidality. Lastly, given the mediating role of attachment avoidance between self-compassion and suicidality, it would be necessary to shed light on the role of these psychological factors and their interlay in studies examining the effectiveness of compassion-based and attachment-based therapeutic approaches in the treatment of suicide.

Conclusions

This study provides preliminary evidence on the mediating role of avoidant attachment between self-compassion and suicidality in adult patients with major depressive disorder. To the best of our knowledge, this is the first study to examine the interaction of attachment and self-compassion in suicidality. Despite the limitations of the study, the findings revealed that when a therapist works with a depressed suicidal client with an avoidant attachment style, a treatment priority should be to address interpersonal issues and promote social connectedness instead of focusing on cultivating self-compassion as an intrapersonal resilience factor. To conclude, though further research is warranted, it appears that the more a relationship with a significant other deepens, the less death is in the foreground.

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Online supplementary material:

Appendix 1. Calculation of Cronbach's α for Each Questionnaire and Sub-scale.

Appendix 2. Exploratory Factor Analysis for ECRS and SCS Questionnaires.

Appendix 3. Descriptive Statistics of the Study Variables.

Appendix 4. Generalized Linear Model (GLM) and Ordinary Least Square models (OLS).