Clinical Psychology & Psychotherapy

WILEY

RESEARCH ARTICLE OPEN ACCESS

Relationship Between the Feeling of Emptiness and Suicide Reattempt: Conclusions From Cross-Sectional and Longitudinal Analyses

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Received: 6 August 2024 | **Revised:** 27 September 2024 | **Accepted:** 30 September 2024

Funding: This study was supported by the Instituto de Salud Carlos III-FIS research grants (PI19/01256, PI20/01471, PI20/00229, PI23/00707 and PI23/00085), funded by the ISCIII and cofunded by the European Regional Development Fund (ERDF). It was also supported by a FPU grant (FPU20/01651) from the Spanish Ministry of Universities and a Universidad Complutense de Madrid predoctoral contract for research staff in training (CT82/20-CT83/20).

Keywords: feeling of emptiness | suicide | suicide reattempt | survival analysis

ABSTRACT

Introduction: The feeling of emptiness is a complex subjective experience considered relevant in the suicidal process, acting as a risk factor for suicide ideation, attempts and even reattempts. However, empirical studies are still scarce.

Objectives: This study has three objectives: to compare emptiness levels in healthy people and those with suicide attempts; to compare the emptiness level between people with a single suicide attempt and multiple suicide attempts at baseline; and to study emptiness as a risk factor for the appearance of new suicidal attempts after an index one.

Methodology: In the study, 382 healthy controls and 58 participants with a recent suicide attempt (in the past 15 days) participated. All completed the feeling of emptiness scale (FES). Information was also collected on sociodemographic characteristics and history of suicide attempts. First, the control sample scores were compared with those of the clinical sample. Later, the single attempt and reattempt groups (any amount greater than one attempt at baseline) were compared. Finally, the clinical sample was followed for 1 year and 3 months (through clinical records). Survival analysis was performed.

Results: The clinical group obtained higher scores across the FES subscales, even when controlling for other relevant variables ($p < 0.01$). When comparing people with one versus several attempts, differences were also observed in all subscales except one, the reattempt group getting higher scores ($p < 0.05$). Regarding the survival analysis, the feeling of emptiness was significantly associated with the risk of reattempt (HR = 1.04; $p < 0.05$). All people who reattempted during follow-up belonged to the reattempt group at baseline.

Conclusions: People who have attempted suicide present higher emptiness scores. Furthermore, emptiness appears to significantly predict the occurrence of new attempts at follow-up. The feeling of emptiness may be associated with the lack of vital meaning and disconnection from others, fundamental aspects of the ideation-to-action suicide models. Including emptiness in suicide assessments could increase clinicians' predictive ability.

Summary

- People who have attempted suicide have higher feelings of emptiness than the general population.
- People who have several lifetime suicide attempts present higher emptiness scores than people after a first attempt.
- The emptiness score after an index attempt could help predict the occurrence of new suicide attempts in the future.
- Including emptiness in suicide assessments could increase clinicians' predictive ability.

1 | Introduction

Suicide is one of the leading external causes of death worldwide. The World Health Organization (WHO) points out that more than 700,000 people may die annually due to suicide (WHO 2023). However, the suicidal phenomenon is not limited to deaths by suicide. Other forms of suicidal behaviour (planning, attempts, reattempts, ...) are of great interest due to their impact on health and functioning status (Benson et al. 2021; Bommersbach, Rosenheck, and Rhee 2023).

The most recent models consider suicide from an ideation-to-action perspective. These models move away from the traditional unitary conception of suicidal behaviour (e.g., Beck et al. 1985; Linehan 1993). They propose mechanisms to first explain the emergence of suicidal ideation and then the processes leading to suicidal behaviours. Each mechanism presents its own risk factors (Joiner 2005; Klonsky, Saffer, and Bryan 2018; Klonsky and May 2015; O'Connor 2011). Numerous risk factors associated with suicidal behaviours have been studied: presence of psychopathology, family history, substance use or adverse life events, just to name a few (Turecki and Brent 2016). One of the risk factors that has recently gained interest is the feeling of emptiness (Blasco-fontecilla et al. 2013; Herron et al. 2024).

The feeling of emptiness is a complex subjective experience relevant in different psychiatric diagnoses. It plays a key role in borderline personality disorder, being one of its diagnostic criteria (American Psychiatric Association [APA] 2022). Different studies focused on the subjective feeling of emptiness point out its relationship with the lack of vital meaning, unfulfillment, disconnection from oneself and others and inner void (Herron and Sani 2022; Miller, Townsend, and Grenyer 2021). This indicates that emptiness may be a multifaceted and complex human experience. In summary, it represents a clinical characteristic of great interest potentially involved in the pathophysiology of varying mental conditions but poorly defined (D'Agostino et al. 2020; Miller et al. 2020).

The feeling of emptiness has been associated with a wide range of suicide behaviour forms: ideation, attempts and, to a lesser extent, reattempts (Blasco-Fontecilla et al. 2015; Fulham, Forsythe, and Fitzpatrick 2023; Grilo and Udo 2021; Herron et al. 2024; Klonsky 2008; Liu et al. 2016; López-Villatoro et al. 2022; Otsuka and Anamizu 2019). Some studies highlight that this subjective experience may play a pivotal role in suicide even when considering other variables (Blasco-fontecilla et al. 2013; Blasco-Fontecilla et al. 2012).

Although the nature of the relationship is unclear, various mechanisms have been proposed. Some authors consider that the feeling of emptiness is related to a lack of connection with others (Fulham, Forsythe, and Fitzpatrick 2023; Yen et al. 2021). In turn, Ideation-to-action models propose thwarted belonging and the lack of social connectedness as two nuclear points in the suicidal ideation genesis (Joiner 2005; Klonsky and May 2015; O'Connor 2011). That is, disconnection would be the link between suicidal ideation and emptiness. Also, O'Connor (2011) raises the relevance of the absence of goals in the development of suicidal ideation. This aspect is also negatively affected by emptiness (Yen et al. 2021).

Other works propose that people with greater feelings of emptiness would use self-harming and suicidal behaviours to overcome those feelings or, as it has been labelled by some authors, for 'feeling generation' (Blasco-Fontecilla et al. 2015; Klonsky 2007). Finally, the feeling of emptiness has been associated with other variables close to suicidal behaviour, such as dysphoria or loneliness (D'Agostino et al. 2020). In brief, the mechanism joining suicide and emptiness has not yet been unravelled, with several possible explanations.

Studies indicate that people with a wide range of mental health diagnoses can experience emptiness (D'Agostino et al. 2020; Hudson et al. 2024; Klonsky 2008). Even healthy population acknowledge having felt emptiness at some point (Herron and Sani 2022; Martin and Levy 2022). However, most studies have focused on the population with borderline personality disorder (Fulham, Forsythe, and Fitzpatrick 2023; López-Villatoro et al. 2022; Yen et al. 2021). The use of validated and complex emptiness measurements is more the exception than the rule. In addition, its association with suicide reattempt has been largely ignored, even though some papers suggest a relationship between major repeaters and emptiness (five or more attempts lifetime; Blasco-Fontecilla et al. 2015).

The present study has three objectives: first, to compare the feeling of emptiness in people with a suicide attempt versus healthy controls; second, to compare the feeling of emptiness in people with one attempt and multiple attempts at baseline; and finally, to study the relationship between the feeling of emptiness measured at baseline and the appearance of new suicide attempts in the next 15 months.

We hypothesize that people who have attempted suicide will present higher levels of emptiness than the control sample. Also, those with more than one attempt will score higher. Finally, the feeling of emptiness at baseline will be a risk factor for reattempt during the follow-up.

2 | Methods

2.1 | Participants

For this study, there were 382 controls, and 58 participants admitted a hospital emergency unit due to a suicide attempt (within the last 15 days). Within the clinical sample, 21 participants had a single attempt, and 37 had two or more (at baseline).

Control group was recruited using advertisements through different media (social networks, email, etc.), as part of a wider protocol of suicide risk screening in Madrid (Spain). Participants in this group could not present previous suicide attempts or history of mental disorders. Healthy controls were included to present a baseline with which to compare people with suicide attempts. The clinical sample was recruited among people who attended the emergency room at the San Carlos Clinical Hospital (Madrid, Spain) for a suicide attempt. People with cognitive or neuropsychological deficits that prevented understanding of the instructions were excluded from the study. All participants in both groups had to be 18 years or older.

All participants received information about the study and signed the corresponding informed consent. The corresponding ethics committees approved the study.

2.2 | Instruments

Participants completed a sociodemographic interview containing data on educational level, employment status, nationality and age. Afterwards, they indicated whether they had made any suicide attempts throughout their lives. The difference between suicide attempts and self-harm was specifically emphasized (attempts should have been carried out with at least some wish to die). If the participant presented suicide attempts, the suicide history was extracted from the application of the Columbia Suicide Rating Scale (C-SSRS; Posner et al. 2011; Spanish version by Al-Halabí et al. 2016).

Chronic feeling of emptiness was measured with the feeling of emptiness scale (FES; Palomares et al. 2020). This instrument was developed for Spanish sample. The scale consists of 33 items answered on a 5-point Likert scale (between 0, *never*, and 4, *always*). It has a Cronbach's alpha of 0.97 and adequate indicators of convergent validity. The test allows the calculation of a global emptiness score as well as a score on five subscales. Although the validation did not name the subscales, they could be summarized as follows: (1) emotional disconnection; (2) need to be valued; (3) loss of vital meaning; (4) loneliness; and (5) lack of self-direction. The clinical records were consulted to check if there were reattempts during follow-up.

2.3 | Data Analysis

2.3.1 | Cross Sectional

The sociodemographic variables were compared between the control and clinical groups. For this, χ^2 and Student's t tests were used (for categorical and continuous variables, respectively). Subsequently, the analysis of covariance test (ANCOVA) was used to study the differences in emptiness between the groups, controlling for relevant sociodemographic variables. Finally, to compare the level of emptiness between the single attempt group and the reattempt group, Student's t tests were used.

The $\eta^2_{partial}$ was used as a measure of effect size in the ANCOVA analyses. The Hedges' g was used when working with Student's t test. Finally, φ coefficient was used for χ^2 analysis. An $\eta^2_{partial}$ of 0.01, 0.06 and ≥0.14 can be considered small, medium and large, respectively. Regarding Hedges' g, 0.2 indicates a small effect size, 0.5 moderate and around 0.8 large (Cohen 2013). The φ values are interpreted as follows: >0.05 weak effect, >0.10 medium effect and >0.15 strong effect (Akoglu 2018).

2.3.2 | Survival Analysis

Once cross-sectional analysis was completed, survival analysis was used. For this, only the clinical sample was considered. First, The Kaplan–Meier curves were used to estimate the risk of reattempting within the sample. Then, unadjusted Cox regression was used to study the association between the feeling of emptiness at baseline (total score) and the Hazard of attempt repetition. Finally, penalized Cox regression was performed to study the association between the feeling of emptiness and the Hazard of repetition, adjusted for the presence or absence of attempts prior to the index one (the index attempt is the one that occurred in the previous 15 days). The follow-up length was 15 months (456 days). The average number of days under follow-up was 419 (range: 92–456).

Analyses were performed using R software Version 4.2.2 (packages survival, bshazard and coxphf) and SPSS version 28.0.1.1.

3 | Results

Descriptive data on the participants are presented in Table 1. Regarding the quantitative variables, the mean age of the control sample was 21.63 ($SD = 4.50$), and that of the clinical group was 35.52 ($SD = 14.68$), showing a statistically significant difference ($p < 0.01$). The average number of suicide attempts in the clinical group was 2.97 ($SD = 3.37$).

In terms of the categorical variables, the groups differed in sex at birth, country of origin occupation and educational level ($p < 0.01$ in all cases except for country, $p < 0.05$).

Given the differences in sociodemographic variables that could affect our study, a linear regression (block introduction, forward entry method) was performed, with the dependent variable being the total emptiness score. In the first block, all the sociodemographic variables were introduced. Then, the group was considered (clinical or control). Results can be seen in Table S1. The only significant variables in the model were group, age and occupation ($p < 0.01$).

Taking this into account, ANCOVA tests were carried out to observe the differences between the groups in the scales of the FES and the total score, controlling for age and occupation.

These comparisons are available in Figure 1. As can be seen, significant differences are found in all subscales, even when controlling the effect of covariables: (1) emotional disconnection ($F = 286.72$; $p < 0.01$; $\eta^2_{partial} = 0.40$); (2) need to be valued ($F = 160.54$; $p < 0.01$; $\eta^2_{partial} = 0.27$); (3) loss of vital meaning ($F = 157.23$; $p < 0.01$; $\eta^2_{partial} = 0.27$); (4) loneliness ($F = 106.15$; $p < 0.01$; $\eta^2_{partial} = 0.20$); and (5) lack of self-direction ($F = 62.16$; $p < 0.01$; $\eta^2_{partial} = 0.13$), as well as in the total score ($F = 230.26$;

TABLE 1 | Comparisons of sociodemographic data between clinical sample and controls.

Variable	Control ($n = 382$)	Clinical ($n = 58$)	t/χ^2	Effect sizes (g/φ)
Age	21.63 (4.50)	35.52 (14.68)	7.15**	2.05
Attempts	—	2.97 (3.37)	—	
Gender				
Male	184 (48.20%)	6 (10.34%)	29.36**	0.26
Female	198 (51.70%)	52 (89.66%)		
Studies				
Primary/Secondary school	116 (30.40%)	38 (69.60%)	27.35**	−0.25
University	266 (65.50%)	20 (34.48%)		
Country				
Spain	320 (83.80%)	41 (70.69%)	5.85*	0.12
Other	62 (16.20%)	17 (29.30%)		
Occupation				
Unemployed	12 (3.10%)	19 (32.80%)	67.45**	−0.39
Employed	370 (96.9%)	39 (67.20%)		

Note: Scores are presented as mean (standard deviation) for continuous variables and count (percentage) for categorical variables. In comparisons between continuous variables, Hedges' g was used as a measure of effect size. In the categorical ones, the φ coefficient was used. When talking about occupation, employed also includes students.
*Statistically significant differences at $p < 0.05$.
**Statistically significant differences at $p < 0.01$.

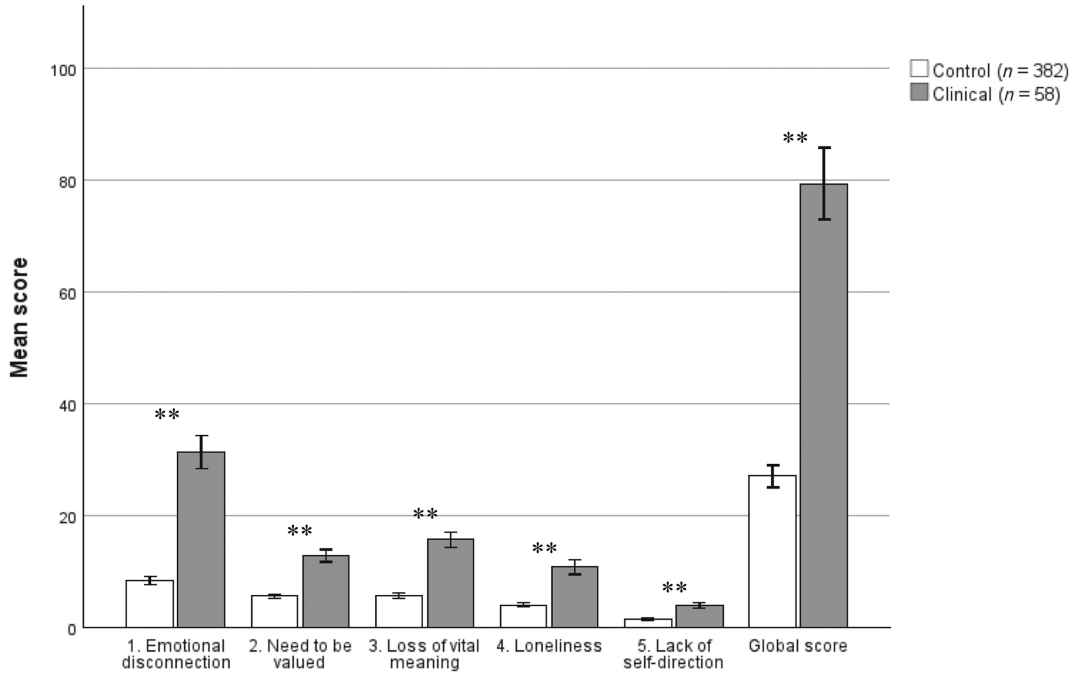

FIGURE 1 | Comparisons of FES scores between clinical sample and controls. *Note*: Error bars 95% CI (*) statistically significant differences at $p < 0.05$ and (**) statistically significant differences at $p < 0.01$.

$p < 0.01$; $\eta^2_{partial} = 0.35$). In all cases, the clinical sample presented higher scores than the control sample.

Now, comparisons between the single attempt group and the reattempt group are presented. Of the 58 participants in the sample, 21 had a single attempt, and 37 had two or more. The mean age of the group with one attempt was 38.86 ($SD = 17.60$), and that of the reattempt group was 33.62 ($SD = 12.61$). The reattempt group had made an average of 4.08 ($SD = 3.80$) attempts. χ^2 tests were carried out to check if there were differences in the

demographic variables (gender, work, studies and country of origin) between both groups. Neither test was significant. Table S2 includes information on these comparisons.

Figure 2 shows the results of the comparisons between groups in the different FES scores. Differences were observed in the total emptiness score ($t = -3.27$; $p < 0.01$; Hedges' $g = -0.88$), as well as in all its subscales except 5 (lack of self-direction): (1) emotional disconnection ($t = -3.06$; $p < 0.01$; Hedges' $g = -0.83$); (2) need to be valued ($t = -2.76$; $p < 0.01$; Hedges' $g = -0.74$); (3) loss of vital meaning ($t = -3.68$; $p < 0.01$; Hedges' $g = -0.99$); and (4) loneliness ($t = -2.53$; $p < 0.05$; Hedges' $g = -0.68$). The feeling of emptiness was always higher in people who have made more than one attempt compared to those who have only attempted suicide on one occasion.

With respect to survival analysis, Figure 3 shows the survival function as well as the Hazard function for suicide reattempt. Eleven people made a suicide reattempt (19%) during follow-up. Of these 11, 82% were women, and the average age was 30.36 years. The majority were Spanish (82%), with university education (54.5%) and employed (63.6%). For all the participants that reattempted suicide at follow-up, the index attempt was not the first lifetime attempt. One person died by suicide during follow-up.

First, the unadjusted Cox regression considering only the total emptiness score is presented: hazard ratio (HR) = 1.05; 95% CI = 1.01, 1.09; $p < 0.01$. After adjusting for group at baseline (reattempt or first attempt group) using penalized cox regression, emptiness total score was still significantly associated with suicide reattempt (adjusted hazard ratio [AdHR] = 1.04; 95% CI = 1.01, 1.08; $p < 0.05$). For every point that the emptiness score increased, individuals presented 4% greater hazard of suicide reattempt. Regarding the effect of presenting several attempts at baseline, the effect was also significant (AdHR = 8.94; 95% CI = 1.13, 1155.26; $p < 0.05$). This confidence interval is highly unstable. This is due to the total separation derived from the fact that all people who reattempted suicide during follow-up already belonged to the reattempt group at baseline. To avoid separation, the survival analysis of only the reattempt group at baseline was also considered. The feeling of emptiness continued to be significant even then (HR = 1.04; 95% CI = 1.01, 1.08; $p < 0.05$).

4 | Discussion

This study started with three objectives: to observe whether people with suicide attempts had higher emptiness scores than the general population; to check if people with several attempts presented higher emptiness levels when compared to people with only one attempt; and finally, to study the predictive potential of the feeling of emptiness in the face of new suicide attempts.

Our results point out that people who have attempted suicide have significantly higher levels of emptiness than the control sample. This was the case both for the total score on the FES and for all its subscales even when controlling for other relevant variables (e.g., age and occupation). Previous work already pointed out the association between emptiness and suicide attempts, although usually in samples only conformed of patients with borderline personality disorder or that used more limited measures of emptiness (Blasco-Fontecilla et al. 2012; Fulham, Forsythe, and Fitzpatrick 2023; López-Villatoro et al. 2022; Yen et al. 2021). Although the scores are significantly lower, the control sample also disclosed feeling empty, in line with previous studies (Martin and Levy 2022).

Also, people with more than one attempt at baseline scored higher on the global FES as well as on the different subscales except for Subscale 5 (lack of self-direction). Specifically, Subscale 5 includes only two items. Its small size could partially explain why no differences were found, as there is less variability. The work by López-Villatoro et al. (2022), focused on suicidal

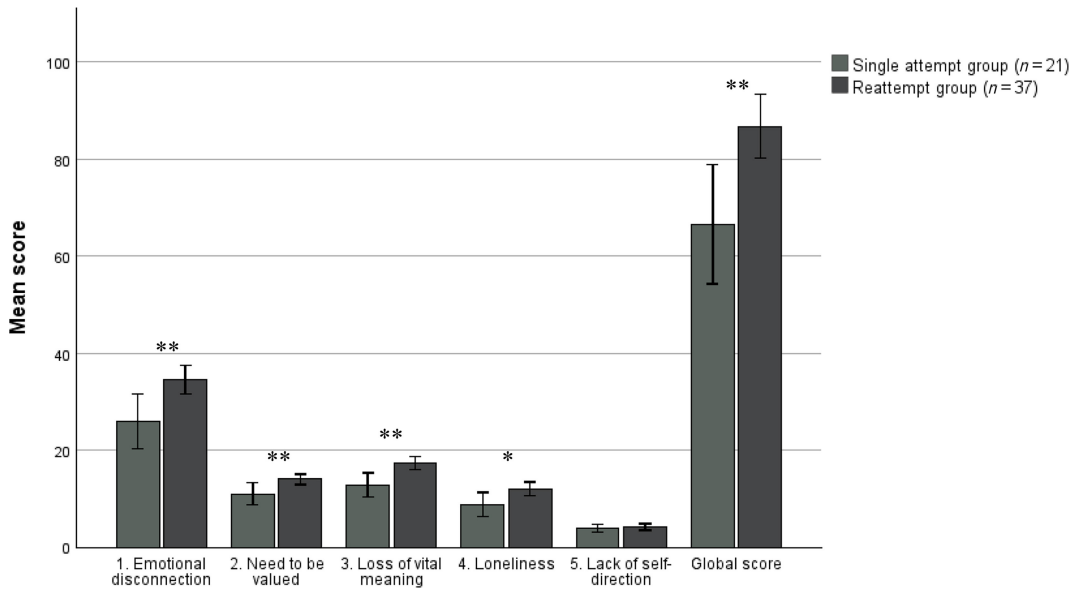

FIGURE 2 | Comparisons of FES scores between the single attempt group and the reattempt group. *Note*: Error bars 95% CI (*) statistically significant differences at $p < 0.05$ and (**) statistically significant differences at $p < 0.01$.

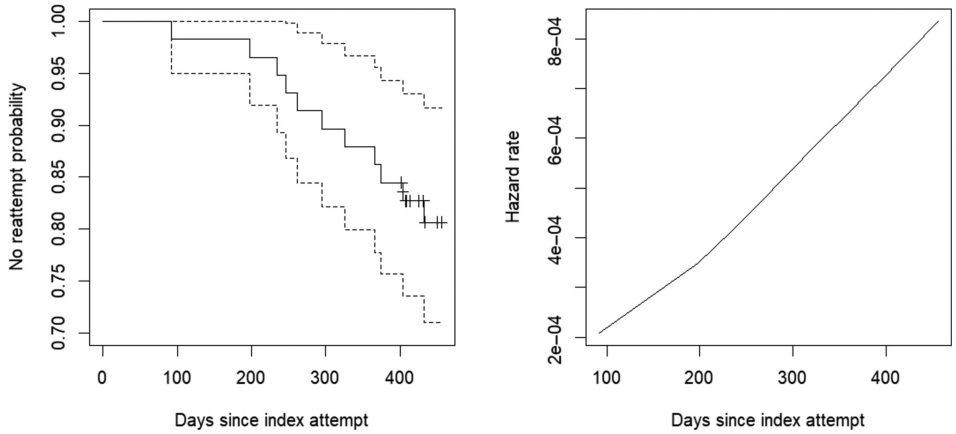

FIGURE 3 | Survival and hazard functions for time to reattempt. *Note*: In the left graph, the solid line represents the survival probability. Each descent of the solid line represents a reattempt. The dashed lines represent the confidence interval. (|) represents cases censored before the end of follow-up.

behaviour in emotionally unstable disorders, found that not all subscales were equally associated with suicide attempt. Specifically, Factors 1 (emotional disconnection) and 4 (loneliness) were the most relevant. Although in our case we found more associated factors, it is partially consistent with those findings. This could reinforce the complex and multicomponent nature of the feeling of emptiness.

Although this is a less explored area, some previous works presented the possible association of emptiness with major repeaters (Blasco-Fontecilla et al. 2015, 2016). In our case, we find an association between reattempt and emptiness even without limiting to major repeaters.

Focusing now on the survival analysis, both the presence of attempts prior to the index one and the total emptiness score predicted the appearance of attempts during follow-up. The first finding is consistent with previous work (Pemau et al. 2024). Previous attempts are related to the acquired capability for suicide, a core concept in the ideation to action models (Joiner 2005; O'Connor 2011). The proportion of reattempts in the sample was also consistent with previous work (de la Torre-Luque et al. 2023). However, the predictive capacity of emptiness is novel.

It is necessary to explain the mechanism connecting suicide attempt and emptiness. Previous works (Miller, Townsend, and Grenyer 2021; Yen et al. 2021) hypothesized about the possible relationship between emptiness and core concepts of the ideation-action models such as thwarted belongingness or connectedness (Joiner 2005; Klonsky and May 2015; O'Connor 2011; van Orden et al. 2010). In fact, emptiness involves a strong disconnection from both one and the others. The feeling of lack of direction and belongingness could be affecting connectedness and goal-oriented behaviour, thus increasing the risk of suicide attempt. Other studies suggest that emptiness has a strong association with hopelessness, particularly affecting suicidal ideation (D'Agostino et al. 2020; Klonsky 2008). On the other hand, emptiness is also a widely reported feeling after making a suicide attempt (Blasco-fontecilla et al. 2013).

Regarding the association between the number of attempts and emptiness, the works are much scarcer. Blasco-Fontecilla et al. (2015, 2016) raise the need to 'feel something' as a possible fit between the major repeaters and the feeling of emptiness. That is, people who feel emptier tend to make more attempts for 'feeling generation'.

In summary, the relationship between suicidal behaviour and feeling of emptiness could be bidirectional. Having survived an attempt could increase the feeling of emptiness. In turn, the feeling of emptiness would act as a risk factor for new attempts.

We now present the limitations of the study. First, there were relevant differences in the sociodemographic variables between the control and clinical groups. Through ANCOVAs, this effect should be controlled.

The diagnosis was not considered. Although this could be considered a limitation, the aim was to study the feeling of emptiness as a transdiagnostic phenomenon, in this case the specific diagnosis being secondary. Previous works already raise the transdiagnostic value of the feeling of emptiness (Herron and Sani 2022; Konjusha et al. 2021). There are other relevant variables not included in this study, such as the duration of the symptoms or the temporal distance between suicide attempts, which could affect the results.

There is a numerical imbalance between the number of healthy controls and people with suicide attempts. This difference could influence some of the results found. Also, the sample considered for the survival analysis is relatively limited; it would be advisable to try to replicate the results with access to larger samples. Linked to this, the fact that all patients who presented a reattempt belonged to the reattempt group at baseline resulted in wide confidence intervals when using penalized Cox regression. Even so, the relevance of the feeling of emptiness continued to appear even when considering only the reattempt group in analysis.

Finally, it is necessary to consider that diagnoses, as well as other complex human behaviours, are rarely explained in a univariate way. Currently, special attention is being given to this causal

complexity through approaches such as the symptom networks, rather than traditional diagnostic views (Borsboom 2017). Future work should introduce the feeling of emptiness in interaction with other variables to test its true relevance.

To our knowledge, we are the first work that longitudinally studies the relationship between suicide reattempt and the feeling of emptiness. This, together with studies that have found an association between emptiness and other forms of suicidal behaviour, present emptiness as a relevant variable for suicidality. In fact, it could predict the appearance of new attempts after an index one. It is necessary to focus more studies on this relationship, considering it together with other variables. The characteristics of the feeling of emptiness in the general population also deserve more attention in future studies. Including the feeling of emptiness as part of the evaluations and interventions in patients with suicidal behaviour could be useful to avoid the appearance of new attempts.

Acknowledgements

This study was supported by the Instituto de Salud Carlos III-FIS research grants (PI19/01256, PI20/01471, PI20/00229, PI23/00707, PI23/00085), funded by the ISCIII and cofunded by the European Regional Development Fund (ERDF), "A way to make Europe". It was also supported by a FPU grant (FPU20/01651) from the Spanish Ministry of Universities and a Universidad Complutense de Madrid Predoctoral contract for research staff in training (CT82/20-CT83/20).

Ethics Statement

All participants received information about the study and signed the corresponding informed consent. The corresponding ethics committees approved the study.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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Supporting Information

Additional supporting information can be found online in the Supporting Information section.