

## ORIGINAL ARTICLE

# Meaning in life mediates the association between depressive symptoms and future frequency of suicidal ideation in Spanish university students: A longitudinal study

Sandra Pérez Rodríguez PhD<sup>1</sup>  | Jose Enrique Layrón Folgado PhD<sup>2,3</sup> |  
Verónica Guillén Botella PhD<sup>1,4</sup>  | Jose H. Marco Salvador PhD<sup>1,4</sup> 

<sup>1</sup>Department of Personality, Assessment and Psychological Treatments, Universidad de Valencia, Valencia, Spain

<sup>2</sup>School of Doctorate, Universidad Católica de Valencia "San Vicente Mártir", Valencia, Spain

<sup>3</sup>International University of Valencia, Valencia, Spain

<sup>4</sup>CIBER Fisiopatología Obesidad y Nutrición (CIBEROBN), Madrid, Spain

## Correspondence

Sandra Pérez Rodríguez, Department of Personality, Assessment and Psychological Treatments, Universidad de Valencia, Av. Blasco Ibañez, 21, Valencia 46010, Spain.  
Email: [sandra.perez@uv.es](mailto:sandra.perez@uv.es)

## Abstract

**Introduction:** There is a need for longitudinal studies that focus on protective factors against suicide in Spain. We analyzed the estimated prevalence of suicidal ideation in a sample of Spanish university students. Second, we explored the relationship between future suicidal ideation, depressive symptoms, suicidal ideation at T1, and meaning in life and its dimensions of meaning and purpose. Third, we analyzed the mediation role of meaning in life between depressive symptoms and suicidal ideation evaluated with Ecological Momentary Assessment (EMA).

**Method:** In this longitudinal study, a total of 718 Spanish university students were assessed at T1, of whom 279 completed questionnaires along with EMA (T2).

**Results:** The estimated prevalence of suicidal ideation was 8.4%. Levels of depressive symptoms were positively correlated with suicidal ideation and negatively with meaning in life and its dimensions of meaning and purpose. Meaning in life and its dimensions mediated the relationship between depressive symptoms and subsequent suicidal ideation.

**Discussion:** There is a high prevalence of suicidal ideation among Spanish university students, and it is associated with depressive symptoms and meaning in life, with the latter acting as a protective factor. Thus, psychotherapeutic prevention programs from a logotherapeutic perspective could help to reduce students' suicide risk.

## KEYWORDS

depressive symptoms, meaning in life, mediation, Spanish university students, suicidal ideation

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## INTRODUCTION

Suicide is a serious public health problem around the world. The World Health Organization estimates that each year between 800,000 and 1,000,000 people commit suicide, which makes suicide one of the five leading causes of death (World Health Organization [WHO], 2014). In Spain, suicide is the most frequent external cause of death, even surpassing traffic accidents, and it is the leading cause of death in the age group from 15 to 29 years old (National Institute of Statistics [INE], 2022).

Regarding the presence of suicidal ideation in university students, the scientific literature also reflects high rates. Nevertheless, estimates of the prevalence of this phenomenon vary greatly from one study to another, ranging from 4.9%, according to the most modest estimates, to 38% (Mackenzie et al., 2011; Rotenstein et al., 2016). In a recent review that analyzed 36 very large samples of university students from four continents (North America, Asia, Europe, and Africa), with a total of 634,662 students, an estimated prevalence of 22.3% of lifetime suicidal ideation was found, and 10.6% in the past year (Mortier et al., 2018). In addition, a meta-analysis carried out in China that reviewed 41 previous studies with a total of 160,339 Chinese university students found a prevalence of suicidal ideation of 10.72% (Li et al., 2014). In Spain, a study that explored 2118 university students found a prevalence of suicidal ideation of 9.9% (Blasco et al., 2019).

Regarding the factors associated with suicide ideation, about 95% of suicides occur in individuals with a diagnosis of a psychological disorder, and about 15% of depressed patients die by suicide (Calvo et al., 2003). In addition, 90% of people who die by suicide have depression symptoms, and 47%–74% of the population at risk of suicide suffer from depression and other psychiatric disorders (Cavanagh et al., 2003).

Depression has been shown to be one of the strongest predictors of suicidal ideation (May & Klonsky, 2016). A meta-analysis of 166 studies published between 1971 and 2014 concluded that depression was associated with a higher prevalence of suicide ideation, suicide attempts, and suicide (Franklin et al., 2017). In university students, the presence of depressive symptoms has also been associated with suicidal ideation. A study conducted with 729 American college students found that those with suicidal ideation had more severe symptoms of depression than those without ideation (Garlow et al., 2008). In addition, 28.5% of the students who scored high on the PHQ-9 (total score of 15 or more) reported having higher suicidal ideation than the 5.7% with the lowest scores. The meta-analysis by Wang et al. (2017) showed that there

was a moderate association between depressive symptoms and suicidal ideation among university students in China and that depressive symptoms contributed to the development of suicidal ideation. In Spain, a study found that suicide risk was high in nursing students with high symptoms of depression (Aradilla-Herrero et al., 2014), and Miranda-Mendizabal et al. (2019) pointed out that one of the main risk factors of suicidal ideation consisted of lifetime mood disorders.

In contrast to studies that have primarily focused on predictors of risk factors associated with suicide, a report by the World Health Organization (WHO, 2014) highlighted the importance of also focusing on protective factors that might be associated with suicide and suicide risk in individuals around the world. In this regard, meaning in life (MIL) is a cognitive-affective construct that has to do with people's most central, personal, and individual values. This concept includes the facets of meaning, purpose in life, and coherence of life, and it is related to the perception of responsibility throughout life. On the one hand, the Significance/meaning dimension is the affective dimension, which refers to the feeling that one's life has inherent value and implies having a life worth living. Purpose, the motivational dimension, refers to the way people experience that their life is oriented and guided by objectives and vital goals. The coherence dimension is the cognitive component of MIL, and it is defined as the degree to which people feel that the world in which they live is organized, structured, predictable, and explainable as a whole (Frankl, 1969; García-Alandete et al., 2013; Martela & Steger, 2016; Park & Hanna, 2022).

People who experience MIL are better prepared to successfully tackle life's circumstances, and they have a strong sense of autonomy, self-determination, and purpose in life (Frankl, 2006). In contrast, low meaning in life is related to hopelessness, depression, self-injury behaviors, and suicide in clinical patients (e.g., Marco et al., 2015). Recently, Layrón-Folgado et al. (2022) found that higher levels of meaning in life were representative of university students with low levels of suicide ideation.

Some previous studies have explored the mediation role of meaning in life in the prediction of suicide ideation. For example, Marco et al. (2019) found that MIL moderated the association between suicidal ideation, hopelessness, and borderline symptoms in patients with an eating disorder diagnosis, and Sun et al. (2022) found that meaning in life played a mediation role between hopelessness and depression in depressed Chinese patients.

In the case of university students, Xie et al. (2012) found that the perception of meaning and purpose in life had a direct predictive value of the suicidal attitude in Chinese college students, and Lew et al. (2020) found that both the presence of meaning in life and the search for

meaning were mediation variables between hopelessness and suicidal behaviors in Chinese university students.

To date, meta-analyses and research studies on suicide ideation have been carried out with large samples of university students mainly in Asia and North America (e.g., Chang, 2017; Hirsch et al., 2007; Li et al., 2014). Few studies have explored suicidal ideation in Spanish university students, and no study has evaluated the mediation role of meaning in life between depressive symptoms and suicidal ideation.

With this background in mind, the objectives of this work are: (1) to analyze the estimated prevalence of suicidal ideation in Spanish university students; (2) to explore the associations between suicidal ideation, depressive symptoms, and meaning in life and its dimensions of meaning and purpose; and (3) to analyze the mediation role of meaning in life and its dimensions of meaning and purpose between depressive symptoms and suicidal ideation.

## METHOD

### Participants

The sample we approached consisted of a total of 975 Spanish university students. Of them,  $N=718$  completed all the questionnaires in the initial evaluation (T1). A subsample of  $n=279$  completed a series of assessments on suicidal ideation for 14 weeks using Ecological Momentary Assessment (EMA). Therefore, the final sample in this study at T1 was made up of 718 undergraduate and postgraduate Spanish university students with ages ranging from 18 to 45 years ( $M\text{ age}=22.51$ ,  $SD=4.06$ ). A total of  $n=392$  were women (54.6%), and the rest ( $n=326$ ) were men (45.4%). Of the 279 students who completed at least three of the EMAs,  $n=392$  (54.6%) were women, and  $n=326$  (45.4%) were men. The inclusion criteria were being a university student, having a smartphone, and agreeing to install the MEMind application.

### Procedure

This study was approved by the ethics committee of the university. The members of the research team contacted the deans and vice deans of 12 faculties to explain the objectives of the study. Finally, six faculties decided to participate, specifically psychology, occupational therapy, speech therapy, medicine, nursing, and nutrition. In addition, in class announcements and emails sent by the research team, students were informed about the objectives of the research and the type of evaluation that would be carried out through the MEMind App.

MEMind is an App designed by Barrigón et al. (2017). It uses a real-time evaluation methodology based on a method known as Ecological Momentary Assessment (EMA). This tool evaluates the user based on a series of fixed questions asked at the same time of day, as well as other dynamic questions that vary according to the time of day. In this study, we used the fixed evaluation carried out at T1 (PRE evaluation) to evaluate meaning in life, depressive symptoms, and suicidal ideation. Suicidal ideation was also assessed weekly for a period of 3 months using dynamic questions. The total sum of suicidal ideation during this period was used as the dependent variable in the study. We decided to carry out the evaluation in this format because people have been found to be more likely to respond to a questionnaire if it is presented via mobile phone (especially young people) rather than directly by a professional in the form of an interview, especially when the questions refer to issues as personal as suicidal ideation or the presence of self-injurious behaviors, among others (Bennett & Glasgow, 2009).

Once the students had been informed of the objectives and conditions of the research, those who agreed to participate signed the informed consent. Participation was voluntary and anonymous, and participants received course credits and a certificate as compensation for participating in the study. The students received instructions on how to download the MEMind App and how it works from a member of the research team specializing in the electronic tool.

If high levels of suicidal ideation were detected in a participant, the app automatically sent a message to the student offering them the option of contacting the research team through the email address to receive free psychological intervention. If they did not request this help, the system would send periodic reminders about this option and find out if they were already receiving any type of support or psychological treatment.

### Instruments

The MeMind mobile application, used to evaluate the participants on the different psychological variables, includes items from the following instruments.

*Suicidal ideation at T1* was assessed using two questions: “*In the past week, have you thought about ending your life? How many times? 0, 1-4 times, 5-50 times, more than 50 times*”. Some researchers have found that suicidal ideation in the past 3 months was the strongest predictor of later suicide attempts (Miranda et al., 2014). This variable was used to calculate correlations with suicidal ideation during the EMA.

*EMA items to assess suicidal ideation:* We assessed the frequency of suicidal ideation over a period of three months through EMA using MEMind, by asking the participants once a week for 14 weeks: “*In the past week, have you thought about ending your life? How many times? 0, 1-4 times, 5-50 times, more than 50 times*”. Thus, we calculated the frequency of suicidal ideation by adding up the 14 weekly EMA. Some researchers have found that suicidal ideation in the past three months was the strongest predictor of later suicide attempts (Miranda et al., 2014). The frequency of suicidal ideation during these 14 weeks was used as a dependent variable in this study.

*PHQ-9, The Patient Health Questionnaire* (Diez-Quevedo et al., 2001; Kroenke et al., 2001), was used to measure depressive symptomatology. We eliminated Item 9, which assesses suicide ideation, to avoid collinearity. Thus, we used the total score on 8 items from the PHQ-9. This scale is the Spanish version of the PHQ-9, and it consists of nine items with a total score of between 0 and 27 that indicates the presence of depressive symptoms in the past 2 weeks (because we eliminated Item 9, the scores ranged from 0 to 24). The original version has a sensitivity of 75% and a specificity of 90%. The Spanish version has an overall accuracy of 88%, sensitivity of 87%, and specificity of 88%. In our sample, there was adequate internal consistency ( $\alpha=0.80$ ).

Purpose in Life-10 (PIL-10; García-Alandete et al., 2013, original 20-item version from Crumbaugh & Maholick, 1964). The PIL is a 10-item Likert-type scale with seven response categories (1–7). It offers a measure of a global meaning score and two different indicators for the meaning (“My life is empty and full of despair”; “Life seems to me: completely routine/always exciting”) and purpose subscales (“I consider that my ability to find meaning in life is very great”; “In life I have: no goals or desires/many defined goals and desires”). We used the Spanish version (García-Alandete et al., 2013), which offers good psychometric properties and high reliability ( $\alpha=0.88$ ) and showed excellent reliability in our sample ( $\alpha=0.90$ ). Both the meaning and purpose subscales also showed adequate internal consistency in our sample ( $\alpha=0.87$  and  $\alpha=0.77$ , respectively).

## Analysis of data

To calculate the estimated prevalence of suicidal ideation, we calculated frequencies if participants indicated having had suicidal ideation at least once during the past week in T1 or during the 14 EMA assessments. In addition, we carried out Pearson correlations to assess associations between the study variables (depressive symptoms, meaning in life, and suicidal ideation) using the IBM SPSS 26.0 program. Structural equation modeling was conducted to assess whether meaning in life and its subscales mediated the relationship between depressive symptoms and suicidal ideation. The maximum likelihood estimator, bootstrap method, and listwise deletion for missing data were applied to test the mediational model. The JASP.17 (JASP Team, 2022) software was used for these analyses.

## RESULTS

Of the 718 students who completed the initial assessment, a total of 11 (1.5%) referred explicitly to suicidal ideation during the week of the initial assessment (T1). Of the 279 students who completed at least three of the EMA,  $n=23$  (8.4%) referred to suicidal ideation at least once during the EMA in the 14 weeks ( $n=18$ , 6.5%, between one and four times;  $n=4$ , 1.5%, between five and 10 times; and one, 0.4%, 23 times). When we compared students who completed the EMA and those who completed only the first assessment at T1, we found higher levels of depressive symptoms in those who did not complete the EMA ( $t=2.40$ ,  $p=0.017$ ), but there were no differences between the groups in the frequency of suicidal ideation at T1 ( $t=-1.50$ ,  $p=0.13$ ) or in meaning in life ( $t=-1.1$ ,  $p=0.27$ ).

## Correlations

Correlations between suicidal ideation during the EMA and depressive symptoms, meaning in life, and suicidal ideation in T1 were carried out. We found positive and

**TABLE 1** Correlations between suicidal ideation at EMA and psychological variables at T1.

|                            | 1        | 2        | 3        | 4        | 5       | 6 | M (SD)       |
|----------------------------|----------|----------|----------|----------|---------|---|--------------|
| 1 Depressive symptoms T1   | –        |          |          |          |         |   | 5.96 (3.94)  |
| 2 Meaning in life total T1 | –0.47*** | –        |          |          |         |   | 57.29 (8.79) |
| 3 Meaning T1               | –0.47*** | 0.96***  | –        |          |         |   | 33.08 (5.99) |
| 4 Purpose T1               | –0.36*** | 0.88***  | 0.71***  | –        |         |   | 24.16 (3.47) |
| 5 Suicidal ideation T1     | 0.46***  | –0.35*** | –0.36*** | –0.26*** | –       |   | 0.02 (0.20)  |
| 6 Suicidal ideation-EMA    | 0.28***  | –0.35*** | –0.42*** | –0.16**  | 0.60*** | – | 0.31 (1.64)  |

\*\* $p < 0.01$ . \*\*\* $p < 0.001$ .



statistically significant relationships between suicidal ideation on the EMA and depressive symptoms ( $r=0.28$ ,  $p<0.001$ ), meaning in life ( $r=-0.35$ ,  $p<0.001$ ), meaning ( $r=-0.42$ ,  $p<0.001$ ), purpose ( $r=-0.16$ ,  $p=0.009$ ), and suicidal ideation at T1 ( $r=0.60$ ,  $p<0.001$ ) (Table 1).

## Mediation analysis

In the first mediation analyses, depressive symptoms were the independent variable, meaning in life was the mediating variable, and suicidal ideation on the EMA was the dependent variable. Regarding the total effects, depressive symptoms showed a significant, positive effect on the total sum of suicidal ideation during the EMA ( $z=4.32$ ,  $p=0.002$ ;  $CI=0.02-0.12$ ; Table 2).

Analyzing the indirect effects, results revealed that meaning in life significantly and partially mediated the relationship between depressive symptoms and the total sum of suicidal ideation during the EMA ( $z=3.64$ ,  $p=0.001$ ;  $CI=0.01-0.05$ ; Table 2). The results also suggested that, even after accounting for the mediating role of meaning in life, depressive symptoms still had an impact on suicidal ideation on the EMA (direct effects,  $z=1.94$ ,  $p=0.005$ ;  $CI=0.003-0.08$ ). In the tested model (Figure 1), depressive symptoms explained ( $R^2$ ) 22% of meaning in life and 11% of suicidal ideation on the EMA.

In the second mediation model, we introduced the meaning and purpose dimensions of meaning in life as mediators. Depressive symptoms were the independent variable, and suicidal ideation on the EMA was the dependent variable. Regarding the total effects, depressive symptoms showed a significant effect on the total sum of suicidal ideation during the EMA ( $z=4.27$ ,  $p=0.00$ ;  $CI=0.003-0.11$ ; Table 3). Analyzing the indirect effects, results revealed that the meaning and purpose subscales significantly and fully mediated the relationship between depressive symptoms and the total sum of suicidal ideation on the EMA

(meaning:  $z=6.22$ ,  $p=0.001$ ;  $CI=0.009-0.17$ ; purpose:  $z=-3.82$ ,  $p=0.002$ ;  $CI=-0.009-0.008$ ; Table 3). The results also suggested that, after accounting for the mediating role of meaning and purpose, depressive symptoms did not have a direct impact on suicidal ideation during the EMA (direct effects,  $z=1.11$ ,  $p=0.271$ ;  $CI=-0.008-0.05$ ). In the tested model (Figure 2), depressive symptoms explained ( $R^2$ ) 22% of the meaning subscale, 13% of the purpose subscale, and 13% of suicidal ideation on the EMA.

## DISCUSSION

Recent figures have situated suicide as the main cause of death in the age range of 19–26 years in Spain, but research focused on identifying psychological variables associated with the presence of suicidal ideation in this population is scarce in this country. For this reason, the present study first aimed to estimate the prevalence of suicidal ideation in Spanish university students. The second objective was to explore associations between the frequency of suicidal ideation for 14 weeks, on the one hand, and depressive symptoms, meaning in life, the dimensions of meaning and purpose, and suicidal ideation at T1, on the other.

Regarding the first objective, the results showed that 8.4% of the sample referred to suicidal ideation at least once during the 14 weeks. Although the estimation of the prevalence of suicidal ideation in young adults differs from one study to another—from 4.9% to 38% worldwide (Mackenzie et al., 2011; Rotenstein et al., 2016), the prevalence found in our sample is similar to what has been found in studies carried out on a national scale. In our country, a similar study in students from different Spanish universities found a similar prevalence of suicidal ideation of 9.9% (Blasco et al., 2019).

However, if we compare our results to some data worldwide, the prevalence found in the present study is somewhat lower. A recent meta-analysis that included large

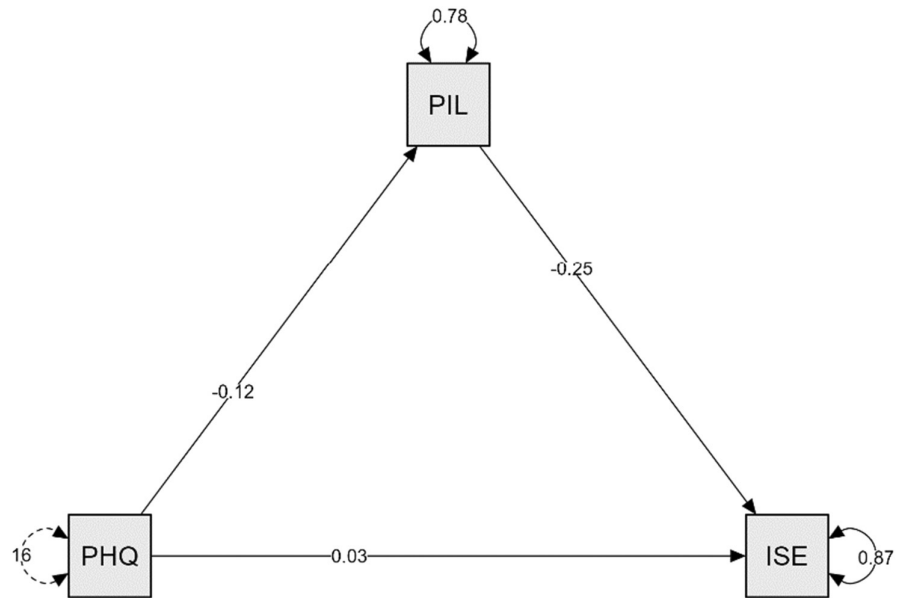
TABLE 2 Mediation analysis.

|                     | Estimate | Std. error | z-value | p     | 95% confidence interval |       |
|---------------------|----------|------------|---------|-------|-------------------------|-------|
|                     |          |            |         |       | Lower                   | Upper |
| Total effects       |          |            |         |       |                         |       |
| PHQ8 → SI EMA       | 0.06     | 0.01       | 4.32    | 0.002 | 0.02                    | 0.12  |
| Indirect effects    |          |            |         |       |                         |       |
| PHQ8 → MIL → SI EMA | 0.03     | 0.082      | 3.64    | 0.001 | 0.01                    | 0.05  |
| Direct effects      |          |            |         |       |                         |       |
| PHQ8 → SI EMA       | 0.03     | 0.02       | 1.94    | 0.05  | 0.003                   | 0.08  |

Note: Delta method standard errors, bias-corrected percentile bootstrap confidence intervals, ML estimator.

Abbreviations: MIL, meaning in life total PIL score; PHQ8, depressive symptoms excluding item 9 of the PHQ; SI EMA, summation of suicidal ideation in the EMA assessments.

**FIGURE 1** Mediation analysis of meaning in life between depressive symptoms and suicidal ideation. ISE, suicidal ideation; PHQ, depressive symptoms assessed with PHQ-9; PIL, meaning in life.



**TABLE 3** Mediation analysis.

|                         | Estimate | Std. error | z-value | p     | 95% confidence interval |        |
|-------------------------|----------|------------|---------|-------|-------------------------|--------|
|                         |          |            |         |       | Lower                   | Upper  |
| <b>Total effects</b>    |          |            |         |       |                         |        |
| PHQ8 → SI EMA           | 0.06     | 0.01       | 4.27    | 0.001 | 0.03                    | 0.11   |
| <b>Indirect effects</b> |          |            |         |       |                         |        |
| PHQ8 → Meaning → SI EMA | 0.007    | 0.01       | 6.22    | 0.001 | 0.009                   | 0.17   |
| PHQ8 → Purpose → SI EMA | -0.03    | 0.007      | -3.82   | 0.002 | -0.09                   | -0.008 |
| <b>Direct effects</b>   |          |            |         |       |                         |        |
| PHQ8 → SI EMA           | 0.02     | 0.02       | 1.11    | 0.27  | -0.008                  | 0.05   |

Note: Delta method standard errors, bias-corrected percentile bootstrap confidence intervals, ML estimator.

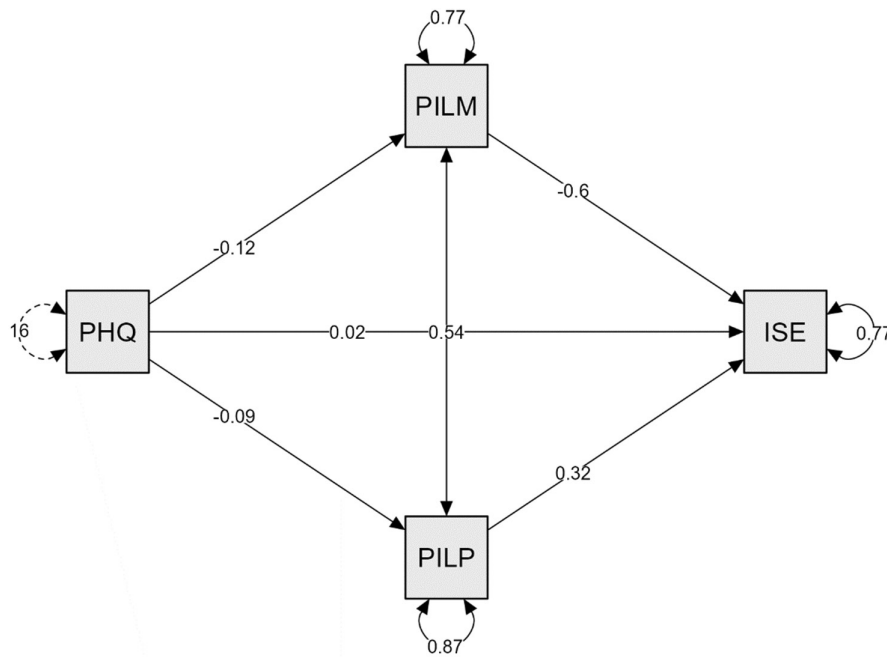
Abbreviations: PHQ8, depressive symptoms excluding item 9 of the PHQ; Purpose, subscale of purpose of the Purpose in Life test; SI EMA, summation of suicidal ideation in the EMA assessments; Meaning, subscale of meaning of the Purpose in Life test.

samples of young adults from different countries provided prevalence estimates of 22.3% for suicidal ideation lifetime and 10.6% in the past year (Mortier et al., 2018). There are also similar studies with Asian students. For example, a meta-analysis carried out in China that evaluated a total of 160,339 university students found a prevalence of suicidal ideation of 10.72% (Li et al., 2014). In contrast, the prevalence found in our study is higher than the prevalence in Gómez-Romero et al. (2021), who found that 5% of nursing undergraduates had had suicidal thoughts in the previous year, and it is higher than that of the general population in Spain (regardless of age), where suicidal ideation is estimated at 4.4% (Gabilondo et al., 2007). The latter shows that young people constitute a sector of the population at greater risk for the presence of suicidal behaviors.

Regarding the second objective, we found that the frequency of suicidal ideation during the 14-week period was

also positively associated with depressive symptoms. The relationship between depressive symptoms and suicidal ideation has been broadly supported in studies with university students and young people in different countries (i.e., Franklin et al., 2017; Garlow et al., 2008; Mamun et al., 2020; Wang et al., 2017) and in Spanish samples (Aradilla-Herrero et al., 2014; Miranda-Mendizabal et al., 2019), indicating that suicidal ideation is related to psychological suffering in this vital period. Some authors state that the stressful lifestyle associated with the university years, the sudden breakup of personal relationships, or loneliness could be precipitating factors for depression during this period (Wang et al., 2017).

The frequency of suicidal ideation during the 14 weeks of EMA was also positively and strongly related to suicidal ideation at T1, indicating that previous suicidal ideation is a strong predictor of later suicidal ideation in university students. Evidence has consistently supported this result



**FIGURE 2** Mediation analysis of Meaning and Purpose between depressive symptoms and suicidal ideation. ISE: suicidal ideation; PHQ, depressive symptoms assessed with PHQ-9; PILM, PIL meaning; PILP: PIL goals and purposes.

(i.e., Ribeiro et al., 2016). Some evidence suggests that about 50% of people with suicidal ideation will continue to experience it in the future (Nock et al., 2012). In this regard, our results support the utility of periodically screening for suicidal ideation in university students during the academic years.

In addition, lower levels of meaning in life were associated with a higher frequency of suicidal ideation. Recent research found similar results in Chinese university students (Lew et al., 2020; Xie et al., 2012), showing that the feeling that one's life has meaning and the continuous search for meaning protected against suicidal behaviors. Meaning in life has been associated with psychological wellbeing and satisfaction with life, and negatively with hopelessness, depression, non-suicidal self-injury, and suicide (García-Alandete et al., 2009; Marco et al., 2015, 2021). In addition, we found that both the presence of meaning and having a purpose and vital goals were significantly and negatively associated with suicidal ideation in T1 and the sum of suicidal ideation on the EMA, that is, longitudinally. These results reflect the protective role against suicide of evaluating one's life as having meaning, value, and significance, as well as purpose and goals that serve as a guide and motivation in life.

Finally, regarding the third objective of the study, meaning in life partially mediated the relationship between depressive symptoms and suicidal ideation at follow-up, according to the EMA. In other words, depressive symptoms predicted future suicidal ideation in our sample and have been traditionally related to suicidal ideation in the literature (i.e., Franklin et al., 2017; Mamun et al., 2020; Wang et al., 2017), but when students interpreted their

lives as having meaning, this relationship was weakened. In the same direction, when we explored dimensions of meaning and purpose, the results showed that both dimensions fully mediated the association between depressive symptoms and suicide ideation. This result indicates that meaning in life buffers the effect of depressive symptoms on suicidal ideation. Despite feeling depressed, students who felt that their lives had meaning and significance and referred to having purpose and vital goals showed lower levels of suicidal ideation. Thus, meaning in life was a protective factor against suicide. Our results are also consistent with previous research highlighting that having a sense of meaning leads to the perception of happiness and fulfillment in life (Lent, 2004). In contrast, the absence of meaning and purpose is associated with emptiness and less desire to live (Krause, 2009). Other authors have also found that meaning in life is a mediator between depression and hopelessness in patients with borderline personality disorders, supporting the buffering role of meaning in life in psychopathology (Marco et al., 2014). Similar results were found by Lew et al. (2020), although these authors found stronger support for presence of meaning than for search for meaning as mediators between hopelessness and suicidal ideation. However, search for meaning is a different dimension from purpose and vital goals evaluated with the PIL in our study, given that the former emphasizes the idea of searching for meaning in life, sometimes because the person has not found it and sometimes because they continue searching despite having it (e.g., *I am searching for meaning in my life; I am always searching for something that makes my life feel significant*). The purpose and vital goals dimension refers to *having* a mission and objectives in life towards which

the person directs their efforts and activities. Thus, this construct includes cognitive-evaluative and motivational aspects of meaning in life (Garcia-Alandete et al., 2013), which implies having found it, unlike the construct of search for meaning, which implies the notion of “absent but implicit”, something that is possible but not there and susceptible to work in narrative therapy, as other authors have stated (Carey et al., 2009).

In sum, having found meaning and having purpose and vital goals protects against suicide in university students in our study. Thus, meaning-centered programs for young people in the academic context should be offered in order to lower the likelihood of suicide-like behaviors. These interventions should focus on guiding students to identify and pursue self-transcending life goals and values, face suffering through tragic optimism, and re-evaluate life from a growth perspective, building their narrative identity or working on hope, gratitude, or legacy, among other objectives of logotherapy and meaning-centered interventions (Breitbart & Poppito, 2014; Frankl, 2006; Heissel et al., 2020).

## Limitations and future directions

This study also has some limitations that should be highlighted. First, the estimated prevalence in our sample may not accurately reflect the true magnitude of suicidal ideation in Spanish young adults. Among other factors, this may be due to the taboo that still exists around suicide and the special reluctance to talk about it in the academic context. Therefore, it may not reflect a true estimation of this phenomenon. Second, the mortality on the EMA was high because we analyzed data in the SEM with the 279 students who completed at least three of the EMA. We found higher levels of depressive symptoms in those who did not complete the following assessment, thus indicating a self-selection bias and perhaps a tendency towards avoidance in this group. Thus, we are not able to generalize the results to students with higher levels of psychopathology. However, our study is longitudinal and focuses on protective factors rather than only on risk factors, following recommendations of the WHO (2014) and other authors (Franklin et al., 2017). This, in turn, contributes to a greater understanding of the suicide phenomenon in this specific sector of the population and allows us to approach its possible treatment and prevention.

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## CONFLICT OF INTEREST STATEMENT

All authors disclose any financial and personal relationships that could inappropriately influence their work. Authors have full control of all primary data and agree to allow the journal to review their data if requested.

## ORCID

Sandra Pérez Rodríguez  <https://orcid.org/0000-0003-1210-8732>

Jose H. Marco Salvador  <https://orcid.org/0000-0002-1545-6452>

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