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Cognitive Predictors of Suicidal Ideation in Ecuadorian Medical and Nursing Students: The Roles of Perceived Loneliness and Life Satisfaction

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Abstract

Background: This study investigates the relationships between perceived loneliness, life satisfaction, and suicide ideation (SI) in Ecuadorian medical and nursing students, aiming to identify cognitive predictors of SI using structural equation modelling (SEM). **Methods**: A cross-sectional, quantitative, descriptive, correlational and explanatory study was conducted with 618 medical and nursing students from four universities in Tungurahua, Ecuador. **Results**: The results indicate that SI is moderately and positively associated with perceived loneliness ($r = .581$; $p < .001$), and moderately and negatively associated with life satisfaction ($r = -.408$; $p < .001$). Additionally, perceived loneliness and life satisfaction are slightly and negatively related. SEM analysis showed that perceived loneliness ($R^2 = .252$) is a stronger predictor of SI than life satisfaction ($R^2 = .060$), but their combined explanatory power is significant, accounting for 39.2% of the variance in SI. **Conclusions**: This study highlights the importance of perceived loneliness and life satisfaction as cognitive predictors of SI among university students.

Keywords: loneliness, life satisfaction, suicidal ideation, medical students, nursing students.

Predictores Cognitivos de la Ideación Suicida en Estudiantes de Medicina y Enfermería Ecuatorianos: El Papel de la Soledad Percibida y la Satisfacción Vital

Resumen

Objetivo: Este estudio investiga las relaciones entre la soledad percibida, la satisfacción vital y la ideación suicida (IS) en estudiantes de medicina y enfermería ecuatorianos, con el objetivo de identificar predictores cognitivos de la IS mediante modelos de ecuaciones estructurales (SEM). **Métodos**: Se realizó un estudio transversal, cuantitativo, descriptivo, correlacional y explicado con 618 estudiantes de medicina y enfermería de cuatro universidades de Tungurahua, Ecuador. **Resultados**: Los resultados indican que la IS está moderada y positivamente asociada con la soledad percibida ($r = .581$; $p < .001$) y moderada y negativamente asociada con la satisfacción vital ($r = -.408$; $p < .001$). Además, la soledad percibida y la satisfacción vital están ligera y negativamente relacionadas. El análisis SEM mostró que la soledad percibida ($R^2 = .252$) es un predictor más fuerte de la IS que la satisfacción vital ($R^2 = .060$), pero su poder explicativo combinado es significativo, lo que representa el 39.2% de la varianza en la IS. **Conclusiones**: Este estudio destaca la importancia de la soledad percibida y la satisfacción vital como predictores cognitivos de la soledad entre estudiantes universitarios.

Palabras clave: soledad, satisfacción vital, ideación suicida, estudiantes de medicina, estudiantes de enfermería.

Introduction

Suicidal behaviours include actions aimed at causing one's own death. Individuals typically progress through various stages, beginning with death wishes, followed by ideation, planning, and the actual attempt (Thompson et al., 2012). Suicide is a significant public health issue, ranking among the top 20 causes of death globally and is the fourth leading cause of death among young people aged 15 to 29 years (World Health Organization [WHO], 2021).

University students are particularly vulnerable to suicide due to academic pressure and developmental transitions (Teixeira et al., 2022). Reports indicate that 22% of university students experience suicidal ideation, 6.1% engage in planning, and 3.2% make non-fatal suicide attempts over their lifetime. In the past year, these figures were 10.6%, 3%, and 1.2%, respectively (Mortier et al., 2018). Furthermore, in health-related fields as medicine or nursing, 7.2% of students are at risk of suicidal thoughts or behaviours (Torres et al., 2018). In Ecuador, alarming rates of suicidal thoughts and behaviours have been reported (Lapo-Talledo et al., 2023), with approximately 19% of medical students at risk, although it is unclear whether this pertains to ideation, planning, or other behaviours (Rosero-Ordóñez, 2023). Given the significant incidence and potential harm associated with suicidal behaviour, identifying precursors to suicidal behaviour, particularly suicidal ideation (SI), is crucial, as it is considered a critical cognitive predictor (Klonsky et al., 2016).

Suicidal ideation (SI) represents the cognitive aspect of suicide, that arises after death wishes and before any suicidal action. It involves a set of irrational, unreflective, and inflexible ideas about the desire for death, considering it as a means to achieve an objective. In more advanced stages, SI includes establishing parameters for planning its execution, but without evidence of a recent suicide attempt (Beck et al., 1979). In view of these considerations, an in-depth analysis of this situation is necessary, particularly to determine the conditions under which it arises, as well as mechanisms for its mitigation and prevention.

Currently, SI has gained importance due to the COVID-19 pandemic and its ongoing effects. The conditions derived from the pandemic have significantly altered the psychological dynamics of individuals, leading to mental health issues as anxiety, depression, social dysfunction, post-traumatic stress, and other symptoms in both adults and young people globally (Caycho-Rodríguez et al., 2022; Jovanović et al., 2024; Mazereel et al., 2021) and in Ecuador (Chango-Velva et al., 2025; Moreta-Herrera et al., 2022; 2024; Sánchez-Vélez & Moreta-Herrera, 2022). Similarly, a significant increase in SI has been observed in recent years, both in the general population (Woodward et al., 2022) and among university students (Macalli et al., 2024).

Probable explanations for this increase include social isolation, changes in daily life (Antonelli-Salgado et al., 2021), economic insecurity (Raifman et al., 2022), and other contextual and socio-environmental factors. In terms of psychological factors, these vary widely, but loneliness and life satisfaction stand out as significant areas of study. Firstly, because they share significant associations with SI, and secondly, because both have been significantly affected by COVID-19 thus warranting focused analysis.

Loneliness, Life Satisfaction, and Suicidal Ideation

As previously mentioned, perceived loneliness and life satisfaction are constructs associated with SI that have shown notable changes in recent years. For example, studies have shown that after COVID-19, individuals experienced increased feelings of loneliness and isolation (Antonelli-Salgado et al., 2021), while aspects of mental well-being, as life satisfaction, deteriorated (Gonzalez-Bernal et al., 2021). From this perspective, these changes raise concern due to their potential impact on future suicide risk.

Perceived loneliness refers to how an individual quantitatively or qualitatively assesses and measures their own isolation. It is considered a process where a person perceives, experiences, and evaluates their isolation and lack of social communication or relationships (de Jong Gierveld, 1987). Generally, perceived loneliness is attributed as a negative condition due to decreased social interaction (Marttila et al., 2021), with adults generally presenting low or moderate levels, and about 10% presenting higher levels (Beutel et al., 2017). The prevalence of loneliness in the university population is higher, with around 32% experiencing it at various intensities (Diehl et al., 2018). Among medical students, approximately 20% experience intense loneliness (Keiner et al., 2023). This indicates a relatively high level of distress.

Regarding perceived loneliness and SI, these constructs have been found to interact, with perceived loneliness being a risk factor (Antonelli-Salgado et al., 2021) and demonstrating a positive correlation of varying intensities (Bennardi et al., 2019). It is also considered a significant predictor of SI and suicidal behaviour (Helm et al., 2020; Klonsky et al., 2016; McClelland et al., 2020). However, these findings are based on data from the general population, without specific consideration of the university population. Therefore, special attention is required for this demographic, as perceived loneliness is considered a modern malady and reports an annual increase (Buecker et al., 2021). This decline may influence suicide-related factors.

The second attribute to consider is life satisfaction, which represents the cognitive component of subjective well-being and involves the evaluation of value judgments that individuals generally have about their lives (Diener et al., 1985). Life satisfaction, globally analyses the positive thinking and feeling about one's current existence (Pavot & Diener, 2013). Generally, it is expected that reaching a certain age and achieving individual milestones as academic completion, employment, and family, for instance, contribute to a positive life assessment (Diener et al., 2015), although this not always directly reflected in individual's subjective evaluations (Xiao et al., 2022). Evidence indicates that life satisfaction in young and university populations generally registers moderate to high levels (Moreta-Herrera et al., 2023), including medical students (Xiao et al., 2022). However, as previously mentioned, recent global events (Covid-19 pandemic) appear to have negatively impacted the perceived quality of life and subjective well-being, including life satisfaction, among university students (Rogowska et al., 2021).

Regarding the interaction between life satisfaction and SI, research shows a negative covariance with varying intensity (Naseem & Munaf, 2017; Yao et al., 2014). More recent studies suggest that life satisfaction is a significant predictor of SI (Morales-Vives & Dueñas, 2018; O'Brien et al., 2023; Yang et al., 2021), although these findings are based on general population data without precise analyses of university students.

The Present Study

Although perceived loneliness and life satisfaction have been recognised as predictors of SI, previous studies have investigated these factors independently. While this represents an advancement in the discussion on SI, no comprehensive studies have proposed explanatory models where these predictors operate simultaneously in a multiple manner, clearly identifying their combined effect.

The justification for proposing an explanatory model that integrates these variables is based on: (a) the significant covariance between perceived loneliness and life satisfaction (Hamermesh, 2020; Liu et al., 2022; Marttila et al., 2021; Turan et al., 2020); (b) their importance as independent predictors of SI (Helm et al., 2020; McClelland et al., 2020; Morales-Vives & Dueñas, 2018; O'Brien et al., 2023; Yang et al., 2021); (c) their prevalence and intensity among the university population, especially in light of the recent shifts in their behavioural or psychosocial patterns in recent years, particularly post-COVID-19 (Marttila et al., 2021; Rogowska et al., 2021); and (d) the lack

of predictive studies among university students, despite this being a sensitive population (Teixeira et al., 2022). Therefore, there is a need for a deeper and broader investigation into an area of interest like SI, focusing on a demographic group that faces certain risks of harm.

Based on these antecedents, the objectives of the study are proposed as follows: (a) To assess the current state of perceived loneliness, life satisfaction, and SI in a sample of medical and nursing university students in Ecuador; (b) to identify the mutual relationship between the specified variables using structural equation modelling (SEM) techniques; and (c) to establish perceived loneliness and life satisfaction as multiple predictors of SI. Based on the above, it is hypothesized that SWL levels are high, while loneliness and SI are low (H1). SWL, loneliness, and SI covary significantly with each other, forming a good-fit model (H2); and SWL and loneliness are multiple predictors of SI (H3).

Methods

Design

This research is based on a quantitative, descriptive, correlational, explanatory, and cross-sectional study (Ato et al., 2013), employing structural equation modelling (SEM) techniques in a sample of medical and nursing students in Ecuador.

Participants

The study is based on a population of approximately 30,000 university students in the province of Tungurahua, Ecuador. An appropriate sample size for this condition is estimated, with a sampling error of 4% and a 95% confidence interval based on approximately 596 cases. The sample consists of 618 participants (Slightly above the recommended sample size), with 61.8% being men and 38.2% women, aged between 18 and 43 years (M = 20.33; SD = 2.32). Ethnically, 92.4% self-identify as mestizos, while the remaining 7.6% are distributed among indigenous, Afro-Ecuadorian, and white. A total of 72.7% reside in urban areas, and 27.3% in rural areas. Academically, the participants are from four universities in the province of Tungurahua, Ecuador, with 60.2% being from public universities and 39.8% from private universities. Of the participants, 85.1% are studying medicine and 14.9% are in nursing programmes. Additionally, 24.4% report being at academic risk due to low performance. It is important to note that the students are not currently undergoing internship or pre-professional practice processes.

Participants were selected using non-probabilistic sampling with inclusion criteria: a) being at least 18 years old; b) being enrolled in a medicine or nursing programme; c) attending the participating universities; and d) voluntarily participating by signing a consent form. And exclusion criteria: a) Minor although he is studying; b) Students of other programmes not related to medicine or nursing; and c) Students who did not provide signed consent. All participants were contacted directly in their classrooms and each of them was provided with the evaluation link.

Instruments

The short version of the UCLA Loneliness Scale (UCLA; Russell, 1996), translated into Spanish (Velarde-Mayol et al., 2016), was used to assess perceived loneliness. This scale comprises 10 questions answered on a five-point Likert scale, ranging from 0 ('never') to 4 ('always'). While the scale does not provide cut-off points for interpretative categories, higher scores indicate greater perceived loneliness (Min = 0, Max = 40). A criterion for identifying high-risk cases is scores above 30 points.

The UCLA demonstrates a unidimensional factorial structure through Exploratory Factor Analysis (EFA), explaining 71.6% of the total variance, with an internal consistency of $\alpha = .95$, indicating high reliability. In the present study, Confirmatory Factor Analysis (CFA) confirmed a similar internal structure with $\chi^2 = 50.8$; $p < .05$; $df = 35$; $\chi^2/df = 1.45$; CFI = .999; TLI = .998;

SRMR = .039; RMSEA = .027 [.006 - .042], and an internal consistency reliability of ω = .945 [.937 - .953], indicating high reliability.

The Satisfaction with Life Scale (SWLS; Diener et al., 1985), in its Spanish version (Cabañero et al., 2004) and adapted to the Ecuadorian context (Moreta-Herrera et al., 2023), was designed to assess life satisfaction. The SWLS consists of five items answered on a seven-point Likert scale, where 1 corresponds to 'strongly disagree' and 7 to 'strongly agree'. Higher scores indicate greater life satisfaction (Min = 7, Max = 35). A cut-off score of 11 or lower is used to estimate risk in satisfaction processes. The SWLS has a unidimensional structure with an internal consistency of ω = .84 95% CI [.81 - .87], considered adequate. In this study, CFA confirmed the unidimensional structure with χ^2 = 1.50; p < .05; df = 5; χ^2/df = .30; CFI = .999; TLI = .999; SRMR = .013; RMSEA = .001 [.000 - .021], and an internal consistency reliability of ω = .939 95% CI [.929 - .949], indicating high reliability.

The Suicidal Ideation Scale (Paykel et al., 1974), in its Spanish version (Fonseca et al., 2018), assess SI over the past six months. This scale consists of five items answered on a four-point Likert scale, where 0 means 'never' and 4 means 'always'. Higher scores indicate greater SI (Min = 0, Max = 20). A cut-off score above 10 is used to identify high and very high-risk levels. The scale has a unidimensional factorial structure with an internal consistency of ω = .823, considered adequate. In this study, CFA confirmed a similar structure with adequate fit indices of χ^2 = 7.24; p < .05; df = 5; χ^2/df = 1.45; CFI = .999; TLI = .999; SRMR = .028; RMSEA = .027 [.001 - .067], and an internal consistency reliability of ω = .944 95% CI [.934 - .955], indicating high reliability.

Procedure

After obtaining the necessary institutional and personal permissions from the potential sample to start this study, data collection was conducted virtually using Google Forms link. Participants completed the requested information in the online questionnaires, which took approximately 15 minutes. The evaluation was carried out during the second semester of 2023. Upon completion of the evaluation, the collected data was cleaned and systematised into electronic databases for data management and analysis.

Regarding ethical considerations, this study adheres to the guidelines and policies of the Helsinki Declaration concerning research involving human subjects. Additionally, the project from which this study derives also complies with institutional ethics and research regulations and was approved by the Institutional Review Board of the Pontificia Universidad Católica del Ecuador Sede Ambato with resolution CD-RES-098-2024. Finally, due to the anonymity of the research, no at-risk cases can be identified. As part of the project, contact information is provided for the Centre for Applied Psychology at the Pontifical Catholic University of Ecuador, which offers both in-person and virtual psychological support and assistance services for cases within and outside the institution.

Data analysis

Data management was conducted based on two blocks of analysis. The first block comprises a descriptive analysis of the variables of interest (perceived loneliness, life satisfaction, and SI) to assess its current state among the students. Measures of central tendency as the arithmetic mean (M), dispersion as standard deviation (SD), and distribution measures including skewness (g1) and kurtosis (g2) were used. Additionally, univariate and multivariate normality assumptions were analysed to determinate the use of classic or robust estimators in structural analyses. For univariate normality, g1 and g2 values within the range of ~1.5 were considered normal (Ferrando & Anguiano-Carrasco, 2010). For multivariate normality, Mardia's test results needed to show no statistical significance (p > .05) in g1 and g2 respectively (Mardia, 1970).

The second block of analysis involved designing fit models using SEM techniques to identify, firstly, the latent interaction of the variables in terms of covariation through a fit model (see Figure 1), and secondly, the latent predictors (perceived loneliness and life satisfaction as exogenous variables) of SI (as an endogenous variable) to understand the degree of variance explanation through a multiple structural regression model (see Figure 2). In SEM analyses, the robust estimation of Diagonally Weighted Least Squares (DWLS) was employed due to the ordinal nature of the items and the absence of multivariate normality among the variables (Li, 2016). Model fit evaluation was conducted using absolute fit indices, including the chi-square (χ^2), normed chi-square (χ^2/df), and Standardized Root Mean Square Residual (SRMR); relative fit indices as the Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI); and non-centrality-based indices like the Root Mean Square Error of Approximation (RMSEA). For adequate fit, χ^2 should be > .05 or χ^2/df < 4; CFI and TLI > .95; and SRMR and RMSEA < .06 (Brown, 2015; McNeish & Wolf, 2023; Moreta-Herrera et al., 2021; Wolf et al., 2013). The coefficient of determination (R^2) was interpreted with an expected effect size magnitude of $R^2 > .25$ to be considered moderate (Ferguson, 2016).

Statistical management of this work was carried out using R programming language version 4.01 (R Core Team, 2019) with the packages foreign, MVN, lavaan, and MBESS for descriptive, normality, CFA, and SEM analyses.

Results

Descriptive analyses

Table 1 shows the current state of the participants regarding the presence of perceived loneliness, life satisfaction, and SI. Results reveal a moderate presence of perceived loneliness, with approximately 24.9% (n= 154) of participants reporting high-risk scores. Regarding life satisfaction, approximately 12% (n= 74) reported high levels of dissatisfaction. For SI, the overall presence is low, although around 10% (n= 2) are at risk.

Table 1
Descriptive analyses of the perception of loneliness, life satisfaction and suicidal ideation

Variables	M	SD	Risk	g_1	g_2	Mardia g_1; g_2
Suicidal ideation	4.11	4.88	10.5%	1.36	1.39	1768.71***; 64.97***
Perception of loneliness	15.46	9.25	24.9%	-0.29	0.30	1615.73***; 61.41***
Life satisfaction	22.16	8.09	12.9%	-0.76	-0.42	739.37***; 8.02***

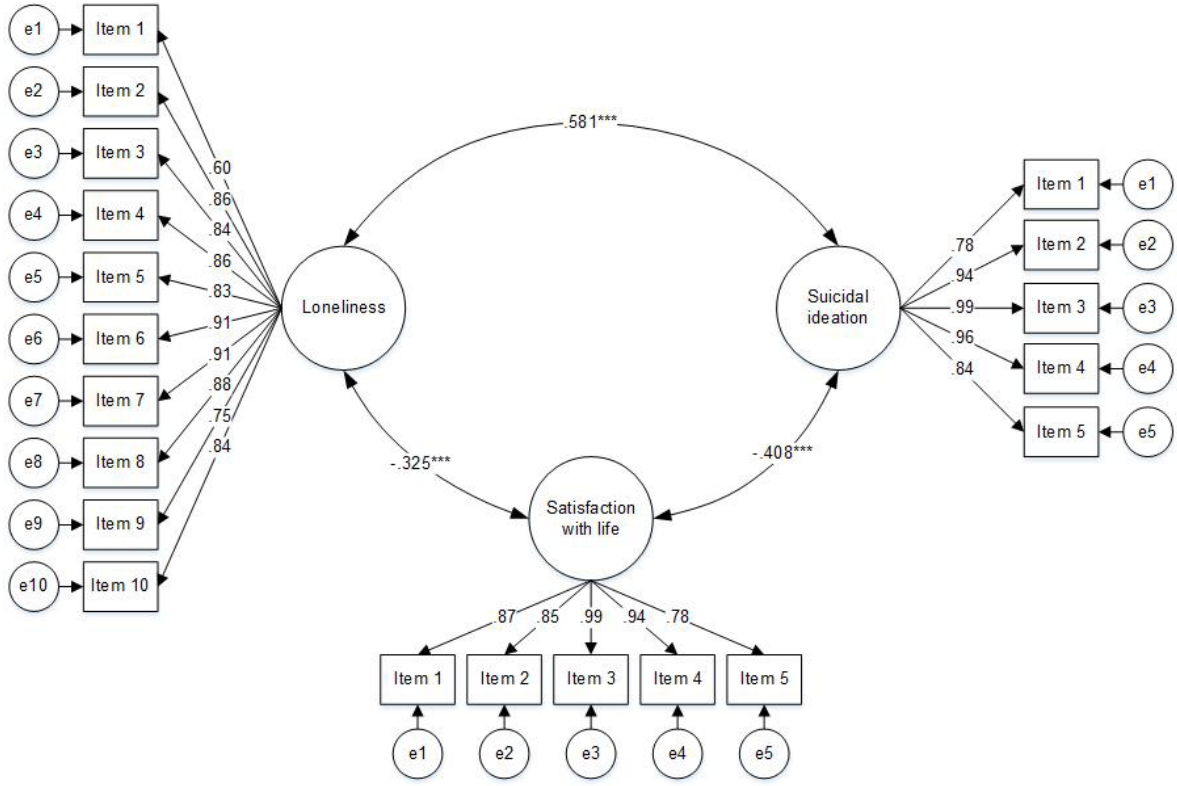
Note: *** *p < .001*; *M: arithmetic mean; SD: standard deviation; g1: symmetry; g2: kurtosis.*

Regarding the verification of normality assumptions, the values of g1 and g2 are within tolerance parameters (~1.5), indicating univariate normality. However, Mardia's test results show significance (p < .05), indicating the absence of multivariate normality.

General Fit Model

Figure 1 illustrates the interactions among the variables using SEM. In this analytical framework, positive and moderate latent correlations between perceived loneliness and SI are observed (r= .581; p < .05), while there is a negative and slight covariance between perceived loneliness and life satisfaction (r= -.325; p < .05), and a moderate and negative covariance between life satisfaction and SI (r= -.408; p < .05).

Figure 1. General adjustment model to identify latent relationships with loneliness, life satisfaction, and suicidal ideation.



X^2 = 456.29; p < .05; df = 167; X^2/df = 2.73; CFI = .973; TLI = .969; SRMR = .013; RMSEA = .035 [.053 - .047]

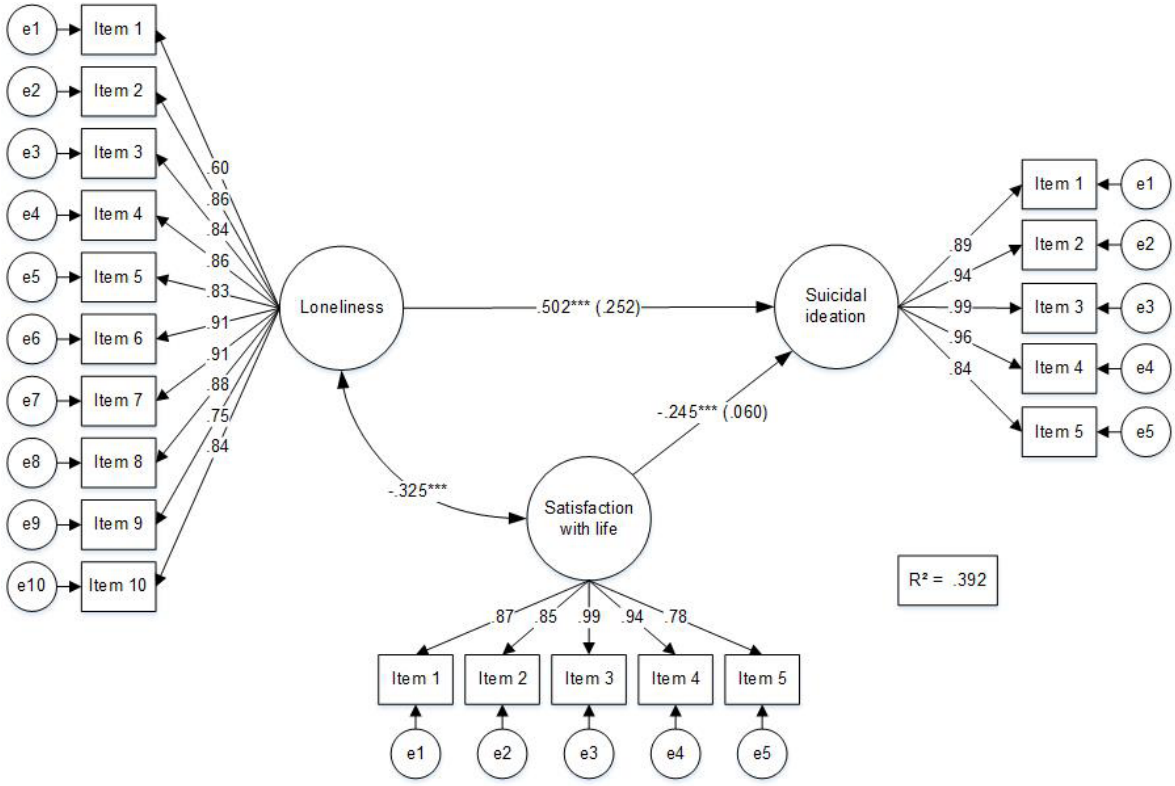
Note: *** *p < .001; X^2: chi-square; df: degree-free; X^2/df: normed chi-square;* ***CFI****: Comparative Fit Index;* ***TLI****: Tucker-Lewis Index;* ***SRMR****: Standardized Root Mean Square Residual;* ***RMSEA****: Root Mean Square Error of Approximation.*

Regarding the fit of the latent relationship model, it presents adequate fit indicators and is therefore valid for interpretation among university students in Ecuador.

Structural Regression Model

Figure 2 presents the multiple structural regression model of SI using SEM. As observed, perceived loneliness explains 25.2% (R^2= .252; p < .05) of the variance in SI, while life satisfaction explains approximately 6% (R^2= .06; p < .05). This indicates that independently, perceived loneliness is a stronger predictor of SI than life satisfaction. However, together, perceived loneliness and life satisfaction explain 39.2% of the variance, interpreted as moderate and enhancing the predictive condition of SI. Thus, these exogenous variables are considered important predictors of SI among young university students in Ecuador.

Figure 2. Multiple structural regression analysis of loneliness and life satisfaction on suicidal ideation.



$X^2 = 456.29$; $p < .05$; $df = 167$; $X^2/df = 2.73$; CFI = .973; TLI = .969; SRMR = .013; RMSEA = .035 [.053 - .047]

Note: *** $p < .001$; X^2: chi-square; df: degree-free; X^2/df: normed chi-square; **CFI**: Comparative Fit Index; **TLI**: Tucker-Lewis Index; **SRMR**: Standardized Root Mean Square Residual; **RMSEA**: Root Mean Square Error of Approximation.

Regarding the structural model and its interpretation for the university population in Ecuador, the reported fit indices are within acceptance criteria ($\chi^2 = 456.29$; $p < .05$; $df = 167$; $\chi^2/df = 2.73$; CFI = .973; TLI = .969; SRMR = .013; RMSEA = .035 [.053 - .047]), indicating that the proposed model presents an adequate fit.

Discussion

The objectives of this study were to assess the current state of perceived loneliness, life satisfaction, and SI, explore their mutual interactions, and estimate the specific predictors of SI in a sample of medical and nursing university students in Ecuador.

Regarding the state of the variables of interest, SI levels are generally low, but there is a subset of participants at high risk, accounting for approximately 10.5% of the cases. This indicates a segment of participants susceptible to worsening SI, potentially progressing to more critical stages. These findings align with similar studies conducted in university populations (Mortier et al., 2018). However, among medical students, the values differ as a higher percentage is reported (Torres et al., 2018), suggesting that SI has indeed increased in this demographic in recent years (Woodward et al., 2022). In Ecuador, the present values are lower than previously reported (Rosero-Ordóñez, 2023), but those values reflect the overall suicide risk rather than specific SI, thus providing more

precise information about this reality in the country and the dynamics that exist between different population groups, which apparently vary from one another.

Regarding perceived loneliness, it is concluded that the presence of this condition is at a moderate level, with 24.9% of medical and nursing students reporting moderate to intense loneliness. These findings differ from similar studies, indicating a greater prevalence of loneliness than reported in the general adult population (Beutel et al., 2017), but lower than in the general university population (Diehl et al., 2018). Specifically, among medical students, the presence of loneliness is higher (Keiner et al., 2023). This establishes a trend of increasing loneliness and social isolation conditions at similar levels to those of the university population.

For life satisfaction, the satisfaction levels among students are high, yet approximately 13% report low life satisfaction, indicating a substantial proportion of individual with low perceived life satisfaction. These findings are consistent with similar studies on university students (Moreta-Herrera et al., 2023) and medical students (Xiao et al., 2022). This underscores the necessity for follow-up, especially through longitudinal studies.

Regarding the relationships between the variables, it was found that SI is moderately and positively associated with perceived loneliness, as reported in previous studies (Bennardi et al., 2019). In contrast, life satisfaction is moderately and negatively associated with SI, which is consistent with similar findings (Naseem & Munaf, 2017; Yao et al., 2014). Additionally, perceived loneliness has a weak and negative relationship with life satisfaction (Hamermesh, 2020; Liu et al., 2022; Marttila et al., 2021; Turan et al., 2020). This confirms the latent interaction among these elements within the university population, which had not been previously analysed.

In structural multiple regression analysis, perceived loneliness and life satisfaction are predictors of SI, with loneliness having a stronger predictive value. However, their combined explanatory potential significantly increases to 39.2% of the variance in SI, making the predictive model moderately strong (Ferguson, 2016). This reveals two key aspects: a) independently, perceived loneliness is a predictor of SI, aligning with previous studies (Helm et al., 2020; Klonsky et al., 2016; McClelland et al., 2020), and similarly, life satisfaction is also a predictor of SI (Morales-Vives & Dueñas, 2018; O'Brien et al., 2023; Yang et al., 2021); and b) together, perceived loneliness and life satisfaction enhance the predictive power of SI, a finding not previously addressed in other studies, making this study a novel contribution to the understanding of SI from a cognitive perspective. The methodology employed through SEM provides more precise and accurate results and achieves a closer and more objective explanation to the phenomenon of suicidal ideation.

Lastly, regarding the implications of the study, from a theoretical perspective, it proposes an explanatory model of SI through cognitive processes associated with perceived loneliness and life satisfaction. This is particularly relevant because, while the mechanisms of these predictors were known independently, their combined effect had not been explored, representing an innovation. This broadens the understanding of the joint interaction of various elements in explaining the variance of SI and can aid in the early identification of suicidal behaviours. Practically, these results contribute to generating mechanisms for both psychosocial prevention and intervention on suicidal thoughts and behaviours in the university population, specifically among medical students. This may suggest using a cognitive-behavioural intervention model with cognitive restructuring techniques for the perception and assessment of loneliness, life satisfaction, and ideation. In this regard, the use of therapeutic models that strengthen bonds with others and can prevent suicidal behaviours, as Compassion-focused therapy (CFT) (Daneshvar et al., 2021) or Acceptance and Commitment Therapy (ACT) (Barnes et al.,

2021), as well as community intervention models focused on social and family support, as the Zero Suicide Model (Ahmedani et al., 2025), can be considered to mitigate future high-risk behaviours among students. In addition, professional training at university centres should be enhanced to include aspect as coping strategies, well-being and personal care in mental health and seeking psychological assistance and support.

Limitations

The findings of this study reveal several limitations that should be considered. The first limitation is the specificity of the sample, as it consists of young adults and university students enrolled in medical and nursing programmes. Therefore, it is not advisable to generalise the explanatory model to other segments, such as the general population or adolescents. Based on this, it is recommended to conduct further studies to verify the model in these particular groups and extend it to other populations.

One other limitation relates to the methodology used. Observational studies with a predictive nature do not establish causality between exogenous and endogenous variables. Although a probable consideration of causality is suggested, it remains a hypothetical conjecture. Therefore, these findings should be interpreted with caution. Future studies with precise methodologies that verify causality, as experimental designs or longitudinal structural analyses with at least three time points, are recommended to corroborate these results. And although they cannot be fully generalized, they are an adequate starting point for identifying relevant psychological attributes in the configuration of SI in emerging youth.

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