

Psychological Inflexibility, Depression, and Anxiety: A Contextual Framework for Understanding Suicidal Ideation in University Students

Inflexibilidad psicológica, depresión y ansiedad: una explicación contextual de la ideación suicida en universitarios

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Abstract

The objective was to determine the influence of psychological inflexibility, anxiety, and depression on suicidal ideation among university students in the Faculty of Health Sciences at a university in Huancayo, thereby validating the contextual model of human suffering. The study employed a non-experimental, explanatory, and cross-sectional methodology with latent variables, using the covariance-based SEM technique for data processing. The non-probabilistic criterion sample consisted of 1,030 students. The instruments applied included the Acceptance and Action Questionnaire (AAQ-II), the Lima Anxiety Scale (EAL-20), the Depressive Psychopathology Scale (EPD-6), and the Suicidal Ideation Frequency Inventory (IFIS). The findings showed that Model 1, in which no questionnaire items were removed, exhibited an adequate fit; however, Model 2, which conceptualized psychological inflexibility as a unidimensional structure with seven items and correlated measurement errors (items 2 and 5), demonstrated a better and more parsimonious fit (CFI = .939, TLI = .934, RMSEA [90% CI] = .037 [.034-.039], SRMR = .041). The results indicate that psychological inflexibility has a direct influence on anxiety ($\beta = .647$) and depression ($\beta = .646$), while these correlated variables ($r = .473$) influence suicidal ideation ($\beta_A = .190$, $\beta_D = .509$, $r^2 = .429$, $f^2 = .751$). These findings suggest that psychological inflexibility acts as a factor that increases human suffering (anxiety and depression), which in turn heightens suicidal ideation, highlighting the need for interventions targeting these variables to mitigate suicide risk.

Keywords: Psychological inflexibility, anxiety, suicidal ideation.

Resumen

El objetivo fue determinar la influencia de la inflexibilidad psicológica, ansiedad y depresión en la ideación suicida en estudiantes universitarios de la facultad de ciencias de la salud de una universidad de Huancayo, y así validar el modelo contextual del sufrimiento humano. La metodología fue no experimental, explicativo y transversal con variables latentes y el procesamiento de datos fue la técnica SEM basado en covarianzas; la muestra no probabilística criterial se conformó por 1030 estudiantes. Los instrumentos aplicados fueron el Cuestionario de Aceptación y Acción (AAQ-II), la Escala de Ansiedad de Lima-EAL20, la Escala de Psicopatología depresiva-EPD6 y el Inventario de Frecuencia de Ideación Suicida-IFIS. Los resultados demostraron que el modelo 1, donde no se eliminó ningún ítem de los cuestionarios, posee un ajuste adecuado; no obstante, el modelo 2, donde se concibe a la inflexibilidad psicológica como una estructura unidimensional de 7 ítems con errores de medición correlacionados (ítem 2 y 5), posee un mejor ajuste y más parsimonioso (CFI=.939, TLI=.934, RMSE [IC90%]=.037 [.034-.039], SRMR=.041), señalando que la inflexibilidad psicológica tiene una influencia directa sobre la ansiedad ($\beta=.647$) y depresión ($\beta=.646$), y estas variables correlacionadas ($r=.473$) influyen en la ideación suicida ($\beta_A=.190$, $\beta_D=.509$, $r^2=.429$, $f^2=.751$). Los resultados sugieren que la inflexibilidad psicológica actúa como factor que incrementa el sufrimiento humano (Ansiedad y depresión), el mismo que incrementa la ideación suicida, destacando la necesidad de intervenir en estas variables para mitigar el riesgo suicida.

Palabras clave: Inflexibilidad psicológica, ansiedad, ideación suicida.

INTRODUCCIÓN

Suicide represents a global public health crisis that impacts individuals across all ages and socioeconomic levels. By 2021, it ranked as the third leading cause of death among young people aged 15 to 29, with 73% of cases recorded in low- and middle-income countries (World Health Organization [WHO], 2024). Likewise, suicide constitutes a growing concern in the Region of the Americas, with 100,933 registered deaths in 2021 and a 17% increase in the age-standardized rate between 2000 and 2019. Although 79.4% of cases occurred among men, female suicides recorded a more pronounced increase (Pan American Health Organization [PAHO], 2023). Therefore, its prevention demands the investigation and implementation of multisectoral strategies and evidence-based interventions aimed at preventing further losses in the region.

In Peru, the situation is equally alarming. From 2017 through the third quarter of 2024, 4,712 cases of completed suicides were recorded. Currently, 523 cases are registered nationwide, with Arequipa ranking first (100 cases), followed by Lima (76 cases), Cusco (52 cases), Puno (42 cases), La Libertad (23 cases), and Junín and Loreto reporting 22 cases each, among others (National Information System on Deaths [SINADEF], 2024). Although the Junín region does not occupy the top positions, the numbers remain alarming, considering that each case represents an individual and family tragedy. This could indicate a critical need to investigate specific factors -such as psychological problems, limited access to psychological care services, or socioeconomic conditions that may exert an influence- as well as to analyze suicide prevention policies within the Junín region.

A study conducted with adolescents in Cerro de Pasco provides an explanatory approach, noting that psychological inflexibility is a factor associated with suicide risk (Salcedo-Ramón & Quijada, 2024). Given this scenario, it is necessary to test and validate more complex theoretical models, such as the one proposed by Hayes et al. (2014). This contextual model explains that psychological inflexibility is a transdiagnostic variable that influences the increase of human suffering (anxiety and depression). Over time, it leads individuals to avoid aversive situations, distancing them from what they deem valuable,

until the heightened suffering itself drives them to view suicide as a ultimate means to escape that painful experience. The relevance of this theoretical approach lies in the fact that the contextual framework does not pathologize or biomedicalize suffering; instead, it treats it as behavior and a process within a context of stimuli and consequences associated with responses.

Conceptualization of Variables

Suicide must be understood as the deliberate act of ending one's own life, whereas suicidal behavior encompasses suicidal ideation, planning, suicide attempts, and self-harm (Al-Halabí & Fonseca-Pedrero, 2023). In this regard, ideation refers to thoughts about suicide, planning involves the creation of a method, and an attempt implies self-harming actions with an intent to die (O'Connor & Nock, 2014). Within the behavioral sciences, psychological problems -such as depression and anxiety- are considered major risk factors associated with suicide (United Nations [UN], 2022). These conditions predispose individuals to experience situations with higher-than-normal levels of stress, complicating their coping capacity and facilitating maladaptive behaviors as the sole perceived way to solve a problem (Hernández-Bello *et al.*, 2020).

Anxiety can be explained as a learned reaction through which an individual attempts to avoid or escape situations associated with negative or threatening experiences. This occurs due to the establishment of a relationship between certain stimuli (such as places, people, or events) and unpleasant emotions, generating an automatic alert or flight response when facing similar circumstances (Wolpe, 1993). Likewise, depression can be understood as a set of learned behaviors influenced by environmental factors, prior experiences, and the consequences that reinforce certain actions. In this process, experiences of positive reinforcement are insufficient, decreasing the frequency of pleasant activities, which can lead to an increase in avoidance or escape behaviors when encountering situations perceived as negative or aversive (Ferster, 1973).

Theoretical Models of Suicidal Behavior

Suicidal behavior results from diverse factors and is more frequent among youth, women, single individuals, and socially disadvantaged populations. Hence, it is crucial to identify specific markers and understand the underlying psycho-

logical processes to intervene early (O'Connor & Nock, 2014). The contextual model states that suffering is a basic human condition intensified through language and self-reflective thought (Haro *et al.*, 2023). In suicide, emotions such as anxiety, depression, guilt, and loneliness are perceived as a suffering so intense that they lead individuals to consider taking their own lives (González *et al.*, 2021). This suffering is exacerbated by psychological inflexibility, which manifests as cognitive fusion, where the individual identifies completely with their negative thoughts, failing to differentiate them from reality (Hayes *et al.*, 2014). This leads to experiential avoidance, characterized by ineffective strategies -such as attempting to suppress or control uncomfortable emotions and thoughts- that ultimately increase distress and worsen suffering. Consequently, a cycle of inflexibility is created to manage internal and external experiences which, like a loop, intensifies suffering over time until the individual considers suicide as an escape from that distress (Hayes *et al.*, 1999).

Unlike the cognitive model, the contextual model does not seek to restructure individuals' beliefs; rather, it aims for them to accept their distressing emotions and thoughts, and for their commitment to drive actions based on what they consider valuable in life, thereby increasing psychological flexibility and tolerance to suffering (Hyland, 2020). Furthermore, unlike the biomedical model, it does not conceptualize human suffering merely as signs and symptoms of disorders, does not underestimate functional indicators, and does not pathologize normal processes (Rusch *et al.*, 2009). Instead, the contextual model addresses suffering from a transdiagnostic perspective, identifying core processes that explain problems like anxiety and depression as normal and learned phenomena rather than diseases (Hayes *et al.*, 2014). Thus, the contextual model offers the theoretical foundation for the present study, which is made explicit through the following hypotheses that constitute the structural model to explain suicidal ideation.

Effect of Psychological Inflexibility on Anxiety

Psychological inflexibility (hereinafter PI) is a pattern of behavior characterized by the unhelpful control of context and linguistic processes that constitute cognitive fusion. This increases the tendency to avoid aversive experiences and generates difficulty in maintaining or changing behaviors in pursuit of long-term valued goals

(Hayes *et al.*, 2006). This modifiable pattern can influence anxiety and depression levels from preadolescence onward, highlighting its central role in the development of mental health problems (Aykut & Fulya, 2024). Another study also reveals that PI intensifies emotional issues such as anxiety, extending even beyond the school years (Klein *et al.*, 2021). Consequently, rigid attempts to control unpleasant emotions and thoughts intensify anxiety responses, even beyond demographic variables such as age, sex, and ethnicity (Tavakoli *et al.*, 2019).

Effect of Psychological Inflexibility on Depression

On the other hand, PI is also a key factor in preadolescent anxiety, exacerbating the inability to manage challenging situations and negatively impacting family, social, and academic domains (Aykut & Fulya, 2024). For this reason, PI is a critical factor in interventions for depression, especially in vulnerable groups like younger students, as it aggravates the inability to manage thoughts and emotions (Klein *et al.*, 2021). PI plays a central role in the development and maintenance of depression, as it impacts "depressogenic schemas" and the generation of negative automatic thoughts (Ruiz & Odriozola-González, 2016). Furthermore, PI increases the impact on depression by generating unstable self-esteem and fostering recurrent negative thoughts (Ishizu *et al.*, 2022).

Correlation Between Anxiety and Depression

A study conducted in the United States identified that 50.6% of patients with major depression presented severe comorbid anxiety symptoms, with social phobia, simple phobia, and panic disorder being the most common, and occurring more frequently in young people, who are more prone to an earlier onset of major depression (Fava *et al.*, 2000). Thus, anxiety and depression are moderately correlated manifestations due to the presence of a common link with negative affect, stressful events, and/or impaired cognitive processes (Eysenck & Fajkowska, 2017). Both clinical manifestations also belong to the broader category of internalizing disorders and share a high prevalence in the general population (Chen *et al.*, 2023). The relationship between anxiety and depression is complex, as individuals with anxiety have a higher risk of developing major depression and vice versa; moreover, individuals with both disorders experience worse outcomes regarding symptoms and treatment response, as

these patients tend to be more difficult to treat, experience more side effects, and are less likely to achieve remission (Kalin, 2020). Therefore, the presence of anxiety along with depression worsens psychosocial functioning -affecting areas such as work, family relationships, and quality of life- and individuals are even more prone to suicidal ideation or suicide attempts (Hopwood, 2023).

Effect of Anxiety on Suicidal Ideation

Consequently, the interaction among specific anxiety symptoms amplifies the risk of suicidal ideation, where restlessness and hopelessness intensify suicidal thoughts by reflecting extreme psychological distress and a perception of helplessness (Yang *et al.*, 2023). Another study explains that an exacerbated fear of anxiety sensations amplifies emotional distress and promotes maladaptive coping strategies (anxiety sensitivity); when combined with the inability to tolerate uncertain contexts (intolerance of uncertainty), this generates sustained distress and contributes to suicidal thoughts as an escape from the perception of an uncertain future (Allan *et al.*, 2023). Therefore, concern over social perception, insomnia, and cognitive rumination about the past or the future emerge as significant risk factors that must be evaluated when analyzing suicide risk, rather than relying solely on general diagnostic criteria (Busby *et al.*, 2023).

Effect of Depression on Suicidal Ideation

Recent studies on affect and mood states have confirmed the role of depression as an immediate predictor of suicidal thoughts, highlighting the need for constant evaluation of emotional states in patients at risk (Emmelkamp & Spada, 2022). This is because thoughts of death and hopelessness are deeply related to feelings of loneliness and isolation, which are exacerbated

by factors such as uncertainty; these conditions amplify suicidal ideation and underscore the severity of hopelessness's impact on the development of these thoughts (Yang *et al.*, 2023). However, a study in a Ukrainian population highlighted that rates of depression and suicidal ideation are significantly lower among individuals who are married, stably employed, or have higher education, demonstrating the protective role of these socioeconomic factors (Gorbunova *et al.*, 2024). On the other hand, other studies confirm that both depression and anxiety are major risk factors for suicide, especially in vulnerable populations such as students, emphasizing the need to assess both conditions to mitigate suicide risk (Li *et al.*, 2022).

In this regard, the purpose of the present study was to determine the influence of psychological inflexibility, anxiety, and depression on suicidal ideation among university students in the Faculty of Health Sciences at a university in Huancayo.

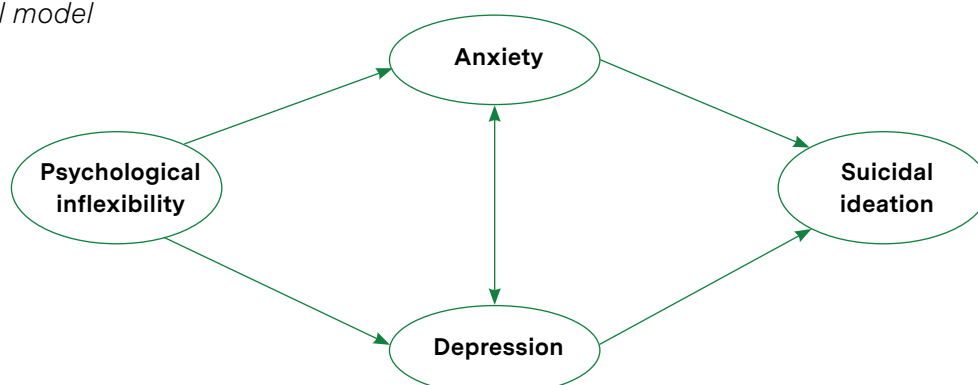
METHOD

Research Design

A non-experimental, explanatory, cross-sectional design with latent variables was employed, focusing on understanding the relationships among variables without directly manipulating them. Through data collection at a single point in time, causal or explanatory links were analyzed within a structural network of relationships integrating sub-models. This approach combines observable and latent variables defined by indicators, thereby constituting a structural equation model (SEM). (Ato & Vallejo, 2015). Figure 1 shows the theoretical model to be tested in this study.

Figure 1

Theoretical model



Participants

The sample was selected using non-probabilistic judgment sampling, in which participants were chosen based on specific, pre-established characteristics to ensure that the sample was relevant to the research objectives. Accordingly, the following inclusion criteria were considered: students between the ages of 18 and 26 enrolled in professional schools of nursing, psychology, and medicine at a university in Huancayo who had provided their voluntary consent to participate in the study. The exclusion criteria were: students over the age of 26, students enrolled in degree programs not included in the study, students on academic leave or temporary withdrawal, students who did not provide informed consent, students who decided to withdraw from the

study during the process, or students meeting any other exclusion criteria. In addition, cases in which inconsistent information or incomplete responses were identified in the data collection instruments were excluded.

As shown in Table 1, the sample consisted of 1,030 students from the Faculty of Health Sciences at a university in Huancayo, aged 18 to 26; most were enrolled in the School of Psychology (40%), followed by Medicine (30.4%) and Nursing (29.6%). 71.9% (741 students) were female and 28.1% (289 students) were male. In addition, 30.4% (313 students) were in their first year, 18.8% (194 students) in their second year, 27.2% (281 students) in their third year, 17.4% (179 students) in their fourth year, and 6.1% (63 students) in their final year of college.

Table 1

Sociodemographic data for the sample (n=1030)

		f	%
Professional School	Nursing	305	29.6%
	Psychology	412	40%
	Medicine	313	30.4%
Gender	Female	741	71.9%
	Male	289	28.1%
Academic Year	1st year	313	30.4%
	2nd year	194	18.8%
	3rd year	281	27.3%
	4th year	179	17.4%
	Final year	63	6.1%
Total		1030	100%

Instruments

Acceptance and Action Questionnaire (AAQ-II; Bond *et al.*, 2011). The AAQ-II measures psychological inflexibility. The version validated in Peru by Valencia and Falcón (2022) was used; it has a unidimensional structure consisting of 10 items with seven Likert-type response options (1 = Completely false to 7 = Completely true). The reliability of the instrument in this study was calculated using the ordinal omega coefficient (ω_{ordinal}), which demonstrated adequate reliability for the sample under investigation (Overall: $\omega_{\text{ordinal}} = .91$)

Lima Anxiety Scale (EAL20, Lozano-Vargas & Vega-Dienstmaier, 2013, 2018). The EAL20 measures anxiety symptoms based on a 4-dimensional structure: physical anxiety with 5 items (Items 01 through 05), social phobia consisting of 5 items (Items 06 through 10), psychological anxiety with 7 items (Items 11 through 17), and agoraphobia with 3 items (items 18–20). All items use a dichotomous response scale (1 = Yes and 0 = No). In this study, the scale demonstrated adequate reliability for each of its dimensions and the overall factor (Overall: $\omega_{\text{ordinal}} = .94$; Physical Anxiety: $\omega_{\text{ordinal}} = .88$; Social Phobia: $\omega_{\text{ordinal}} = .86$; Psychological Anxiety: $\omega_{\text{ordinal}} = .90$; Agoraphobia: $\omega_{\text{ordinal}} = .73$).

Depressive Psychopathology Scale (EPD6, Vega-Dienstmaier *et al.*, 2011). The EPD6 measures symptoms of depression based on a two-dimensional structure: two items measuring physical symptoms (Items 01–02) and four items measuring affective and sleep symptoms (Items 03–06). The items have four Likert-type response options ranging from 0 = Almost never to 3 = Almost all the time. In this study, the EPD6 demonstrated adequate reliability (Overall: $\omega_{\text{ordinal}} = .81$; Somatic symptoms: $\omega_{\text{ordinal}} = .73$; Affective and sleep symptoms: $\omega_{\text{ordinal}} = .71$).

Suicidal Ideation Frequency Inventory (IFIS; Chang & Chang, 2016). The IFIS assesses suicide risk; the version validated in Peru by Baños-Chaparro *et al.* (2021), which has a unidimensional structure, was used. The IFIS consists of 5 items, each with 5 Likert-scale response options (ranging from 1 = *Never* to 5 = *Almost every day*). The total score ranges from 5 to 25 points, with higher scores indicating a greater frequency of suicidal ideation symptoms. In this study, the scale demonstrated adequate reliability (Overall: $\omega_{\text{ordinal}} = .96$).

Data Analysis

To determine whether the data follow a multivariate normal distribution, the Mardia test was used (Tenreiro, 2015). The results for skewness ($b_{1,4}=2021.22$; $p<.05$) and kurtosis ($b_{1,4}=-44.21$; $p<.05$) indicated that the normality criterion was not met. Therefore, for the SEM model analysis, the Robust Maximum Likelihood (MLR) estimator was used, as it adjusts parameter estimates and hypothesis tests to be robust against non-normal data or outliers (Li, 2016). Furthermore, it has been suggested that the MLR estimator can be used with ordinal variables when the number of categories is ≥ 5 , treating them as continuous variables with reduced bias (Li, 2016). The aim is to improve the accuracy of inferences, correct the fit statistics, and ensure reliable results (Kline, 2016).

For data analysis, we considered covariance-based structural equation modeling (CB-SEM), as it is a set of statistical techniques that evaluates theoretical models by comparing the observed covariance matrix with the estimated one, allowing for the testing of hypotheses and the validation of relationships between latent and observed variables under strict assumptions (Jöreskog and Sörbom, 1981). With regard to global fit indices, which provide information on how well a model fits the collected data

and whether the covariance patterns among the variables correspond to the relationships hypothesized in the model, the following expected values were considered: CFI (>0.95 = Good / >0.90 = Adequate), TLI (>0.95 = Good / >0.90 = Adequate), RMSEA (<0.05 = Good / <0.08 = Adequate), SRMR (<0.08 = Good), AIC, and BIC (Lower) (Abad *et al.*, 2011; Keith, 2015).

To conduct the analyses, we used R Studio software along with a number of specialized packages, such as “ggplot2” for data visualization, “mvtnorm” for calculations related to multivariate distributions, ‘psych’ for psychometric analyses, and “lavaan,” “semPlot,” and “semTools” for structural equation modeling and its graphical interpretation.

Ethics Approval

The study was approved by the Scientific Research Ethics Committee of the Catholic University of Trujillo-Benedict XVI, which stated that the project does not violate the provisions of the Code of Ethics (Resolution No. P00603-2025/UCT-EPG-D-P).

RESULTS

Descriptive Analysis of Variables

Table 2 shows that 11% of the participants frequently exhibit a tendency toward psychological inflexibility, and 1.1% reach an extreme frequency. This suggests the existence of a subgroup that experiences difficulties adapting to changing situations, focusing attention on the present moment, and directing behaviors toward valued goals. Furthermore, 38.5% of the participants reported general anxiety symptoms; 38.7% report physical symptoms such as palpitations, sweating, muscle tension, or dizziness; another 43.1% experience discomfort in social situations (social phobia); 10.1% experience excessive worry and intrusive thoughts (psychic anxiety); and 30.3% experience anxiety in open spaces or crowds (agoraphobia), which could impact their emotional well-being. Regarding depression, 20.5% occasionally experience depressive symptoms and 1.5% do so frequently; another 27.1% experience somatic symptoms occasionally and 8.2% most of the time; additionally, 21.9% occasionally experience affective and sleep symptoms, while 1.7% experience them more frequently. Finally,

regarding suicidal ideation, most participants exhibit low frequencies; however, it was identified that 10.6% have sometimes thought about ending their lives, 3.1% report a considerable intensity, and 1.3% indicate thinking about suicide

almost every day. These findings underscore the importance of implementing early detection and psychological intervention strategies for students with more pronounced symptomatology to mitigate the impact of these conditions on their overall well-being.

Table 2

Descriptive statistics for psychological inflexibility, anxiety, depression, and suicidal ideation

	M	SD	A _s	G ₂	Response options (n=1030)							
					0	1	2	3	4	5	6	7
PI	3.20	1.36	0.40	-0.30	-	9.2%	24.4%	27.4%	22.2%	11%	4.8%	1.1%
AN	0.39	0.49	0.47	-1.78	61.5%	38.5%	-	-	-	-	-	-
A1	1.91	1.70	0.37	-1.17	61.3%	38.7%	-	-	-	-	-	-
A2	2.15	1.69	0.21	-1.20	56.9%	43.1%	-	-	-	-	-	-
A3	2.97	2.31	0.28	-1.09	59.9%	10.1%	-	-	-	-	-	-
A4	1.01	1.02	0.61	-0.83	69.7%	30.3%	-	-	-	-	-	-
DE	1.10	0.62	0.30	0.52	13%	65%	20.5%	1.5%	-	-	-	-
D1	2.19	1.47	0.59	-0.15	10.9%	53.9%	27.1%	8.2%	-	-	-	-
D2	3.92	2.40	0.53	0.30	15.2%	61.1%	21.9%	1.7%	-	-	-	-
IS	1.59	0.89	1.59	2.20	-	61.3%	23.8%	10.6%	3.1%	1.3%	-	-

Note: IP=Psychological Inflexibility, AN=Anxiety, A1=Physical Anxiety, A2=Social Phobia, A3=Psychic Anxiety, A4=Agoraphobia, DE=Depression, D1=Physical Symptoms, D2=Mood and Sleep Symptoms, IS=Suicidal Ideation, M=Mean, SD=Standard deviation, A_s=Asymmetry, G₂=Kurtosis. The dashes in the response options section indicate the absence of a response option on a given test. For example, the suicidal ideation (SI) scale has five response options; therefore, the last two options have dashes indicating the absence of a response option.

Correlation Analysis

As observed in Table 3, psychological inflexibility maintains positive associations with anxiety ($r = .553$), depression ($r = .510$), and suicidal ideation ($r = .482$), indicating that greater psychological inflexibility is linked to a higher tendency to experience these symptoms. Likewise, anxiety and depression are highly correlated ($r = .529$), demonstrating the close relationship between both emotional conditions. In addition, anxiety is also associated with suicidal ideation ($r = .466$),

while depression presents a positive correlation with suicidal ideation ($r = .518$), which is consistent with the literature identifying depression as a strong predictor of suicidal thoughts. The correlations among all variables are statistically significant at the .01 level, suggesting consistent relationships among them. The analysis indicates that psychological inflexibility not only has a direct relationship with suicidal ideation, but its impact may also be linked to anxiety and depression.

Table 3*Correlations for the study variables*

	M [95% IC]	SD	1	2	3
1. Psychological inflexibility	22.5 [21.9-23.0]	9.24	-	-	-
2. Anxiety	8.04 [7.71-8.38]	5.47	.553	-	-
3. Depression	6.12 [5.90-3.46]	3.46	.510	.529	-
4. Suicidal ideation	8.11 [7.85-8.37]	4.21	.482	.466	.518

Theoretical Model Analysis

Table 4 displays the analysis of global fit indices using the structural equation modeling (SEM) with the robust maximum likelihood (MLR) estimator. An improvement in the fit of Model 2 compared to Model 1 is evident. In Model 1, without item deletion or error correlation, the fit indices showed values of CFI = .909 and TLI = .903, with an RMSEA = .044 (90% CI [.042, .046]) and an SRMR = .051. However, after applying modifications to Model 2 -which included the deletion of items 1, 6, and 10 of psychological inflexibility and the correlation of measurement errors between items 2 and 5- a significant improvement in the fit indices was observed: the CFI increased to .939 and the TLI to .934, while the RMSEA was reduced to .037 (90% CI [.034, .039]) and the SRMR decreased to .041.

Likewise, the information criteria values for AIC and BIC were lower in Model 2 (AIC = 70,557.408; BIC = 70,712.309) compared to Model 1 (AIC = 82,612.835; BIC = 82,776.537), suggesting a better balance between model parsimony and goodness-of-fit. These findings support the relevance of the modifications made and suggest that Model 2 provides a more robust and adequate fit to the data. The deletion of items and correlation of errors in Model 2 are grounded in psychometric criteria and prior research, such as the studies by Ruiz et al. (2016) in Colombia, and Valencia and Falcón (2022), among others, which have utilized similar strategies to optimize the fit of factor models. Consequently, the modifications implemented in Model 2 respond to empirical criteria aimed at improving model validity and fit.

Table 4*SEM Analysis (MLR Estimator) – Global Fit Indices*

Fit Indices	Model 1 (n=1030)	Model 2 (n=1030)
χ^2	15918.976	15023.682
gI	820	703
p	.000	.0001
CFI	.909	.939
TLI	.903	.934
RMSEA [IC90%]	.044 [.042-.046]	.037 [.034-.039]
SRMR	.051	.041
AIC	82612.835	70557.408
BIC	82776.537	70712.309

Note: Model 1 = No items were removed from the instruments; Model 2 = Items 1, 6, and 10 on psychological inflexibility were removed, and the measurement errors for items 2 and 5 were correlated.

Path Diagram Analysis

Figure 1

Model 2 Path Diagram – Specific Fit Indices

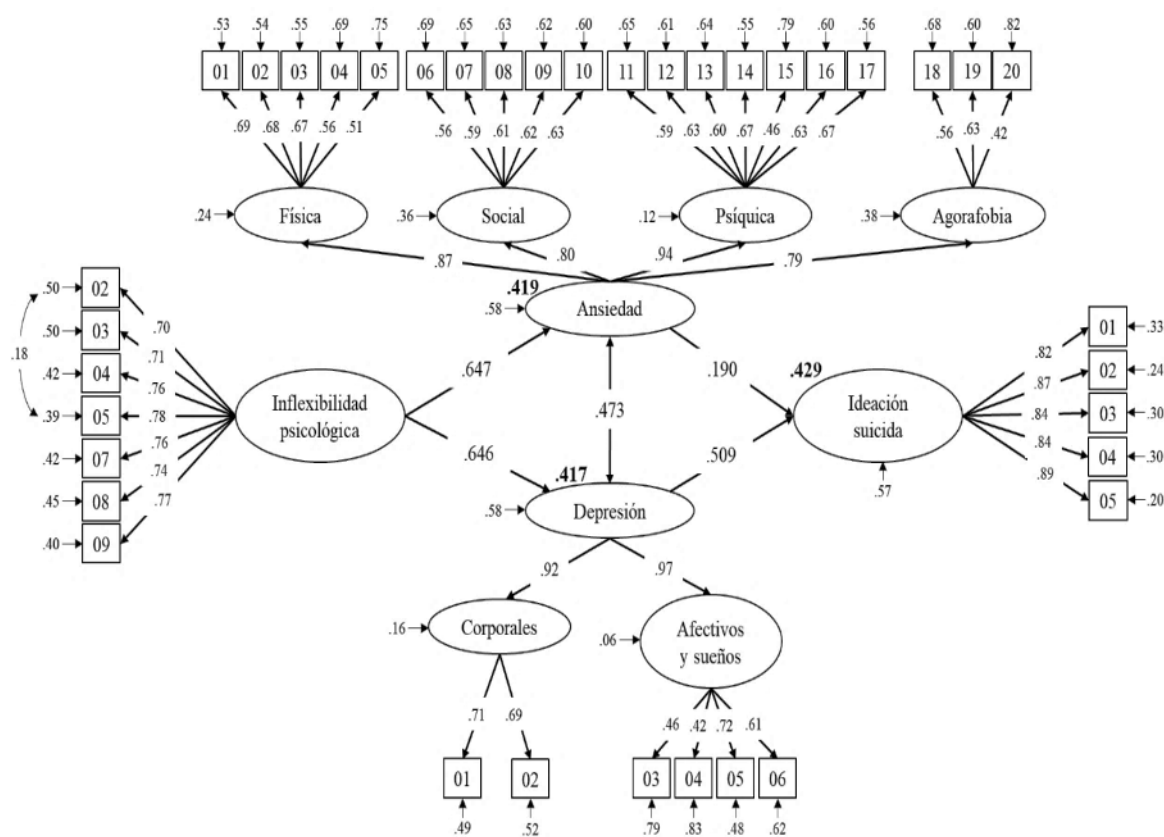


Figure 2 shows that, in Model 2, psychological inflexibility has a strong direct influence on anxiety ($\beta=.647$, $r^2=.414$, $F^2=.720$) and depression ($\beta=.646$, $r^2 = .417$, $F^2 = .716$), whereas anxiety and depression are closely related through a moderate reciprocal relationship ($r = .473$). In addition, depression emerges as a key factor that directly influences suicidal ideation with a medium effect size ($\beta=.509$, $r^2=.259$, $F^2=.350$), and anxiety also contributes directly, but with a small effect size ($\beta=.190$, $r^2=.036$, $F^2=.037$). In general, the contextual model (psychological inflexibility, anxiety, and depression) explains 42.9% of the variation in suicidal ideation among university students in Huancayo; furthermore, the model explains this variation with a large effect size ($r^2 = .429$, $F^2 = .751$). These results suggest that psychological inflexibility acts as a factor that increases human suffering (anxiety and depression), which in turn increases the risk of suicidal ideation, highlighting the need to intervene on these variables to mitigate the risk.

DISCUSSION

The purpose of the present study was to determine the influence of psychological inflexibility, anxiety, and depression on suicidal ideation among university students in the Faculty of Health Sciences at a university in Huancayo. The results obtained reflect a concerning scenario regarding the students' mental health.

First of all, the evidence shows that 11% of students present moderate frequencies of PI and 4.8% exhibit high or extreme frequencies, indicating that this variable plays a crucial role in their emotional well-being. Prior studies highlight that PI is a significant predictor of emotional problems, especially in adolescents (Hayes et al., 2014; Aykut & Fulya, 2024), where the inability to manage aversive emotions and thoughts can exacerbate maladaptive responses, such as experiential avoidance, thereby affecting overall functionality. This pattern is consistent with the contextual model, which identifies cognitive fusion as a critical factor in the development of emotional difficulties (Hayes et al., 2006).

Second, the fact that 38.5% of students present anxiety symptoms highlights the prevalence of this condition, understood as a learned automatic alert or flight response through which an individual attempts to avoid or escape situations associated with negative or threatening experiences (Wolpe, 1993). Anxiety sensitivity and intolerance of uncertainty are relevant factors that intensify maladaptive emotional responses and can increase the risk of suicidal ideation (Allan *et al.*, 2023; Busby *et al.*, 2023). Furthermore, the relationship between anxiety and suicide has been extensively documented and linked to the perception of helplessness and hopelessness as catalysts for suicidal thoughts (Yang *et al.*, 2023). Nevertheless, the interaction of contextual factors, such as academic pressure and emotional insecurity, could aggravate these symptoms in students.

Additionally, the 15% of students with a higher frequency of suicidal ideation underscores the urgent need to implement effective preventive strategies. This group, although minority, is experiencing thoughts about suicide that occasionally involve the creation of a suicide plan and/or self-harming actions with an intent to die (Al-Halabí & Fonseca-Pedrero, 2023). This represents a significant risk, especially when considering that suicidal ideation frequently precedes suicide attempts (O'Connor & Nock, 2014). Factors such as intolerance of emotional pain, social isolation, and cognitive fusion intensify these thoughts (Rudd, 2000). Moreover, the coexistence of anxiety and depression increases the complexity of these cases, negatively affecting response to treatments and coping strategies (Kalin, 2020; Li *et al.*, 2022).

The present study provides significant evidence regarding the influence of PI on suicidal ideation in university students through anxiety and depression. In this manner, it contributes to theoretical understanding via a more comprehensive model than a bivariate one, which merely notes that PI is a risk factor directly associated with suicide risk (Salcedo-Ramón & Quijada, 2024). It highlights the importance of psychological factors in suicide prevention, where the direct influence of PI on anxiety and depression together explains 42.9% of the variance in suicidal ideation. The conceptualization of PI as a behavioral pattern that intensifies maladaptive emotional responses (Hayes *et al.*, 2006) finds support in the results of Model 2, which shows a significant fit. This perspective aligns with prior

research highlighting the relationship between PI and anxiety (Aykut & Fulya, 2024), where rigid attempts to control unpleasant emotions exacerbate anxiety responses, independently of demographic variables such as age and sex (Tavakoli *et al.*, 2019). Furthermore, anxiety not only intensifies emotional distress but also acts as a key mediator in the risk of suicidal ideation (Yang *et al.*, 2023).

Regarding depression, the findings are consistent with previous studies linking PI to difficulties in managing negative thoughts and emotions, thereby intensifying depressive responses (Klein *et al.*, 2021) and even generating unstable self-esteem and recurrent negative thoughts (Ishizu *et al.*, 2022). Thus, its predominant impact on suicidal ideation highlighted in this study aligns with findings identifying its association with negative automatic thoughts and depressogenic schemas (Ruiz & Odriozola-González, 2016). Overgeneral autobiographical memory and hopelessness, linked to depression, significantly increase suicide risk (Emmelkamp & Spada, 2022). Depression associated with factors such as loneliness and isolation underscore the importance of protective factors such as employment and social support (Gorbunova *et al.*, 2024). However, it is also crucial to address anxiety, given that even if its independent impact is lower, its coexistence with depression exacerbates suicide risk and hinders therapeutic responses (Kalin, 2020).

Consequently, a critical aspect is the correlation between depression and anxiety in the student population, as both conditions not only co-occur frequently but also share a structural link through negative affect and stressful events (Eysenck & Fajkowska, 2017). This reinforces the need to address these manifestations jointly, especially in educational settings where students are more likely to face triggers such as academic pressure and uncertainty about their future (Tavakoli *et al.*, 2019). In this context, the coexistence of anxiety and depression in students could significantly increase the risk of suicidal ideation or suicide attempts (Hopwood, 2023). Studies such as those by Allan *et al.* (2023) have pointed out that the inability to manage intense emotions or uncertain situations is directly related to the emergence of suicidal thoughts as an escape strategy from emotional distress. This highlights the necessity of implementing psychoeducational programs that foster psychological flexibility and help students develop healthier coping skills.

From a theoretical perspective, the contextual and cognitive-behavioral models provide complementary explanations for understanding the underlying mechanisms of suicidal behavior. While Rudd's (2000) cognitive model emphasizes the interaction between cognitive, affective, and behavioral systems, the contextual model by Hayes *et al.* (1999) highlights the importance of acceptance and commitment in reducing psychological suffering. This approach, which does not pathologize human suffering, presents a viable alternative for interventions centered on suicidal ideation by promoting psychological flexibility and distress tolerance.

IMPLICATIONS

From a practical perspective, the findings reinforce the need to implement interventions aimed at increasing psychological flexibility as a central strategy to reduce suicide risk. Programs based on Acceptance and Commitment Therapy (ACT) could be particularly effective, given their focus on the acceptance of negative emotions and the promotion of value-based actions (Hayes *et al.*, 2014). This approach would not only reduce PI but would also improve individuals' capacity to manage anxiety and depression. Therefore, it highlights the importance of monitoring and treating students with significant suicidal ideation, given the potentially severe impact on their well-being and safety, in addition to strengthening early detection strategies and psychological support programs in this population.

At a theoretical level, the use of models such as those by Hayes *et al.* (1999) and Rudd (2000) provides a solid framework for designing evidence-based prevention strategies. This underscores the importance of transdiagnostic approaches that address the common roots of anxiety, depression, and suicidal ideation, focusing interventions on reducing associated risk and improving students' quality of life (Hayes *et al.*, 2014). Furthermore, the development of academic programs that foster emotional well-being and provide early psychosocial support is essential to prevent the escalation of these problems (Tavakoli *et al.*, 2019).

The results also highlight the importance of considering cultural and socioeconomic

factors in the analysis of suicidal behavior. The predominance of suicide in low- and middle-income countries (WHO, 2024) and its increase in the Region of the Americas (PAHO, 2023) reflect structural inequalities that require context-adapted interventions. This is especially relevant given the rise in female suicide and the high prevalence of suicidal ideation among youth, who face a combination of psychological and social factors that intensify their vulnerability. In summary, interventions aimed at improving psychological flexibility and reducing anxiety and depression are essential to mitigate the risk of suicidal ideation, particularly in young and vulnerable populations.

LIMITATIONS

Despite the results and implications, this study presents several limitations. First, the cross-sectional design makes it difficult to establish causal relationships between PI and the associated emotional conditions. Second, the use of a non-probabilistic sample limits the generalizability of the findings. Third, there is a lack of detail regarding the barriers to implementing strategies, such as ACT, in resource-limited contexts. Therefore, it is recommended to employ probabilistic sampling, conduct multicenter studies, and explore the role of family and academic support. It is also necessary to identify practical barriers to intervention implementation and to encourage longitudinal evaluations that contribute to a comprehensive understanding of the phenomenon by analyzing the evolution of these variables and the effectiveness of preventive interventions. Fourth, the final model -wherein psychological inflexibility is conceived as a unidimensional structure involving item deletion and error correlation- presents adjustments that may lead to sample-specific idiosyncrasies, artificially inflating model fit and decreasing replicability (MacCallum *et al.*, 1992).

CONCLUSIONS

The results show that while most students exhibit low frequencies of psychological inflexibility, anxiety, depression, and suicidal ideation, a significant percentage faces severe emotional difficulties. Likewise, the improvement in Model

2, achieved through specific adjustments such as item deletion (1, 6, and 10) and error correlation (2 and 5), demonstrates a more optimal structural analysis. This indicates the relevance of addressing psychological inflexibility as a central factor that exacerbates anxiety and depression (human suffering), thereby increasing the risk of suicidal ideation, as posited by the functional contextual approach. Furthermore, the model demonstrates high explanatory power ($R^2 = 42.9\%$), but it would be pertinent to complement this analysis with longitudinal studies to confirm causality and evaluate the effectiveness of therapeutic strategies based on these findings, while also considering other variables such as social support, academic stress, and traumatic experiences.

Finally, this study highlights the importance of psychological inflexibility as a core target in suicide prevention. By integrating theoretical models and empirical evidence, strategies can be considered that prioritize both the reduction of emotional symptoms and the strengthening of skills to cope with suffering. This integrated approach has the potential not only to mitigate suicidal ideation but also to significantly improve the quality of life of university students.

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HASR: initial conception, organization of the text, analysis of the data and preparation of all figures and tables.

DYP, CC-L y TC-R: data collection, consultants and collaborators in research design, data analysis and text writing.

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