RESEARCH ARTICLE

Mediating Role of Mentalization in Depressive Symptoms Among College University Students

Paula Solervicens[1], Javier Moran-Kneer[1,2*], Kelly Cerda[1], Andrea Geldres[1], Thania Guzmán[1]

[1]Universidad de Valparaíso, Escuela de Psicología, Valparaíso, Chile.
[2]Centro de Estudios Traslacionales en Estrés y Salud Mental (C-ESTRES), Valparaíso, Chile.

*javier.moran@uv.cl

ABSTRACT

This study explores the mediating role of mentalization—the psychological capacity to understand the mental states of oneself and others—in the relationship between academic stress and depressive symptoms among university students during the COVID-19 pandemic. Conducted in Valparaíso, Chile, with a sample of 300 students, the study utilizes a cross-sectional design. Depressive symptoms were assessed using the Patient Health Questionnaire-9 (PHQ-9), stress levels were measured with the Depression Anxiety Stress Scales-21 (DASS-21), and mentalization was evaluated through the Reflective Functioning Questionnaire. Results reveal that disruptions in mentalization, specifically uncertainty about mental states, partially mediate the impact of stress on depressive symptoms, highlighting the crucial role of mentalization processes in the development and management of depressive symptoms under stressful conditions. The findings emphasize the importance of enhancing mentalization capabilities in university settings to improve students' resilience to stress, particularly in crisis situations like the pandemic. This research underscores the necessity of integrating mentalization-focused strategies in preventive and therapeutic interventions for university students to support their mental health and well-being.

Keywords: COVID 19, college students, depression, stress, mentalization.

Introduction

Prior to the widespread implementation of vaccination processes during the COVID-19 pandemic, social distancing was the primary measure employed to combat the spread of the virus[1]. Restrictive measures led to significant changes in daily routines[2], impacting global production processes[3,4], and necessitating the closure of numerous institutions[5]. In 2020, 94% of students worldwide were affected by the shutdown of educational establishments[6], with March 16 marking the beginning of mandatory quarantine and the closure of nearly 100% of such institutions[7,8]. The inability to maintain in-person learning compelled the shift to online teaching methods[9]. This transition highlighted various deficiencies and disparities in technology access[10,11] and the educational communities' ability to adapt to such sudden changes[12], including a lack of technological training among teachers[13] and insufficient technological infrastructure in low-income households[14].

Numerous studies have revealed the impact on mental health within the population associated with these emerging stressors[15-18]. A report by the World Health Organization (2023) indicated that there was a 25% increase in the global prevalence of anxiety and depression during the first year of the COVID-19 pandemic[19]. Further analysis of these figures showed that university students were particularly at risk for the development of mental health issues[20,21], even more so than the general population[22,23]. Social isolation[24], limited physical interaction with peers and family[25], uncertainty about the future[26], fear of contracting COVID-19[27], and dissatisfaction with preventative measures[28], are factors that explain the high rates of depressive symptoms among these young individuals.

The linearity of the associations between stress as a risk factor and the emergence of depressive symptoms has been questioned by various authors[29-32]. From this perspective, the emergence of depressive symptoms is not a direct consequence of exposure to stress, but rather, it is a response to the complex interaction between environmental trigger factors and personal and historical aspects[30,33]. Thus, the activation of certain dysfunctional psychological mechanisms of affect regulation, triggered by stress, could explain these types of symptoms[34].

Over the last 20 years, the study of mentalization as a mechanism of affect regulation[35] and a general factor of psychopathology[36] has gained prominence in understanding the genesis of mental health disorders. Mentalization has been defined as a form of social cognition, originating in early attachment relationships, that allows for understanding the social world in terms of intentional mental states[37]. Due to its dynamic nature, mentalization is a psychological function strongly influenced by relational context and contextual factors such as stress[38]. It is known that the perception and interpretation of oneself and others can be quite accurate under conditions of low stress; however, an increase in stress can lead individuals towards prementalizing modes or modes of low mentalization[38]. These reflective functioning modes characterized by low mentalization are marked by the emergence of intense emotions and greater difficulty in considering the perspective of others, focusing attention on actions and behaviors over the mental

world, or insisting on narratives less connected with objective reality[36].

In depression, two psychological phenomena associated with mentalization distortions have been described. On the one hand, patients have been observed to have difficulties in considering the complexity of mental processes, both their own and others', making it difficult to understand some actions and how these affect others. This phenomenon has been termed, hypomentalization. On the other hand, affective states characterized by the assumption of explanations for the behavior of others, based on emotional states without a basis in objective reality, have been described. This model of thought has been called hypermentalization[39].

While both phenomena characterize the depressive experience, from an evolutionary perspective, these would be more than a consequence, a mechanism through which depressive symptoms are expressed as a result of this failure in the capacity for affect regulation and thought[38]. Thus, the primary vulnerability for the emergence of depressive symptoms lies primarily in the bonding experiences that neurobiologically organize psychological functions, such as mentalization[38,40]. Seen in this way, the presence of mentalization vulnerability factors, triggered by stress, affects reflective functioning, which in turn, triggers depressive symptoms[38]. In the case of university students, there is an additional element to consider. During this stage, the brain architecture, mainly of cortical areas associated with mentalization, is still in the process of maturation[41,42] following the neuronal pruning process that begins in puberty. In this sense, just as in the case of adolescents, this is a

particularly at-risk group for the emergence of mental health problems, since psychological functions relevant to addressing mental health issues are still developing[43].

Thus, the present study evaluates the mediating role of mentalization alterations in the association between academic context stress and depression symptoms in university students. By delving into how alterations in the process of mentalization may serve as a mediating mechanism in the stress-depression link, this study aims to enrich our understanding of the psychological impacts of academic stress on university students and identify potential intervention points to support their mental well-being. This research contributes to a deeper comprehension of the complex interplay between environmental stressors, psychological processes, and the development of depressive symptoms, offering insights into the critical role of mentalization in maintaining mental health amidst challenging academic contexts.

Method

PARTICIPANTS

This is a cross-sectional, quantitative, exploratory, and correlational study that assessed a sample of 300 young men and women between 18 and 25 years old who were enrolled in higher education programs at universities in the Valparaíso region of Chile. The data analyzed in this study are part of the project "Effects of confinement in the context of the COVID-19 pandemic on the mental health and psychological coping resources of higher education students," carried out in the context of the Millennium Institute for Depression and Personality Research (see www.midap.org).

Data collection was carried out through an online questionnaire using the Google Forms platform, which was disseminated through social networks between June and July 2020. Prior to administering the instrument, participants electronically signed an informed consent form that ensures the confidentiality of the data. The study was approved by the MIDAP Ethics Committee and complied with the principles of the Declaration of Helsinki.

MEASURES

Depressive symptomatology was assessed using the PHQ-9 (Patient Health Questionnaire)[44]. This is a self-report questionnaire with 9 items on a Likert scale that ask about the frequency of depressive symptoms over the past two weeks based on DSM-IV criteria, ranging from "never" (0 pts) to "almost every day" (3 pts). Its validation in Chile showed acceptable internal consistency with $\alpha = 0.84$, sensitivity of 92%, and specificity of 89% in detecting depressed patients[45].

Anxiety was evaluated using the DASS-21[46]. This self-administered questionnaire assesses anxiety, depression, and stress symptoms on a 4-point Likert scale during the last week. For the purposes of this study, only the stress scale was used, which consists of 7 items (items 1-6-8-11-12-14 and 18). In its validated version for Chile[47], the instrument replicated the factorial structure of the original version with an α value of .83 for the anxiety scale.

Mentalization was evaluated using the Reflective Functioning Questionnaire (RFQ)[48]. This self-administered questionnaire with 8 items assesses, on a 7-point Likert scale, the use of intentional mental states to understand oneself and others. The instrument consists of the following scales: 1. Certainty of mental states, which evaluates the level of rigidity in attributing mental states to one's own behavior and that of others, and 2. Uncertainty, which evaluates people's ability to use intentional mental states to make sense of their own and others' behavior. The original study demonstrated internal consistency for a non-clinical population with $\alpha = .67$ for Uncertainty of mental states and $\alpha = .63$ for Certainty of mental states.

DATA ANALYSIS

A dual mediation analysis was conducted using the PROCESS macro for SPSS[49] with a bootstrapping sampling of 5000. The interpretation of indirect effects was based on 95% confidence intervals.

For model construction, the stress scale of the DASS-21 was entered as a predictor, while the PHQ-9 was used as the outcome variable for depressive symptomatology. The Certainty and Uncertainty of mental states sub-scales from the RFQ were included as mediators. Participant age was also incorporated as a covariate to account for possible developmental differences.

Results

The sample was mainly composed of women (70.7%), with a mean age of 21.5 years. Additionally, 68.2% of the participants belonged to a low socioeconomic level and 4.5% belonged to an ethnic group. Approximately 40% of the participants were studying careers in the social sciences field (such as psychology, social work, sociology). In addition to the group of students in the health field (medicine, nursing, kinesiology), both areas make up 60% of the sample. At the time of the study, just over a third of the

participants were taking classes exclusively online, while almost 60% were attending classes in a hybrid format. It is important to note that only half of the students who were taking hybrid classes were participating in-person.

Regarding clinical variables, it was observed that almost 70% of the participants presented ranges of depressive symptoms classified as moderate to severe. For anxious symptoms, 60.7% of the subjects were classified in these same ranges. (Table 1)

Table 1. Sociodemographic and clinical background

Variables	X(SD)	F(%)
AGE	21.5	2.4
GENDER		
Non binary	14	4.7
Male	74	24.7
Female	212	70.7
SOCIOECONOMIC STATUS		
Lower class	199	68.2
Middle class	22	7.5
High class	71	24.3
CLASS FORMAT		
On line	107	36.6
Fully in-person	14	4.8
Hybrid	171	58.6
DEPRESSIVE SYMPTOMS (PHQ-9)		
Mild or absent	95	31.7
Moderate to severe	205	68.3
STRESS (DASS-21)		
Mild or absent	118	39.3
Moderate to severe	182	60.7

Note: The frequency totals are less than 300 in some variables due to missing sociodemographic data.

MEDIATION ANALYSIS

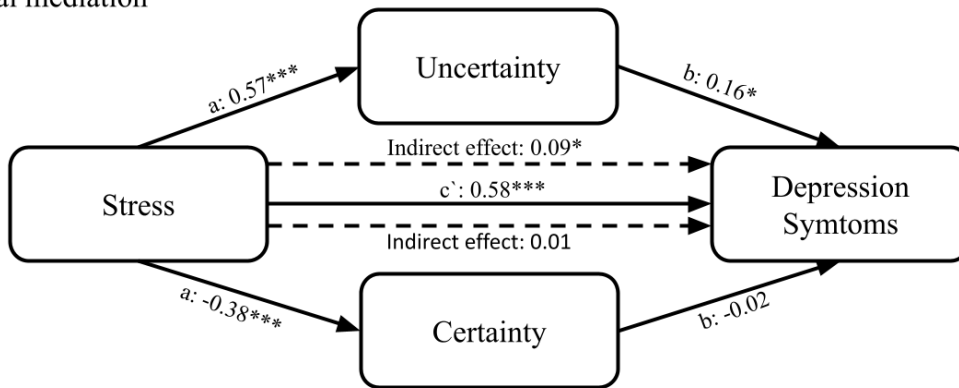As observed in Table 2, only one mediation effect was observed for the variable "uncertainty about mental states" (b = 0.09; 95% CI [0.02, 0.17]). The simple association model (see Figure 1a) between stress and depressive symptoms showed a positive association (b = 0.81; p < 0.01) explaining 45.6% of the variance.

Figure 1. Mediation model.

1. Simple association
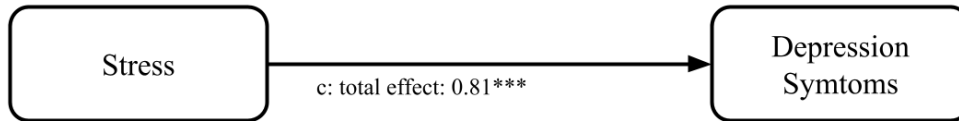
2. Dual mediation

By incorporating the mediating variables into the regression model, the explained variance of depression increased to 47.5%. In this case, stress (c`) remained a significant predictor of depressive symptomatology (b = 0.70; p < 0.001).

Table 2. Mediation analysis of the effect of mentalization on the relationship between stress and depressive symptomatology.

Mediator variable (M)	Stress on M (A)	p	M on depressive symptoms (b)	p	Direct effect (c')	p	Indirect effect
							β, 95% [CI]
Uncertainty	0.57	<.001	0.16	0.01	0.7	<0.001	0.09 [0.02, 0.17]
Certainty	-0.38	<.001	-0.02	0.72			0.008 [-0.04, 0.05]

By analyzing the mediation path of "uncertainty about mental states" as the mediator variable, a significant positive association was observed between stress and this variable (b = 0.57; p < 0.001). Furthermore, this mediator variable was positively associated with depressive symptoms (b = 0.16; p < 0.05) (see figure 1).

It is worth noting that incorporating the mediator variable does not completely eliminate the direct effect of stress on depressive symptoms, but partially mediates this association.

Discussion

This study aimed to assess the mediating role of mentalization alterations in the relationship between academic stress and depressive symptoms among university students during the COVID-19 pandemic confinement. It was observed that only the uncertainty of mental states partially mediated this association.

The direct link between academic stress and depressive symptoms reaffirms a well-acknowledged association in the literature[50-53]. Entry into university life is associated with multiple risk factors for the development of depressive symptoms, largely linked to lifestyle changes[54], including lack of physical exercise, poor eating and sleeping habits, lack of family and social support networks, and job and economic uncertainty post-graduation. The pandemic context has added stress due to uncertainty of COVID-19 contagion, exposure to alarmist information, job-related uncertainties with economic implications, isolation from family and friends, and continuous preventive measures like mask-wearing and temperature checks, affecting the well-being of university students[55].

Interestingly, only the uncertainty of mental states served as a mediator in the relationship between stress and depression symptoms. This result is believed to be due to the inherent uncertainty and lack of face-to-face feedback in a context of solitude and isolation. This type of stress is significant as social contact and learning with peers at this developmental stage are crucial for self-organization[56]. The increased isolation and reliance on digital communication hinder the practice and ability to understand others' mental states, a contextually essential skill. This leads to what has been termed hypomentalization, characterized by difficulties in affective understanding of others, literal interpretation of messages, and decreased social interaction skills. However, a key aspect linking it to depressive symptoms is the difficulty in understanding one's own emotions. Thus, a hipomentalizing state becomes a significant risk factor for stress coping and the development of internalizing and inhibitory symptoms[57].

As previously mentioned, the act of mentalizing others requires the ability to consider others' perspectives regarding new and threatening situations. During a period of uncertainty like the one experienced during the pandemic, the young study participants lacked similar prior experiences to anticipate or imagine what might eventually happen. This made the process of perception, representation, cognitive appraisal, and emotional response even more challenging during the pandemic, impacting the formation of resilience[58].

For the certainty in mental states, no mediating effect was observed. However, it's interesting to note that this variable showed a

negative association with depressive symptoms, suggesting it might be a protective factor against such symptoms. This contrasts with literature indicating hypermentalization as a common trait in depressed patients[38].

Unlike hypomentalization, hypermentalization refers to a socio-cognitive process that involves inferring mental states without sufficient basis[59].

In light of this evidence, we believe that hypermentalization may emerge more as a consequence of depression rather than as a mechanism for its development, while hypomentalization, as our results show, might be an initial stress-affected factor. Therefore, hypermentalization could be a response to depressive symptoms in uncertain contexts, where it becomes necessary to create some certainties through imagination, even without any foundation or evidence. This involves speculating and tending to focus attention on negative, desolate, and/or hopeless content and experiences. This hypothesis still requires empirical evaluation.

Among the strengths of this study is its pioneering, albeit exploratory, nature in assessing mentalization as an etiopathological mechanism in university students during confinement. However, it's important to note limitations such as open sampling with voluntary recruitment via social networks, impacting sample representativeness. Additionally, since the study was conducted exclusively during the pandemic, the results are not directly extrapolable to non-social isolation contexts.

This study contributes evidence to the mechanisms associated with the emergence of psychological symptoms, highlighting mentalization as an important psychological function to consider for preventive and promotional actions in social isolation contexts among this group of young people.

In this sense, it is suggested to promote activities for the prevention of mental health problems, strengthen problem-solving strategies, assertive conflict management, and, most importantly, enhance elements that enable reactions to various situations that may cause isolation. Additionally, create opportunities that foster participation, association, a sense of belonging, and cohesion. University education institutions should consider the consequences of loneliness in different scenarios (natural disasters, emergencies, illnesses, and pandemics).

Conclusion

In conclusion, the results of this study demonstrate that uncertainty about mental states serves as a significant mediator in the relationship between academic stress and depressive symptoms among university students. This finding emphasizes the importance of mentalization as a key psychological process in mediating the effects of stress on mental health. Students' ability to understand and reflect on their own mental states and those of others is compromised in high-stress situations, which in turn increases vulnerability to depressive symptoms.

These results suggest that interventions aimed at improving mentalization abilities in students could be an effective strategy for preventing and treating depressive symptoms, especially in high academic stress contexts like those experienced during the COVID-19 pandemic. Thus, strengthening

mentalization skills can not only help mitigate the direct impact of stress but also serve as a support mechanism to enhance overall resilience to psychological challenges.

Conflict of Interest Statement:

The authors have no conflicts of interest to declare.

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