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# The presence of depression in young people in rural area of northern Sinaloa

# La presencia de la depresión en los jóvenes en la zona rural del norte de Sinaloa

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**ABSTRACT**

**Introduction:** depression is a disabling mental disorder with increasing prevalence among adolescents, often mistakenly perceived as a temporary emotional experience associated with this stage of life. Despite its high incidence, there is still a notable downplaying of the problem by key actors such as families, educators, and public policy makers. The lack of detection and timely intervention carries serious risks, including suicide, which makes its study and comprehensive approach urgent.

**Methodology:** this study aimed to quantify the prevalence of depressive symptoms in adolescents aged 15 to 18 years in rural areas of northern Sinaloa, Mexico, using the PHQ-9 patient health questionnaire, a validated instrument that assesses the presence and intensity of depressive symptoms according to standardized diagnostic criteria.

**Results:** the results obtained revealed a significantly higher prevalence of depressive symptoms in females, in addition to identifying that family environments characterized by emotional closeness and socio-affective support function as a protective factor, correlating with a notable reduction in symptom intensity.

**Conclusions:** these findings reinforce the need to implement prevention and care strategies based on strengthening family ties and developing emotional skills in young people, as well as designing public policies aimed at adolescent mental health in rural areas.

**Keywords:** depression, mental health, teenager, suicide.

**JEL Classification:** I12, I13

**RESUMEN**

**Introducción:** la depresión constituye un trastorno mental incapacitante de creciente prevalencia en la población adolescente, frecuentemente percibido, de manera errónea, como una experiencia emocional transitoria asociada a la etapa vital. Pese a su alta incidencia, persiste una notable minimización del problema por parte de actores clave como familias, educadores y responsables de políticas públicas. La falta de detección e intervención oportuna conlleva riesgos graves, incluido el desenlace suicida, lo cual confiere urgencia a su estudio y abordaje integral.

**Metodología:** este estudio se propuso cuantificar la prevalencia de sintomatología depresiva en adolescentes de 15 a 18 años en contextos rurales del norte de Sinaloa, México, mediante la aplicación del cuestionario de salud del paciente PHQ-9, instrumento validado que evalúa la presencia e intensidad de síntomas depresivos conforme a criterios diagnósticos estandarizados.

**Resultados:** los resultados obtenidos revelaron un predominio significativamente mayor de sintomatología depresiva en mujeres, además de identificar que los entornos familiares caracterizados por la cercanía emocional y el apoyo socioafectivo funcionan como factor protector, correlacionándose con una reducción notable en la intensidad de los síntomas.

**Conclusiones:** estos hallazgos refuerzan la necesidad de implementar estrategias de prevención y atención basadas en el fortalecimiento de los vínculos familiares y el desarrollo de competencias emocionales en los jóvenes, así como de diseñar políticas públicas orientadas a la salud mental adolescente en zonas rurales.

**Palabras clave:** depresión, salud mental, adolescentes, suicidio.

**Clasificación JEL:** I12, I13

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## INTRODUCTION

In the context of Sinaloa, youth depression is a priority on the public mental health agenda, given its cross-cutting nature

that transcends age, social stratification, and gender. This condition requires shared epidemiological surveillance in which families, educators, and the community coordinate early detection mechanisms. Such social responsibility must translate into culturally appropriate actions that enable the design of viable therapeutic interventions for the chronic management of the disorder, based on principles of epistemic justice that recognize local knowledge (Saiz-Álvarez et al., 2020).

The high prevalence of depression in Sinaloa is due to its configuration as a socially rooted pathology, critically linked to unsustainable lifestyles and the normalization of structural violence, both domestic and community-based. These socio-existential determinants, by promoting consumerist aspirations that are inaccessible to the rural majority, tend to generate identity damage that erodes adolescent self-esteem. In the face of this learned hopelessness, a worrying phenomenon is emerging: the search for precarious alternatives for subsistence, which, far from being mere individual decisions, reveal systemic failures in the construction of emancipated life projects.

According to official records from the National Epidemiological System of the Ministry of Health, Sinaloa experienced a 100% year-on-year increase in the reporting of depressive episodes during the current period, rising from 590 documented cases to 611 new diagnoses. According to the newspaper Noroeste (2024), women suffer more from depression, as more than 70% of the total reported cases are women, placing Sinaloa among the top 15 states facing this problem.

However, why does the general public care about helping, understanding, and treating this type of mental disorder? The answer is straightforward: severe depression can end the life of the person who suffers from it. Today, we talk about depression as a normal condition; however, we must not overlook this type of illness. A person with severe depression experiences feelings of sadness and pain; they cry for no reason, do not feel like doing their daily activities, stop doing things they used to enjoy, withdraw from people, and do not talk. As a result, their self-esteem is very low, and they do not consider themselves good enough to be on this earth. Therefore, their only consolation to stop this feeling of dissatisfaction is to hurt themselves and take the burden off their family or friends (González-Díaz et al., 2021).

Epidemiological studies reveal that half of all deaths by suicide in Mexico are concentrated among young people (aged 15 to 29), making it a public health problem that reflects structural fractures in the life plans of the younger generations (Ortiz-Pérez et al., 2023). This national trend takes on alarming regional nuances: in 2021, while suicide ranked third in adolescent and youth mortality nationwide (ages 10-24), Sinaloa recorded 173 self-inflicted deaths with a male overrepresentation of more than 80% (Izabal Wong, 2022).

This article will provide insight into the presence of this mental illness called depression. It will also reveal the rates of depression among adolescents aged 15 to 18. The main objective is to analyze the current percentages of depression symptoms among young people aged 15 to 18 in rural areas of northern Sinaloa.

In order to achieve this objective, we pose the following question: What are the everyday behaviors that allow us to detect levels of depression among young people aged 15 to 18 in rural areas of northern Sinaloa?

**Theoretical basis**

How can we describe depression? Generally, when we talk about depression, we see it as a diagnosis often constructed by the imagination of the person suffering from it, and those close to them may be skeptical about this condition. However, this mental illness is real and more common than people want to believe. Depression is described as a mental illness that does not discriminate, as it does not involve gender, color, social status, religion, nationality, or age. Depression presents itself in the same way and with the same symptoms in all patients. Therefore, if detected early, it can be treated and controlled appropriately, but it should be noted that depression is a condition that should not be taken lightly. Depression is a mental disorder whose core symptoms lie in the persistence of a depressed mood and dysphoric affectivity, associated with behavioral dysfunctions, psychomotor fluctuations, and altered cognitive patterns (Pinucci et al., 2023).

Depression (major depressive disorder) is a serious medical condition with a high prevalence that negatively affects affective, cognitive, and behavioral processes (Filatova et al., 2021). It manifests itself through anhedonia (loss of interest in previous activities), functional impairment in work and domestic settings, as well as physical and emotional comorbidities, despite the availability of safe and effective treatments (Berk et al., 2023; Chiappini et al., 2025).

This clinical entity comprehensively compromises physical and mental health, distorting both subjective experience and thought patterns, which often triggers social withdrawal, anxiety, sleep/appetite disturbances, and existential emptiness (Kim et al., 2025). Although colloquially associated with transient states of melancholy, its pathological nature lies in its chronicity and severity, critically interfering with vital dimensions such as work, sleep, study, or enjoyment, as a result of a multifactorial etiology that integrates genetic, biological, environmental, and psychological components (Fuchs, 2021). (Monroe & Harkness, 2022).

In order for depression to be treated and addressed correctly, it is important that those around the person can identify the type of depression they are suffering from. However, depression is divided into three types, each of which has subdivisions: major depression is the most common type of depression and is related to changes in the weather; reactive depression, where adaptation to circumstances in the environment causes it; and, finally, dysthymic depression, which is the simplest or mildest form, can be absent for long periods and, when it does occur, can last for very long periods. Globally, depression affects approximately 300 million people, representing 4,4% of the world's population according to epidemiological estimates (Chodavadia et al., 2023).

Depression presents nosological heterogeneity that can be classified into seven clinical phenotypes: 1) Major Depressive Disorder, defined by core symptoms (depressed mood, anhedonia, fatigue, self-devaluation) with possible psychotic expression in severe cases; 2) Dysthymia, characterized by subacute but chronic symptoms (>2 years); 3) Anxiety-Depressive Disorder, as a mixed entity with affective-anxiety comorbidity; 4) Atypical Depression, marked by mood reactivity to positive stimuli; 5) Seasonal Affective Disorder, with a recurrent pattern linked to seasonal changes; 6) Bipolar Disorder, which alternates depressive episodes with manic phases; and 7) Cyclothymia, manifesting as unpredictable oscillations between euthymia and mild dysphoria. This taxonomy highlights the diagnostic complexity that requires sociocultural contextualization in rural settings (Abdel-Bakky et al., 2021).

Depressive manifestations under the unipolar spectrum (as opposed to bipolar) include: 1) Major Depressive Disorder, with an acute course (weeks to months) and central mood disturbance; 2) Persistent Depressive Disorder (Dysthymia), with attenuated but prolonged symptoms; 3) Disruptive Mood Dysregulation Disorder (DMDD), an emerging diagnosis in children aged 6-10 years with reactive emotional outbursts; 4) Premenstrual Dysphoric Disorder (PMDD), linked to premenstrual hormonal fluctuations; and 5) Seasonal Affective Disorder, which is seasonal in nature. This classification highlights expressions based on life and biological cycles, requiring differential strategies that avoid ineffective standardized protocols for rural populations (Goldwaser & Aaronson, 2023).

The symptoms of depression can be varied and often confused with other conditions, so it is important to identify any feelings that prevent people from carrying out their daily activities. These signs can appear suddenly and last for very short or long periods, and their severity is assessed based on the number of symptoms present. Symptoms can be emotional (sadness, irritability, hopelessness, melancholy, etc.), cognitive (difficulty concentrating, suicidal thoughts), volitional (loss of interest and isolation), and physical (sleep problems, changes in appetite, physical pain) (Curran et al., 2023).

Although depression can manifest as a single episode, it usually has a recurrent course characterized by multiple symptomatic phases. During these periods, clinical indicators persist daily and include:

1) Depressed mood with emotional lability (sadness, crying, existential emptiness, or hopelessness).
2) Irritability/disproportionate affective reactivity.
3) Global anhedonia affects daily, social, and sexual activities.
4) Circadian disruption (hypersomnia/insomnia).
5) Disabling asthenia that hinders minimal tasks.
6) Eating disturbances with significant weight changes.
7) States of hyperarousal (anxiety, psychomotor agitation).
8) Psychomotor and verbal slowing.
9) Negative self-reference (feelings of guilt, fixation on past failures).
10) Executive deficits (difficulties with concentration, decision-making, and memory).
11) Recurrent suicidal ideation or self-harming behaviors.
12) Unexplained somatization (headaches, back pain).

This constellation of symptoms reflects not only neurobiological dysregulation, but also the somatic crystallization of social suffering in contexts of rural vulnerability, where the lack of community spaces for dialogue exacerbates the internalization of distress (Hammar et al., 2022) (Høegh et al., 2022).

Identifying depression in an adolescent is complicated, as many of the characteristics of this condition are attributed to adolescents as normal behavior based on their age. Currently, parents need to pay close attention to their children's behavior so that this disorder can be remedied through appropriate treatment and thus avoid a tragic outcome for their young people.

Communication between parents and children is key to detecting depression at this age. Family members should be able to identify changes in their children's moods: when they lose interest in activities they used to enjoy, their moods change from one moment to the next, they cry for no reason, and they isolate themselves. In addition, they do not think clearly and have trouble concentrating. If more than three of these characteristics are present, parents need to seek help to assist their children in overcoming this condition. It will be a long and challenging journey, but it is not impossible to achieve.

Depression in adolescents is a serious medical condition that transcends reductionist interpretations such as personal weakness or overcoming through willpower, requiring instead prolonged interventions (Thapar et al., 2022). Evidence indicates that most cases remit with integrated therapies (pharmacological and psychological) (Méndez et al., 2021). Phenomenologically, they are characterized by lost hope, irritability, and an existential void that affects daily life and learning (Kaleda & Popovich, 2024). These symptoms—which include attention deficits, psychophysical exhaustion, and refractory anhedonia—require biopedagogies of emotional care in rural settings to counteract stigmatization and the somatic crystallization of structural vulnerabilities.

When a person is young, any thought, feeling, physical or facial movement, comment, or post by another person is perceived in a way that is not very pleasant.

In that case, it can lead to mental health issues in adolescents, where depression manifests itself excessively, as social pressure is high and has a significant influence on adolescents' development. In order to be accepted into a group, they adopt ideologies and behaviors with which they do not identify. As a result, they are unable to express their personality and feelings, which leads to an internal struggle that causes a state of personal dissatisfaction that has a significant impact on their mental health, as their mind is not at peace.

Depression is a mental illness that knows no boundaries, ages, or social conditions. This disorder fills those who suffer from it with sadness and apathy. However, depression occurs more frequently in people who do not engage in activities that promote personal growth. A clear example of this can be seen in young people who study and work or, failing that, those who only work and cannot study, which causes young people to develop feelings of inferiority towards other young people of the same age. This, in turn, reflects an economic problem that causes emotional distress. However, helping this segment of the population that is immersed in this mental health problem requires collective effort.

In other words, different productive sectors need to intervene, such as health, legal, labor, mass media, and, of course, education, where joint efforts help regulate the emotional development of young people and seek strategies for the growth of their community and nation. Analyzing the problem from different productive areas can make a difference, where, through cooperative work, better results can be obtained and thus promote conditions of well-being in our young people, where early detection of this disorder can help with timely treatment that can save many students.

There are many risk factors for depression, which are divided into different categories, including family or hereditary factors, which it is passed down from generation to generation. One of the aspects that can lead to depression in adolescents is having family problems (death or threat of death of a family member, divorce, alcoholism, or drug problems). Conflicts with classmates, including bullying, physical or verbal aggression, teasing, cyberbullying, and exclusion, make adolescents feel insecure, which causes low self-esteem in young people. Having an illness or disability could also lead to depression, as the adolescent would not feel that they have the same conditions, opportunities, and abilities as their peers, which would make them feel at a disadvantage.

Depression emerges from a dialectical biosocial determination where biological, psychological, and social factors interact in complex ways. Exposure to life adversities (unemployment, bereavement, trauma) significantly increases etiopathogenic vulnerability, generating a self-perpetuating dysfunctional cycle: the pathology aggravates stress and impairs social and family functioning, thus deepening the clinical condition itself (Guerra & Eboreime, 2021). Comparative studies confirm this dynamic in Latin American adolescents: in Metropolitan Lima and Callao, the prevalence of depressive episodes equals or exceeds global rates, critically associated with psychosocial determinants such as age (15-17 years), female gender, relational dissatisfaction, punitive domestic environments,

eating disorders, and thanatological ideation (Vargas et al., 2010). These findings reveal risk markers that should be examined in rural Mexican contexts using situated epistemologies.

The identification of adolescent vulnerabilities requires structural approaches. Consolidated evidence identifies an analytical repertoire of psychosocial vulnerabilities in Latin America structured around thirteen major epidemiological indicators, including: a) severe psychiatric or somatic morbidity; b) socio-educational exclusion (school dropout, youth unemployment); c) precarious sexuality (traumatic early onset, unwanted pregnancy); d) premature addictive behaviors; e) systemic violence (family abandonment, abuse, pathological environments); and f) self-harming or criminal behaviors (Pedersen et al., 2023) (Zajkowska et al., 2021). This risk mapping—beyond its epidemiological nature—highlights civilizational failures that demand pedagogies of situated resilience: interventions that transform contexts that generate suffering through community agency and restorative justice, particularly in rural areas with limited access to social bioprotections.

The prevention of depressive episodes requires multifactorial interventions focused on: 1) environmental modulation (avoidance of chronic stressful environments); 2) circadian hygiene (6-10 hours of restful sleep according to individual needs); 3) neuroprotective nutrition (balanced diets with reduced simple carbohydrates, emphasis on proteins and omega-3 fatty acids with antidepressant properties); 4) abstinence from psychoactive substances (alcohol and drugs as CNS depressants); 5) cognitive restructuring through therapy to deconstruct negative automatisms; and 6) mental health literacy that recognizes symptoms as indicators for adjusting biosocial habits (Crouse et al., 2021) (Ortega et al., 2022) (Shoker et al., 2024). These strategies highlight the need for preventive biopedagogies contextualized to rural realities where environmental determinants are often unavoidable.

Complementarily, the promotion of endorphins—neurotransmitters involved in the regulation of affect—is achieved through: a) psychophysical activation (systematic exercise); b) ecosystemic stress management (contact with nature, contemplative practices); c) meaningful sociability (emotional communication with trusted networks, community engagement); d) hedonic reconnection (resuming pleasurable activities, discovering new interests); and e) narrative restructuring (written therapy, cultivating humor, focusing on micro-pleasures). This neurobehavioral approach, beyond mere "positive thinking," constitutes a pedagogy of bodily well-being that combats the somatization of discomfort through emancipatory daily practices, particularly valuable in rural contexts with limited access to specialized services (Vall d'Hebron, 2022).

Today, it is necessary to promote self-care among our young people. It is vitally important to teach them that healthy living will turn their bodies and minds into a sanctuary that brings them peace, thereby developing emotional stability. Strategies that promote physical activity and healthy eating must be sought. Children and adolescents need to know what constant movement and a balanced diet do for their bodies, such as improving their physical shape through fat loss, preventing the development of diseases such as diabetes and heart attacks, regulating sugar and cholesterol levels, and improving blood pressure. Therefore, schools need to encourage actions that create sports facilities and clubs that promote training for young people, as well as activities that foster integration within the group, where the development of emotional bonds encourages young people to engage in actions that allow them to give and receive affection. These activities help to develop more functional and productive members of society.

Globally, more than 20% of adolescents suffer from mental disorders, with suicide being the second leading cause of death in the 15-19 age group, while in middle- and low-income countries, 15% have experienced suicidal ideation (UNICEF, 2019). In Mexico, this silent crisis manifests itself in 2,5 million young people (aged 12-24) affected by depression and a rate of 9,9/100 000 with suicidal thoughts, with anxiety and depression emerging as the main comorbidities (State Center for Epidemiological Surveillance, 2020). The severity intensified during the pandemic. Surveys conducted in 2020 revealed that 64% of adolescents and 71% of young people presented depressive symptoms, evidencing acute structural fractures that require responses with an epistemic justice approach for rural communities, where the absence of biopedagogies of resilience deepens vulnerability (Masse, 2022).

## METHODOLOGY

Adolescence is a stage of development characterized by significant psychosocial complexity. Although ideally it should be a period associated with identity exploration, the formation of friendships, and academic achievement, not all young people favorably experience these conditions. A significant segment of adolescents faces socioeconomic adversities that force them to enter the workforce prematurely, affecting their development opportunities. Added to this are those who have experienced grief, trauma, or domestic violence, such as sexual abuse or environments marked by substance use, as well as those who suffer from genetic or hormonal medical conditions.

When analyzing youth mental health, it is essential to recognize the influence of these contextual factors in the etiology of disorders such as depression. Without timely and appropriate intervention, this condition can lead to severe consequences in adulthood, including substance dependence, eating disorders, or, in extreme cases, suicidal risk. Early detection and intervention are therefore crucial to reducing the overall burden of disease and preventing fatal outcomes. In this regard, identifying the everyday behavioral manifestations associated with depression in young people aged 15 to 18 is a public health priority (Solmi et al., 2022).

Methodologically, this study is based on a mixed-methods design, with qualitative and quantitative components, under a derivative sequential exploratory model (DEXPLOS) (Hernández-Sampieri & Mendoza, 2020). Within this framework, the initial qualitative phase guides the subsequent collection and analysis of quantitative data. Methodological integration is achieved by articulating the qualitative findings with the quantitative instrumental design, while the final interpretation emerges from the comparison and synthesis of both types of results (Hernández-Sampieri & Mendoza, 2020).

The sample was selected through probabilistic sampling among the upper secondary school student population of the Autonomous University of Sinaloa, located in the northern region of the state. A total of 208 students aged between 15 and 18 years old participated, from educational institutions located in rural areas of the municipalities of El Fuerte, Ahome, Guasave, and Sinaloa de Leyva.

For data collection, a self-administered electronic form based on the Patient Health Questionnaire-9 (PHQ-9) was used. This instrument consists of nine items that assess the presence of depressive symptoms, aligned with the criteria of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) for major depressive episode (Baader et al., 2012). The researchers, each assigned to a different municipality, requested the participation of their students, thus ensuring territorial representativeness.

The PHQ-9 is scored on a Likert scale ranging from 0 (never) to 3 (almost every day), with a maximum total score of 27 points. Severity levels are categorized into five ranges: minimal (0-4), mild (5-9), moderate (10-14), moderately severe (15-19), and severe (20-27), according to the classification proposed by Saldivia et al. (2019).

In conclusion, this research seeks to discern the everyday behavioral manifestations that may act as preliminary indicators of depression in adolescents, to inform early detection and secondary prevention strategies that contribute to mitigating the impact of mental disorders in this particularly vulnerable population.

## RESULTS

From the study conducted among high school students in rural areas attending schools affiliated with the Autonomous University of Sinaloa, we can see that 207 young people participated, of whom 36,71% were male, with a higher response rate among female students at 62,32%, and 0,97% of the students who took part in the study preferred not to state their gender. The municipality with the highest number of responses was Ahome, where young people aged 15 to 18 from more than five rural locations in the municipality provided their responses. There was very little participation from students in Sinaloa de Leyva, where less than 5% of the selected sample participated.

**Table 1.**
*Percentage and frequency of young people who participated in the application of the instrument by municipality*

| Municipality | Men | | Women | | Would rather not say | | total of respondents | |
|---|---|---|---|---|---|---|---|---|
| | F | % | F | % | F | % | F | Total |
| El Fuerte | 7 | 9,09 | 14 | 10,9 | 0 | 0 | 21 | 10,14 |
| Ahome | 32 | 41,56 | 59 | 45,7 | 2 | 100 | 93 | 44,93 |
| Guasave | 34 | 44,16 | 50 | 38,8 | 0 | 0 | 84 | 40,58 |
| Sinaloa de Leyva | 3 | 3,90 | 6 | 4,7 | 0 | 0 | 9 | 4,35 |
| Total | 76 | 36,71 | 129 | 62,32 | 2 | 0,97 | 207 | 100,00 |

**Source:** own elaboration

In table 2, we can see the percentages of students who participated in this study in the municipality of El Fuerte (21 students), where we found that 33,33% of participants had a minimum level of depressive symptoms,

with the responses of students with less tendency toward depressive symptoms standing out. In the municipality of El Fuerte, we found that women have a higher percentage of depressive symptoms; however, we can see that in the severe and moderate to severe categories, the percentage is very low, considering that only two people were detected as having moderate to severe symptoms according to their responses, one male and one female.

**Table 2.**
*Percentage and frequency of depressive symptoms in young people in the municipality of El Fuerte*

| | Men | | Women | | Prefer not to say | | Total of respondents | |
|---|---|---|---|---|---|---|---|---|
| | F | % | F | % | F | % | F | Total |
| Minimum (0-4) | 4 | 57,14 | 3 | 21,43 | 0 | 0 | 7 | 33,33 |
| Mild (5-9) | 1 | 14,29 | 9 | 64,29 | 0 | 0 | 10 | 47,62 |
| Moderate (10-14) | 1 | 14,29 | 1 | 7,14 | 0 | 0 | 2 | 9,52 |
| Moderate to severe (15-19) | 1 | 14,29 | 1 | 7,14 | 0 | 0 | 2 | 9,52 |
| Severe (20-27) | 0 | 0,00 | 0 | 0,00 | 0 | 0 | 0 | 0,00 |
| Total | 7 | 33,33 | 14 | 66,67 | 0 | 0,00 | 21 | 100,00 |

**Source:** own elaboration

In Sinaloa de Leyva, the sample participation was very low, with only nine instruments completed, but the results were very favorable. Table 3 shows that, according to the results, 77,78% of participants had minimal depressive symptoms, with 100% of women who completed the instrument reporting no symptoms. In comparison, 28,6% of men who participated showed mild signs of depression. In this municipality of the state, students from the towns of Ejido Mujica, Alfonso G. Calderón, and Ejido San Sebastián Lázaro Cárdenas participated, ranging in age from 16 to 18 years old and currently enrolled in the fourth and sixth semesters of upper secondary school. It is important to note that the characteristics shared by these young people are that they live a quieter life, far from the stress of larger cities, in contact with nature, and with closer ties between neighbors. The prevalence of many mental health problems in urban areas exceeds that in rural areas (depression +40%, anxiety +20%, schizophrenia ×2), revealing urban pathogens and rural vulnerability as structural determinants (Ventriglio et al., 2021).

**Table 3.**
*Percentage and frequency of depressive symptoms in young people in the municipality of Sinaloa de Leyva*

| | Men | | Women | | Prefer not to say | | Total of respondents | |
|---|---|---|---|---|---|---|---|---|
| | F | % | F | % | F | % | F | Total |
| Minimum (0-4) | 1 | 33,3 | 6 | 100 | 0 | 0 | 7 | 77,78 |
| Mild (5-9) | 2 | 28,6 | 0 | 0 | 0 | 0 | 2 | 22,22 |
| Moderate (10-14) | 0 | 0,0 | 0 | 0 | 0 | 0 | 0 | 0,00 |
| Moderate to severe (15-19) | 0 | 0,0 | 0 | 0 | 0 | 0 | 0 | 0,00 |
| Severe (20-27) | 0 | 0,0 | 0 | 0 | 0 | 0 | 0 | 0,00 |
| Total | 3 | 33,33 | 6 | 66,67 | 0 | 0,00 | 9 | 100,00 |

**Source:** own elaboration

**Table 4.**
*Percentage and frequency of depressive symptoms in young people in the municipality of Ahome*

| | Men | | Women | | Prefer not to say | | total of respondents | |
|---|---|---|---|---|---|---|---|---|
| | F | % | F | % | F | % | F | Total |
| Minimum (0-4) | 15 | 46,88 | 18 | 30,51 | 0 | 0,00 | 33,00 | 35,48 |
| Mild (5-9) | 11 | 34,38 | 21 | 35,59 | 0 | 0,00 | 32,00 | 34,41 |
| Moderate (10-14) | 6 | 18,75 | 12 | 20,34 | 2 | 100,00 | 20,00 | 21,51 |
| Moderate to severe (15-19) | 0 | 0,00 | 4 | 6,78 | 0 | 0,00 | 4,00 | 4,30 |
| Severe (20-27) | 0 | 0,00 | 4 | 6,78 | 0 | 0,00 | 4,00 | 4,30 |
| Total | 32 | 34,41 | 59 | 63,44 | 2 | 2,15 | 93 | 100,00 |

**Source:** own elaboration

Table 5 shows the percentage of results from students in the municipality of Guasave, where 84 students participated; 40,48% were male, while the rest identified as female, representing 59,52% of the surveys. According to the results, it can be seen that of the male participants who answered the questionnaire, 64,71% suffer from minimal symptoms of depression. In comparison, more than 5% of the men surveyed have moderate to severe symptoms, while around 12% of women have such alarming symptoms. Therefore, overall, 17% of the students surveyed in the municipality of Guasave suffer from moderate to severe symptoms. However, participants who obtained moderate results, representing an additional 24% of depressive symptoms, are not taken into consideration.

**Table 5.**
*Percentage and frequency of depressive symptoms in young people in the municipality of Guasave*

| | **Men** | | **Women** | | **Prefer not to say** | | **Total of respondents** | |
|---|---|---|---|---|---|---|---|---|
| | **F** | **%** | **F** | **%** | **F** | **%** | **F** | **Total** |
| Minimum (0-4) | 22 | 64,71 | 12 | 24,0 | 0 | 0 | 34 | 40,48 |
| Mild (5-9) | 8 | 23,53 | 20 | 40,0 | 0 | 0 | 28 | 33,33 |
| Moderate (10-14) | 2 | 5,88 | 12 | 24,0 | 0 | 0 | 14 | 16,67 |
| Moderate to severe (15-19) | 1 | 2,94 | 5 | 10,0 | 0 | 0 | 6 | 7,14 |
| Severe (20-27) | 1 | 2,94 | 1 | 2,0 | 0 | 0 | 2 | 2,38 |
| Total | 34 | 40,48 | 50 | 59,52 | 0 | 0,00 | 84 | 100,00 |

**Source:** own elaboration

According to table 6, it was found that in the municipality of El Fuerte, 15-year-old students present the most alarming symptoms of depression, equally for both sexes; however, the trend indicates that students in El Fuerte live peaceful lives, with no extreme cases of depression among its young inhabitants. It is important to note that 38% of the students who participated in the application of this instrument in this municipality were 16-year-old students in their fourth semester of upper secondary education.

With regard to students in Sinaloa de Leyva, most of the students who participated in this study are aged 17 and over. However, their results, based on their responses, were very favorable, with no or minimal symptoms of depression among the adolescent population.

Table 6 shows that in Ahome, 16-year-old female students have the most alarming symptoms of severe to moderate depression, at 8%, while the responses of males show that their symptoms of depression are none or mild. Only 4,4% of males aged 17 to 18 show moderate symptoms of depression, while the remaining percentage of male youth who participated show mild (11,18%) or no (16,1%) symptoms.

In Guasave, we can see that 2,4% of respondents show severe symptoms of depression among 18-year-olds. In comparison, 6% of female respondents show moderate to severe symptoms, with the highest percentage among 17-year-old female students in their sixth semester of high school. However, we can highlight that students in this municipality have low levels of depression symptoms: 20% of men aged 17 to 18 have no symptoms, while 10% of women have no symptoms.

As we can see in general, according to the instrument, 2,42% of women in rural areas of northern Sinaloa have severe symptoms of depression, with the municipalities of Ahome having the highest percentage of this level in women aged 15 to 16.

**Tabla 6.**
*Percentage and frequency of depressive symptoms by age and municipality in the northern rural area of the state of Sinaloa*

| Municipality | Age | Severe | | | | | | Moderate to severe | | | | | | Moderate | | | | | | Mild | | | | | | Minimum | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | M | % | F | % | WNS | % | M | % | F | % | WNS | % | M | % | F | % | WNS | % | M | % | F | % | WNS | % | M | % | F | % | WNS | % | Total | % |
| El Fuerte | 15 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 1 | 4,8 | 1 | 4,8 | 0 | 0,0 | 0 | 0,0 | 1 | 4,8 | 0 | 0,0 | 0 | 0,0 | 4 | 19,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 7 | 33,3 |
| | 16 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 3 | 14,3 | 0 | 0,0 | 2 | 9,5 | 1 | 4,8 | 0 | 0,0 | 6 | 28,6 |
| | 17 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 1 | 4,8 | 0 | 0,0 | 0 | 0,0 | 1 | 4,8 | 2 | 9,5 | 0 | 0,0 | 2 | 9,5 | 2 | 9,5 | 0 | 0,0 | 8 | 38,1 |
| | 18 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 |
| | Total | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 1 | 4,8 | 1 | 4,8 | 0 | 0,0 | 1 | 4,8 | 1 | 4,8 | 0 | 0,0 | 1 | 4,8 | 9 | 42,9 | 0 | 0,0 | 4 | 19,0 | 3 | 14,3 | 0 | 0,0 | 21 | 100 |
| Sinaloa de Leyva | 15 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 |
| | 16 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 2 | 22,2 | 0 | 0,0 | 2 | 22,2 |
| | 17 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 2 | 22,2 | 0 | 0,0 | 1 | 11,1 | 2 | 22,2 | 0 | 0,0 | 5 | 55,6 |
| | 18 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 1 | 11,1 | 0 | 0,0 | 0 | 0,0 | 1 | 11,1 | 0 | 0,0 | 2 | 22,2 |
| | Total | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 3 | 33,3 | 0 | 0,0 | 1 | 11,1 | 5 | 55,6 | 0 | 0,0 | 9 | 100 |
| Ahome | 15 | 0 | 0,0 | 1 | 1,1 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 1 | 1,1 | 1 | 1,1 | 1 | 1,1 | 4 | 4,3 | 2 | 2,2 | 0 | 0,0 | 3 | 3,2 | 2 | 2,2 | 0 | 0,0 | 15 | 16,1 |
| | 16 | 0 | 0,0 | 2 | 2,2 | 0 | 0,0 | 0 | 0,0 | 2 | 2,2 | 0 | 0,0 | 1 | 1,1 | 6 | 6,5 | 0 | 0,0 | 3 | 3,2 | 6 | 6,5 | 0 | 0,0 | 5 | 5,4 | 5 | 5,4 | 0 | 0,0 | 30 | 32,3 |
| | 17 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 2 | 2,2 | 3 | 3,2 | 1 | 1,1 | 3 | 3,2 | 10 | 10,8 | 0 | 0,0 | 5 | 5,4 | 9 | 9,7 | 0 | 0,0 | 33 | 35,5 |
| | 18 | 0 | 0,0 | 1 | 1,1 | 0 | 0,0 | 0 | 0,0 | 2 | 2,2 | 0 | 0,0 | 2 | 2,2 | 2 | 2,2 | 0 | 0,0 | 1 | 1,1 | 3 | 3,2 | 0 | 0,0 | 2 | 2,2 | 2 | 2,2 | 0 | 0,0 | 15 | 16,1 |
| | Total | 0 | 0,0 | 4 | 4,3 | 0 | 0,0 | 0 | 0,0 | 4 | 4,3 | 0 | 0,0 | 6 | 6,5 | 12 | 12,9 | 2 | 2,2 | 11 | 11,8 | 21 | 22,6 | 0 | 0,0 | 15 | 16,1 | 18 | 19,4 | 0 | 0,0 | 93 | 100 |
| Guasave | 15 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 1 | 1,2 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 1 | 1,2 |
| | 16 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 1 | 1,2 | 1 | 1,2 | 0 | 0,0 | 0 | 0,0 | 1 | 1,2 | 0 | 0,0 | 2 | 2,4 | 4 | 4,8 | 0 | 0,0 | 3 | 3,6 | 3 | 3,6 | 0 | 0,0 | 15 | 17,9 |
| | 17 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 2 | 2,4 | 0 | 0,0 | 0 | 0,0 | 8 | 9,5 | 0 | 0,0 | 4 | 4,8 | 11 | 13,1 | 0 | 0,0 | 12 | 14,3 | 6 | 7,1 | 0 | 0,0 | 43 | 51,2 |
| | 18 | 1 | 1,2 | 1 | 1,2 | 0 | 0,0 | 0 | 0,0 | 1 | 1,2 | 0 | 0,0 | 2 | 2,4 | 3 | 3,6 | 0 | 0,0 | 2 | 2,4 | 5 | 6,0 | 0 | 0,0 | 7 | 8,3 | 4 | 4,8 | 0 | 0,0 | 26 | 31,0 |
| | Total | 1 | 1,2 | 1 | 1,2 | 0 | 0,0 | 1 | 1,2 | 5 | 6,0 | 0 | 0,0 | 2 | 2,4 | 12 | 14,3 | 0 | 0,0 | 8 | 9,5 | 20 | 23,8 | 0 | 0,0 | 22 | 26,2 | 13 | 15,5 | 0 | 0,0 | 84 | 100 |
| Total, General | | 1 | 0,48 | 5 | 2,42 | 0 | 0,0 | 2 | 0,97 | 10 | 4,83 | 0 | 0,0 | 9 | 4,35 | 25 | 12,08 | 2 | 0,97 | 20 | 9,66 | 53 | 25,6 | 0 | 0,0 | 42 | 20,29 | 39 | 18,84 | 0 | 0,0 | 207 | 100 |

**Note:** M: men. F: female. WNS: Would not say
**Source:** own elaboration

## DISCUSSION

Identifying depressive symptoms in adolescents represents a significant clinical and psychoeducational challenge (Kuang et al., 2025). This scenario is particularly exacerbated when negative behaviors are attributed exclusively to the developmental stage and attitudes such as social distancing, irritability, isolation, academic performance deterioration, or sleep disturbances are normalized. This normalization of potentially pathological manifestations carries the risk of underestimating incipient depressive disorders. The specialized literature indicates that when such behaviors persist for more than two weeks, immediate clinical evaluation is recommended to determine the need for early intervention (Milea et al., 2025).

Findings from samples of adolescents aged 15 to 18 in rural areas of northern Sinaloa indicate a higher prevalence of depressive symptoms in females. This gender disparity may be associated with multiple factors, including hormonal fluctuations characteristic of the menstrual cycle, which can exacerbate emotional lability and vulnerability to psychosocial stressors. These results differ from those obtained by Solmi et al. (2022) at the global level, which reaffirms the importance of further investigating this phenomenon in future research.

In addition, a genetic predisposition has been documented that increases the risk of intergenerational transmission of mood disorders. Psychosocial aspects such as body dissatisfaction, pressure to meet aesthetic standards, and the search for social validation are additional factors that can trigger anxiety and depression, often associated with eating disorders.

On the other hand, male adolescents tend to express their psychological distress through externalizing behaviors, such as psychoactive substance use or aggression, in line with gender norms that discourage the expression of vulnerability. This tendency to mask symptoms often delays diagnosis and worsens the prognosis of mental disorders.

A relevant socioeconomic determinant is the pressure to achieve consumption standards visible on social media, which promote an opulent lifestyle and an idealization of surgically modified bodies. This constant exposure generates unrealistic expectations and frustration at the impossibility of fulfilling them, which leads to low self-esteem and depression.

The involvement of parental figures is essential for early detection and therapeutic support. Emotional support and validation from guardians contribute to the development of emotional self-regulation and resilience in adolescents. At the same time, there is a recognized need to implement coordinated institutional strategies between the education and health sectors to establish early detection, psychoeducation, and intervention programs based on scientific evidence and adapted to the socio-cultural context of the adolescent population.

## CONCLUSIONES

The results of the instruments applied to young people aged 15 to 18 in rural areas of northern Sinaloa show a positive trend toward thoughts that reduce symptoms of depression. It is observed that in the towns of Sinaloa de Leyva, 90% of young people show minimal symptoms of depression, followed by students in El Fuerte, where 81% report mild symptoms. In contrast, the municipalities of Guasave and Ahome have the highest levels of depressive thoughts.

There is a trend toward low or no levels of depression in communities farther from large cities. It is important to note that the municipalities of El Fuerte and Sinaloa de Leyva share characteristics such as a rich history, contact with nature, a varied cuisine, the presence of rivers and dams, and a strong indigenous and artisan tradition. These elements foster a sense of belonging and attachment to their beliefs, which contributes to a safe environment for young people.

On the other hand, Ahome and Guasave are municipalities with greater industrial development and greater connectivity with large cities. This facilitates access to urbanization and globalization, but can also contribute to the weakening of customs and family ties, which influences the emotional well-being of students.

It is essential to take advantage of the findings of this study to develop strategies and interventions that promote positive thinking among young people. Implementing programs focused on emotional self-regulation and strengthening cultural identity could help improve the psychological well-being of high school students, providing them with tools to face the challenges of their environment positively.

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