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Biopsychosocial Model Analysis of Risk Factors for Suicide in Mexico: Systematic Review (2019–2024)

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ABSTRACT: Suicidal behavior in Mexico constitutes an urgent public health problem, that requires integrating biological, psychological, and social dimensions. The objective of this systematic review was to identify and organize risk factors associated with death by suicide in Mexican population between 2019 and 2024, using the biopsychosocial model as a theoretical framework. The protocol was registered in PROSPERO (CRD420251131626) and followed the PRISMA 2020 guidelines. A structured search was conducted in PubMed, inclusion and exclusion criteria were applied; three independent authors performed a quality analysis; 110 full-text articles were evaluated, and 57 were included for the final analysis.

The findings were organized into 75 categories grouped by biopsychosocial domains. Psychological factors were the most frequent, highlighting depression, anxiety, emotional dysregulation, hopelessness, impulsivity, and self-harming behaviors. At the biological level, studies identified associations with sex, age, chronic diseases, substance use, and emerging findings in genetics, neuroendocrinology, and physiological markers. In the social dimension, interpersonal violence, adverse experiences in childhood, low social and family support, socioeconomic inequalities, and stigma predominated. Persistent methodological limitations were also observed in the studies reviewed, including the predominance of cross-sectional designs, convenience samples, heterogeneous instruments, and limited representation of structurally vulnerable populations.

The results show that Mexican research remains fragmented, focusing mainly on individual factors and providing little integrative analysis across biological, psychological, and social dimensions. So, it is required to evolve towards robust explanatory models incorporating longitudinal methodologies, a gender perspective, intersectional approaches, and multivariate frameworks that allow the understanding of individual vulnerability and structural conditions.

KEYWORDS: Biopsychosocial model, Mexico, Risk factors, Suicide, Systematic review

INTRODUCTION

Suicide is one of the leading causes of death worldwide, with more than 720,000 people losing their lives annually due to this cause, which represents a human tragedy and a challenge for public health systems (World Health Organization [WHO], 2025). In Mexico, in recent decades, there has been a sustained increase in suicide rates, especially in adolescents and young people, being one of the leading causes of death in people between 15 and 29 years old (National Institute of Statistics and Geography [INEGI], 2025; Pérez et al., 2023).

Given its complex and multifactorial nature, suicide cannot be explained by a single cause or dimension. In this context, the biopsychosocial model proposed by George Engel (1977) offers a comprehensive framework that integrates variables of a biological, psychological, and social nature as interrelated factors that affect mental health and suicidal behavior. This approach has been validated and adopted in contemporary mental health research, allowing for a broader and more contextual understanding of the emotional and mental distress experienced by at-risk individuals (Bolton & Gillett, 2019).

In the analysis of the suicidal phenomenon in Mexico, approaches focused primarily on individual or clinical aspects persist, leaving aside, in most cases, the structural, cultural, and social determinants that also influence suicidal behavior (Fresán et al., 2016; Gómez-García et al., 2023; López et al., 2022). The lack of integration between these levels can lead to ineffective interventions and fragmented public policies.

The studies included in this review allow us to identify recurrent risk factors, mainly in the psychological and social dimensions. Among the individual factors, female sex and adolescence stand out, repeatedly reported as predictors of suicidal

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ideation or attempt (Dávila-Cervantes and Luna-Contreras, 2019; González-Forteza, Juárez-López, Jiménez et al., 2017; Valdez-Santiago, Hidalgo Solórzano, Montero et al., 2017; Fresán, Guízar-Sánchez, Yoldi-Negrete, Camarena and others, 2021).

Likewise, multiple studies identify depression, other mental health problems, prior ideation, emotional dysregulation, and substance use as central factors associated with suicidal behavior in adolescents and young people (Gómez Delgado, Ponce Rojo, Ramírez Miranda et al., 2024; Benatti, Dell'Osso, Shen et al., 2021; Fresán, Camarena, González-Castro et al., 2016).

Perceptions of burden, coping difficulties, hopelessness, school problems, and affective symptoms are also described as elements that increase emotional vulnerability (Hurtado, Hovey, & Dueweke, 2017).

From a social and contextual perspective, the reviewed articles highlight the relevance of family violence, community violence, interpersonal conflicts, low quality of life, and lack of perceived support, elements that act as chronic stressors in the lives of adolescents and young people (Dávila-Cervantes & Pardo-Montaño, 2020; Gómez et al., 2024; Valdez-Santiago et al., 2017).

Likewise, it is reported that dysfunctional family contexts and experiences of victimization increase the probability of presenting suicidal ideation, planning, or a non-fatal suicide attempt (Fresán et al., 2016; Fresán et al., 2021). Together, these works agree in pointing out that individual, emotional, and social factors do not operate in isolation, but rather converge and enhance each other, reinforcing the need to understand suicidal behavior from a biopsychosocial framework.

This article aims to systematize and critically analyze the risk factors associated with death by suicide through a systematic review, to identify these factors in Mexican studies published in the last five years (2019 - 2024) and organize them according to the biopsychosocial model, for which a categorization by areas and themes was developed, in order to offer a structured and reflective vision of the main factors identified, as well as provide elements for future prevention and care strategies based on a comprehensive understanding. of the risk factors associated with the suicidal phenomenon in Mexico.

METHOD

The study was generated from an integrative review with a critical approach, whose objective was to identify, systematize, and analyze the risk factors associated with death by suicide in the Mexican population, based on empirical literature published between 2019 and 2024. The review was conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 statement, widely recognized for its role in ensuring transparency, completeness, and reproducibility in systematic reviews (Page et al., 2021).

As an analytical framework, the biopsychosocial model of health proposed by Engel (1977) was adopted, which conceives clinical phenomena such as suicide from a comprehensive perspective, in which biological, psychological, and social factors come together in an interdependent manner. This approach was reinforced by contemporary literature supporting its applicability in complex clinical contexts, such as Mexico (Bolton & Gillett, 2019).

The bibliographic search was conducted in the PubMed database from January to March 2025, which was selected for its extensive coverage of the biomedical and mental health literature. Controlled MeSH (Medical Subject Headings) terms and free keywords were combined using Boolean operators (AND, OR) to optimize the sensitivity and specificity of the search strategy. The terms used were "Suicide" [MeSH], "Risk Factors" [MeSH], "Mexico", and "Mexican population". Only original studies were considered, published in English or Spanish, between January 2019 and December 2024, that explicitly addressed suicidal risk and death by suicide in the Mexican population, and that were available in full text.

The study selection process was structured into three phases, following the PRISMA methodological flow. In the first stage, a screening of titles and abstracts was conducted to exclude irrelevant articles. Subsequently, the texts that met the preliminary eligibility criteria were read in full. Finally, relevant data were extracted and organized using a coding matrix created in Microsoft Excel. The variables considered included authorship, year of publication, title, type of study, target population, instruments used, and identified risk factors (SEE ANNEX 1).

The aspects analyzed in the quality analysis were firstly that it had a balanced sample in terms of sex, considering the maximum valid percentage to be 60/40% in the distribution of participating women and men; that an ethics committee approved the study; that aspects had been considered to reward the sample in some way; whether the study considered clinical or psychiatric characteristics to determine risk factors; and finally if the study considered a sample with random selection criteria.

Likewise, the methodological quality of the included studies was evaluated through a qualitative analysis that assessed the internal coherence among objectives, design, and results; the validity of the instruments used; the representativeness of the sample;

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and the clarity of the operational definition of suicidal risk. This assessment enabled the identification of both strengths and recurring limitations in the national scientific literature on suicide reviewed, providing a solid interpretive framework for the discussion and the clinical and social implications of the findings.

The coding of the risk factors was carried out using the biopsychosocial model as a framework, which allowed the information to be organized into three analytical dimensions: biological, psychological, and social-contextual. After systematically extracting the factors reported in each study, a semantic grouping process was conducted to integrate those with convergent meanings into analytical categories consistent with the specialized international literature. Subsequently, descriptive frequencies were calculated to identify patterns of recurrence and distribution between the different dimensions of the model. This procedure was complemented by a critical analysis guided by questions that allowed us to examine how available knowledge is distributed: which dimensions of the model receive the most attention, which types of factors are most frequently investigated, and which population groups appear underrepresented. This approach allowed us to standardize the classification of factors and ensure consistent analysis across the included studies.

The protocol was registered in the international database PROSPERO (International Prospective Register of Systematic Reviews) with the registration number CRD420251131626. The search, selection, and screening process in the systematic review is shown in Figure 1.

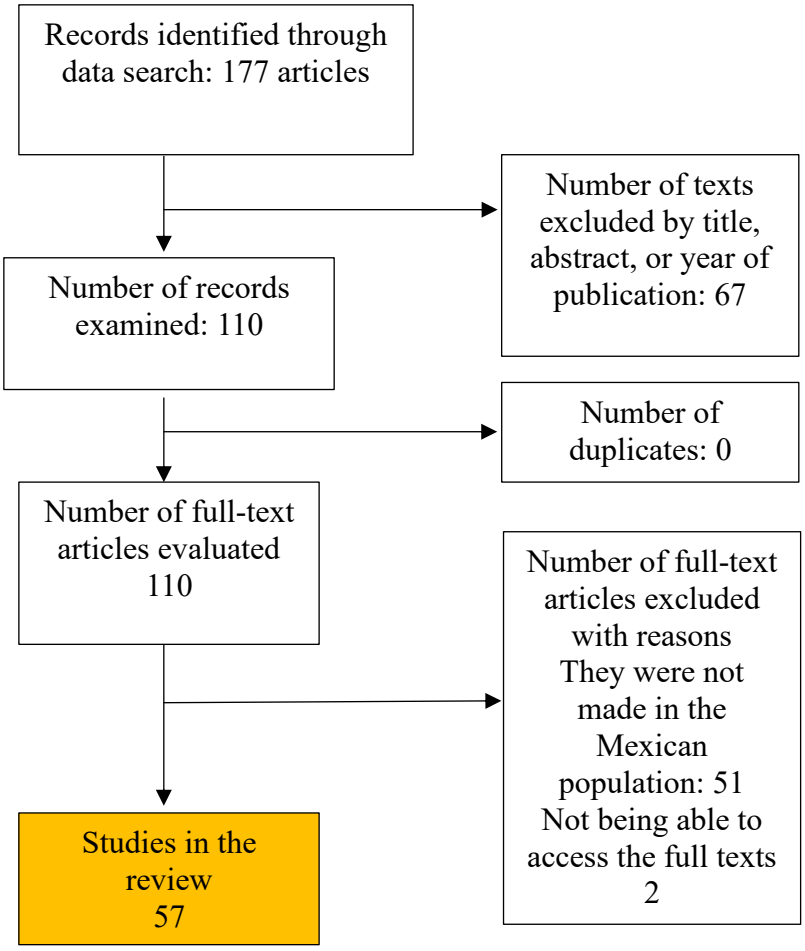

Figure 1. ***Records analyzed***
Note. Own elaboration

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RESULTS

Fifty-seven studies that met the established inclusion criteria were included.

The analysis allowed us to identify 131 risk factors associated with suicidal behavior in the Mexican population, distributed according to the biopsychosocial model into biological (34%), psychological (34%), and social-contextual (32%) factors.

The findings revealed a predominance of psychological factors, followed by social factors and, to a lesser extent, biological factors. Table 1 summarizes the main subcategories and their frequency of appearance.

Biological factors

The biological factors were grouped into five subcategories.

1) Sex/gender appeared in 28 studies (n=55), where women showed a higher prevalence of ideation and non-fatal attempts, while men showed greater lethality.
2) Age (n=37; 82 mentions) highlighted the risk among adolescents and young adults (15–24 years), associated with impulsivity, academic pressure, and low help-seeking.
3) Physical health and chronic diseases (n=12; 22 mentions) increased vulnerability through distress, persistent pain, and loss of functionality.
4) Substance consumption (n=19; 82 mentions) constituted a transversal factor linked to disinhibition, impulsivity, and psychiatric comorbidity.
5) Other findings included neuroendocrine alterations (n=4; 7 mentions), such as hyperreactivity of the hypothalamic–pituitary–adrenal (HPA) axis and elevated cortisol levels, and to a lesser extent, sleep and rest problems (n=1; 1 mention) related to insomnia and non-restorative sleep.

Psychological factors

Psychological factors were the most studied, identified in 45 articles (n=99).

Psychiatric disorders predominated, especially depression, anxiety, borderline personality disorder (BPD), and posttraumatic stress disorder (PTSD), followed by attention deficit disorders and obsessive-compulsive disorders.

Affective processes (n=13; 25 mentions) included guilt, shame, anger, and intense sadness, which were associated with hopelessness and severe self-criticism.

The cognitive processes (n=11; 21 mentions) involved rumination, dichotomous thinking, and low self-efficacy, which were linked to perceptions of helplessness and persistent emotional discomfort.

Emotional dysregulation (n=10; 16 mentions) emerged as a transversal axis of suicidal vulnerability, especially in people with a history of trauma or personality disorders.

Self-harming behaviors (n=3; 24 mentions) and previous non-fatal attempts were confirmed as behavioral predictors of future risk.

Likewise, high impulsivity (n=5; 8 mentions), insecure attachment or dissociation (n=4; 5 mentions), and low resilience and coping (n=5; 8 mentions) were identified as factors that modulate the persistence of risk.

Social and contextual factors

Social and contextual factors accounted for one-third of the total findings (41 factors).

Violence and abuse (n=28; 68 mentions) were the most consistent, including child abuse, intimate partner violence, and school or virtual bullying, with a cumulative effect on suicidal ideation and non-fatal attempts.

In particular, childhood adversity—which encompasses sexual abuse (n=9), emotional abuse (n=6), emotional neglect (n=6), physical neglect (n=6), physical abuse (n=5), domestic violence (n=5), dysfunction in the home (n=6), absence of parental supervision (n=5), as well as bullying (n=3), family dysfunction (n=2), parental psychopathology (n=1), lack of rules in the home (n=2), family history of suicide (n=1) and death of one of the parents (n=4)—reached 60 mentions (≈61% of the social factors identified).

This result confirms the central weight of early adverse experiences (ACEs) in the configuration of suicidal risk and its function as an articulating axis between the social and psychological dimensions.

Low social and family support (n=26; 55 mentions) was associated with family dysfunction, poor communication, and poor parental supervision, especially in adolescents.

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Adverse socioeconomic conditions (n=18; 34 mentions)—poverty, unemployment, and job insecurity—operated as chronic stressors that amplified hopelessness.

Other relevant subcategories were low education and job insecurity (n=12; 18 mentions), stigma and discrimination (n=14; 23 mentions), rigid gender mandates (n=10; 15 mentions), and barriers to accessing mental health services (n=6; 9 mentions).

Finally, loneliness and low community integration (n=6; 11 mentions) were associated with isolation, hopelessness, and a sense of not belonging.

Methodological characteristics of the included studies

In the set of analyzed articles, a predominance of cross-sectional designs was observed (80–85%), with convenience samples composed mainly of university, school, or clinical populations (70%).

The most used collection strategy was self-report (90%), using a wide variety of psychometric instruments.

Regarding the sample composition, gender equality was reported in the majority of the studies (80%), although in most cases without differentiated analysis or incorporation of the gender perspective.

Only a small number of investigations (5%) explicitly included trans people or the LGBTIQ+ population.

Regarding analytical complexity, the works focused predominantly on isolated variables such as age, sex, or education (85–90%), while multivariate or interaction analyses were only observed in 10–15% of the studies.

Table 1. Risk factors for suicidal behavior in the Mexican population according to the biopsychosocial model

Domain	Subcategory	Artícles (n)	Mentions
Biological	Sex/gender	28	55
	Age (15–24 predominant)	37	82
	Physical health/illnesses	12	22
	Substances/addictions	19	82
	Neurobiology/HPA Axis	4	7
	Sleep/rest	1	1
Psychological	Psychiatric diagnoses	39	99
	Affective processes	13	25
	Cognitive processes	11	21
	Emotional regulation	10	16
	Self-harming behaviors	3	24
	Impulsivity and control	5	8
	Attachment and identity	4	5
	Low coping/resilience	5	8
Social	Violence and abuse	28	68
	Low social and family support	26	55
	Poverty and inequality	18	34
	Low education and employment	12	18
	Stigma and discrimination	14	23
	Gender roles and culture	10	15
	Limited access to services	6	9
	Integration/belonging	6	11

Note. HPA axis = hypothalamic-pituitary-adrenal axis. The frequencies indicate the number of articles and mentions in which each risk factor was identified. Own elaboration.

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Quality assessment

Regarding quality evaluation, the five aspects identified in the method were established to assess both methodological and ethical considerations in the reviewed studies. In that sense, seven articles did not meet any of the established criteria, 15 met one, 27 met two, and 8 met three. None of the 57 articles reviewed met 4 or 5 quality criteria.

The criterion most frequently presented in the studies was that of approval by an ethics committee in 47 of the articles reviewed, in 19 of them the study was carried out in a clinical population, 13 of them had a maximum distribution of 60 to 40% in the number of men and women participants and only 3 of them explained in the article remuneration mechanisms for the participants.

Critical analysis

The scientific evidence surrounding the study of suicide in the Mexican population recognizes that the determinants of suicidal behavior are multifactorial in nature (Benítez, 2021; Espinoza & Moreno, 2025), however, the approach to the studies in a non-integrative manner, the methodological fragmentation and the heterogeneity of instruments has led to the isolated study of individual or clinical variables, relegating integration with the social and structural contexts in which they are embedded. This creates gaps when building a robust, multivariate, contextualized, and intersectional model.

Cross-sectional designs and convenience samples are the predominant study types, which prevent the establishment of causal trajectories and limit the representativeness of the findings. Furthermore, the almost exclusive dependence on self-report favors memory biases, social desirability, and the possible under-recording of some variables, such as violence, the diversity of suicidal behaviors, and the level of severity, among others.

In studies, there is a fragmentation that separates biological, psychological, and social factors, preventing their actual interaction from being perceived. It has not been possible to understand how individual factors, together with the influence of inequality, structural violence, and gender, combined with biological or psychological vulnerabilities, affect the problem of suicide, which makes it difficult to explore ways to design comprehensive prevention strategies.

The lack of studies that consider and report the results of groups with high vulnerability, such as indigenous people, the rural population, migrant, LGBTIQ+, adolescents outside the educational system and people deprived of liberty, among others, favors that scientific evidence and public policies are developed in a homogeneous, urban-centric way and without a diversity perspective, which perpetuates social exclusion and marginalization.

The approach without a gender perspective is reductionist (Hernández-Bello et al., 2024), since, for the most part, it considers sex only as a biological variable and does not incorporate gender as a social construction that influences people and contextual and social dynamics, which affect women and men differently.

Considering another element from a gender perspective, the evidence is consistent regarding the gender paradox in suicide, where women report more ideation and non-fatal attempts, while men present greater lethality and mortality from suicide (Araneda et al., 2021; Robles and Sánchez, 2020). Although this finding is reported descriptively in most studies, few investigations explore the underlying mechanisms. Among the most relevant explanations are female exposure to gender violence, inequality, and care burdens, which increase ideation, and the mandates of masculinity in men, associated with a lower search for social support and a greater use of lethal methods.

At the psychological and biological levels, differences in impulsivity, emotional regulation, and coping are also noted. However, the lack of integrative analyses limits the understanding of how these gender dynamics interact with factors such as social class, ethnicity, or sexual orientation, which would favor understanding and addressing the paradox more completely in order to address the inequalities that increase risk and lethality in the entire population and not limit it to a question of sex from a biological perspective.

In terms of risk factors, most studies measure symptoms of depression and anxiety, which reaffirms their influence on suicide risk. However, most of the studies reviewed focused on samples with psychiatric diagnoses, leaving aside the exploration of a non-psychiatric population.

This can be complex, since difficulties and under-reporting of effects on the mental health of the country's population have been reported (Medina-Mora et al., 2023).

The most studied biological factors are affective disorders, personality disorders, and individual traits, with some forays into genetics and still incipient biomarkers that are usually analyzed in isolation, without integrating them into the psychological, social, and cultural context, which generates the risk of reinforcing a biologicalist and reductionist view of suicide. While biological

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data are valuable for clinical screening and identification of individual vulnerabilities, their potential can be fully exploited within the framework of an integrative model.

In relation to psychological factors, evidence indicates that emotional distress, personal perceptions, and regulation deficits are important predictors of suicidal risk; However, they are still investigated in an isolated and fragmented manner, with cross-sectional studies predominating, which makes it challenging to trace transdiagnostic risk trajectories based on the underlying altered processes and establish more robust causality.

Although most research refers, in peripheral terms or as secondary variables, to inequality, poverty, bullying, violence, or the pandemic, they do not consider that these can generate structural effects in people who present suicidal behaviors. The effect of this decrease is evident: it reinforces the idea that social elements are only companions to individual discomfort, when in reality they constitute the contexts that generate and maintain it.

Adversities in childhood account for more than 60% of social factors, which reveals the centrality of early contexts of violence and neglect in the configuration of suicidal risk; however, they are studied in an isolated and descriptive manner, which may underestimate their real weight in suicidal risk and lose sight of the cumulative interactions with other risk factors.

Although biological, psychological, and social factors are recognized as components of suicidal risk, most research addresses them in a fragmented manner, without integrating them into a unified explanatory model. This separation between the clinical, the psychological, and the social structural prevents understanding the complexity of the phenomenon. It reinforces reductionist approaches that hold the individual responsible rather than the contexts that violate it.

DISCUSSION

The results of this systematic review show that the analysis of suicidal behavior in Mexico has made progress in identifying significant associations with risk factors; However, there is still a fragmented and partial understanding of the phenomenon. The individualistic perspective still predominates in research, which understands suicide mainly as a consequence of depression, hopelessness, or psychiatric disorders, without adequately taking into account the social and structural contexts that shape it (Fresán et al., 2016; Gómez-García et al., 2023; López et al., 2022). This trend reproduces the biomedical bias that Engel (1977) already warned about almost half a century ago: by reducing human suffering to a biological or intrapsychic dimension unrelated to its historical, social, and cultural environment.

Low self-esteem, perceived burden, hopelessness, and the feeling of frustrated belonging have been identified as solid predictors of suicidal behavior (Hill et al., 2015; Luna & Torres, 2022); studies on these factors are usually descriptive and do not investigate how they are related to experiences of violence, exclusion, or precariousness. To extend this perspective, the model of contextual understanding of psychological distress that Bolton and Gillett (2019) propose is especially relevant, since it indicates that to understand suicidal risk, it is necessary to take into account the interaction between individual vulnerability and the structural conditions that perpetuate suffering.

In the field of biological factors, important progress has been made in investigating epigenetic, neurophysiological, and genetic markers associated with suicide (Ríos-González et al., 2023; Smith et al., 2024; Campos et al., 2021). However, most of these findings are not related to psychosocial factors, making it difficult to fully understand how inequalities, chronic stress, or violence can influence the biological manifestation of suicidal risk.

Similarly, research on childhood traumatic experiences and adversity reveals strong links between suicidal ideation and non-fatal attempts and impaired cognition and emotional regulation in adulthood (Casas-Muñoz et al., 2023; Mortier et al., 2025; Vázquez et al., 2023).

In the social context, the available evidence confirms the relevance of structural determinants such as violence, gender inequality, educational exclusion, and job insecurity in the configuration of suicidal risk (Valdez-Santiago et al., 2017; Flores et al., 2021; Hermosillo-de-la-Torre et al., 2020). However, most studies treat them as secondary variables, which contributes to making invisible the conditions that perpetuate psychosocial suffering. This reduction of the social to a peripheral context translates into preventive strategies focused on raising awareness or disseminating information, without addressing the structural causes of collective unrest (Nuñez Fadda et al., 2024).

Furthermore, observed restrictions in methodology, such as the exclusive use of self-reports, convenience samples, and cross-sectional designs, limit the ability to determine causal trajectories or examine the dynamic processes that connect ideation to

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suicide attempt (Gutiérrez-García et al., 2021; Luna & Torres, 2022; Dávila-Cervantes & Luna-Contreras, 2024). This weakness in the methods not only limits the external validity of the results but also maintains a static view of risk, alien to the contextual and psychological transformations that accompany the suicidal crisis.

Overall, the review reveals a field that remains fragmented across disciplines. The analysis of social, psychological, and biological factors is conducted separately, making it challenging to develop integrative explanatory models. As Engel (1977) indicates, to overcome these limitations, it is necessary to understand suicide as a dynamic and multicausal phenomenon, where social, psychological, and biological processes mutually interact. In this context, it is crucial to combine the biopsychosocial vision with multivariate approaches and with a gender perspective to understand the specificities of the Mexican environment, which presents scenarios of significant vulnerability due to structural violence, inequalities, and mental health deficits (Bolton & Gillett, 2019; Hermosillo-de-la-Torre et al., 2020; Valdez-Santiago et al., 2022).

Critically, these results invite us to reconsider research and prevention strategies related to the phenomenon of suicidal behavior in the Mexican population.

CONCLUSION

There are a significant number of risk factors associated with suicide in the Mexican population; Most of the studies analyzed focused on psychological factors, followed by social and biological factors, respectively. The change, evolution, influence, and possible modification of risk factors require continuous analysis and study of these factors, as well as the determination of the levels of affectation across different population groups.

In the review of scientific evidence on the phenomenon of suicide in the Mexican population, it is determined that the field of study continues to be dominated by descriptive, univariate, and clinically focused approaches, which limit the possibility of building integrated explanatory models. Likewise, in many cases, research does not link participants with resources and support that can help reduce suicide deaths in the country, which must be analyzed and addressed from the ethical considerations of the studies.

Overcoming these limitations requires promoting longitudinal designs and mixed approaches, supported by biopsychosocial theoretical frameworks that integrate biological vulnerability, psychological distress, personal experiences and interpretations and social determinants, intersectionality and the consideration of sociocultural contexts where various risks are configured in order to make it possible to understand the complexity of suicide and guide prevention strategies based on evidence, culturally relevant and with real impact on public health and public policies, and not only reduce suicide prevention. To information or awareness campaigns, without moving towards structural and profound transformations in health, equality, education, work, justice, and gender equity.

Although currently knowing the risk factors does not allow a clear identification of people at risk of dying by suicide, it is one of the most used methods in the world to determine the application of secondary prevention actions to groups at greater vulnerability and risk, which is why it is still relevant to have a clear organization and identification of said factors in decision-making for suicide prevention.

LIMITATIONS

This systematic review has some limitations that should be considered. Most of the included studies used cross-sectional designs and non-probability sampling, which reduces the likelihood of establishing causal relationships and limits the generalizability of the results.

Methodological heterogeneity and variation in the instruments used also make comparisons across investigations difficult, and the predominant reliance on self-reports can introduce measurement bias, especially for sensitive variables. Furthermore, some works may have been omitted due to limited access to the full text or because they were not indexed in the databases consulted.

Finally, a low inclusion of groups in conditions of greater vulnerability was observed, highlighting relevant gaps that should be addressed in future studies.

IMPLICATIONS

The findings of this review highlight the need to develop longitudinal and multivariate research that allows us to more precisely understand how biological, psychological, and social factors interact in suicide risk.

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Likewise, they highlight the urgency of strengthening prevention models that are sensitive to the Mexican context, incorporate a gender perspective, and recognize structural inequalities that influence vulnerability. Having more robust, context-specific evidence will enable better-targeted interventions and public policies.

DECLARATION OF INTERESTS

The authors declare that they have no conflicts of interest, financial or personal, that could have influenced the preparation, analysis, or interpretation of the results presented in this manuscript.

CONFLICT OF INTEREST

The authors declare that they have no conflicts of interest, financial or personal, that could have influenced the preparation, analysis, or interpretation of the results presented in this manuscript.

AUTHORSHIP

Karla: Conceptualization, data curation, formal analysis, methodology, supervision, writing – review & editing.
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Amanda: Data curation, validation.

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