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Influence of attitudes toward death, vulnerability to abuse, and family functioning on suicide Riskin Mexican older adults

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Abstract

Background: Aging is a complex and multidimensional process characterized by biological, psychological, and social changes that may increase vulnerability among older adults. Suicide in later life is recognized as a multifactorial public health issue influenced by several psychosocial factors, including attitudes toward death, vulnerability to abuse, and family functioning. Therefore, this study aimed to investigate the extent to which attitudes toward death, vulnerability to abuse, and family functioning predict suicide risk among older adults.

Methods: An analytical cross-sectional study was conducted in 2025 comprising 260 older adults from Coahuila State. Participants were selected via non-probability convenience sampling. Data were collected using a sociodemographic questionnaire, the Plutchik Suicide Risk Scale, the Revised Profile of Attitudes toward Death (PAM-R), the Vulnerability to Abuse Screening Scale (VASS), and the Family APGAR. Statistical analysis included descriptive statistics, Spearman's correlation analysis, and multiple linear regression using SPSS version 25.

Results: A total of 260 older adults with a mean age of [69.25±6.80 years] years participated in the study. The majority of the cohort were female, married, and had completed secondary education. The prevalence of suicide risk was 13.8%, and vulnerability to abuse was identified in 10% of participants. An ambivalent attitude toward death was observed, and 33.9% of the sample exhibited moderate to severe family dysfunction. The regression model explained 17.4% of the variance in suicide risk (Adjusted $R^2 = 0.174$, $F = 13.457$, $p < 0.001$), with family functioning ($\beta = -0.350$, $p < 0.001$) identified as the strongest and only significant predictor.

Conclusion: The risk of suicide in older adults is a multifactorial phenomenon in which family functioning plays a central protective role. These findings highlight the importance of preventive strategies in collective health, focused on strengthening families and early detection of psychosocial risk factors.

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Highlights

What is current knowledge?

- Suicide in older adults is a multifactorial public health problem, associated with psychosocial factors such as family dysfunction, abuse, and attitudes toward death, highlighting the protective role of family functionality.

What is new here?

- This study identifies family functionality as the main predictor and protective factor of suicide risk in older Mexican adults, above the attitude towards death and vulnerability to abuse, from a collective health perspective.

Introduction

Aging is not merely a biological process marked by accumulated cellular damage, physical decline, and increased disease risk; it also involves profound psychosocial transitions (1).

The psychological dimension is fundamental to human well-being. Emotions and feelings play a crucial role in how individuals perceive themselves and their reality. Socially, an older adult navigates two intersecting realms: microsocial processes, which encompass personal interactions, and macrosocial aspects that frame their experiences and influence their behaviors (2).

As these biological and social shifts become more pronounced with age, older adults frequently face new personal, health, and community challenges. This vulnerability underscores why biopsychosocial and family elements are of utmost importance for successful adaptation during this stage of life (3).

When the inevitable transformations of old age make adaptation difficult, they can sometimes result in a predisposition to self-destructive behaviors (4).

One of the most severe self-destructive behaviors is suicide, driven by a desire to end profound physical or psychological pain (5). Deaths by suicide constitute a global phenomenon with a complex approach, considered a public health problem. According to available evidence, multiple variables influence its incidence, with varying importance across life cycle stages (6).

While suicide rates generally decrease with age for women, the opposite is true for men. Men over the age of 65 die by suicide seven times more often than women in the same age range (7). Moreover, older adults often use highly lethal and accessible methods, such as hanging, jumping from heights, firearms, poisoning, and carbon monoxide exposure (5).

According to recent data from the World Health Organization (WHO), more than 800,000 people die by suicide each year worldwide. The suicide rate among men is approximately double that of women, with 12.6 and 5.4 cases per 100,000 inhabitants, respectively (8). Mexico is among the 10 countries with the highest suicide rates, with an estimated rate of 6.5 per 100,000 people. The Instituto Nacional de Estadística y Geografía (INEGI) reported 8,351 deaths due to self-inflicted injuries in 2021.

Coahuila, Mexico, reports an even higher suicide rate of 9.7 per 100,000 inhabitants (9).

The above may be related to various factors; however, for this study, the variables of attitude toward death, vulnerability to abuse, and family functionality will be considered as factors related to the risk of suicide in older adults. For the purpose of this study, attitude toward death, vulnerability to abuse, and family functionality are considered as key factors related to suicide risk in older adults. Although death is a universal and irreversible biological fact, older people often experience fear of death, produced by the unpredictability of the unknown (10).

An individual's attitude towards death is shaped by their emotional response to the idea of their own mortality. Older adults typically present one of four attitudes: indifference, where death is minimized; fear, presenting as anxiety before the dying process; rest, seen as liberation from suffering; and serenity, reflecting a satisfied acceptance of life. These attitudes profoundly affect their decisions and beliefs about end-of-life issues (11).

Consequently, suicide risk is closely related to these attitudes, as certain perspectives can trigger self-destructive actions. These behaviors can be executed consciously or involuntarily, generating severe psychological, emotional, and physical damage (12).

On the other hand, elder abuse is defined as one or more repeated acts that cause harm or suffering to an elderly person, or the failure to take appropriate measures to prevent further harm; This abuse can be physical, emotional, sexual, economic, or due to neglect (12). Older adults are more vulnerable to such mistreatment due to compounding medical conditions, psychological struggles like loneliness and fear of death, and cognitive decline (13).

This vulnerability is exacerbated when they depend (Economically, emotionally, or physically) on their abusers. Each form of elder abuse represents a direct risk factor for suicide. Indeed, a history of abuse is frequently observed among older adults who have attempted or died by suicide (14).

Another factor to study is family functioning; the importance of these variable stems from the fact that the family environment is a significant factor in its members' physical and emotional health (14). Family functionality is the set of interpersonal relationships that allows the satisfaction of each member, prevents the emergence of risk behaviors, and, at the same time, facilitates the comprehensive development of the family group. A family is considered functional when it allows the harmonious passage through each stage of the life cycle, including old age (15). Thus, family functionality is decisive for the presence or absence of risk behaviors, since it can generate behaviors that are harmful to the person, such as the risk of suicide (16).

From collective health, this study seeks to contribute to the prevention of suicide in older adults by strengthening the early detection of risk factors and facilitating the implementation of multidisciplinary intervention strategies that raise awareness in society about aging and social inclusion in order to reduce the vulnerability of this population. This knowledge will be key to developing public policies and actions that promote dignified and healthy aging.

Having said the above, the objective is to determine the explanatory capacity of the attitude towards death, vulnerability to abuse, and family functionality on the risk of suicide in older adults.

Methods

An analytical cross-sectional design was utilized he study (17) aimed to evaluate suicide risk based on three independent variables (Attitude towards death, vulnerability to abuse, and family functionality) using a multiple linear regression analysis. The study population comprised adults aged 60 years and older residing in the state of Coahuila, Mexico, in 2025.

A priori power analysis using G*Power 3.1 for multiple linear regression with four predictors assuming $\alpha = 0.05$, power = 0.90, and a conservative small-to-medium effect size ($f^2 = 0.15$) yielded a minimum required sample of 139 participants. To ensure statistical robustness and account for potential missing data, a target sample size of 197 was established; ultimately, 260 older adults were included in the study.

However, during data collection, more eligible older adults were available and willing to participate than initially anticipated. Given the observational nature of the research and to improve estimate precision and strengthen statistical power, all eligible participants were included, resulting in a final sample of 260 individuals. This larger sample size reduces the risk of Type II error and enhances the robustness of the analyses.

During the data collection period, a total of 260 older adults were approached, of whom 280 agreed to participate in the study, representing an approximate response rate of 92.9%. Reasons for non-participation included lack of time, disinterest, or failure to meet inclusion criteria.

A non-probabilistic convenience sampling method was selected based on feasibility and accessibility considerations. Given the study's observational nature, this approach efficiently facilitated the recruitment of available and willing older adults.

Inclusion criteria comprised adults aged 60 years or older without cognitive impairment (As determined by the Pfeiffer scale), and providing written informed consent. Exclusion criteria encompassed a previous suicide attempt or severe medical conditions limiting active participation (e.g., hospitalization or palliative care). Elimination criteria included study withdrawal or incomplete assessment instruments.

Instruments

The order of instrument administration was standardized to minimize participant distress, progressing from less sensitive topics (Sociodemographic data, family functionality and vulnerability to abuse) to more sensitive assessments (Attitudes toward death and suicide risk).

Sociodemographic questionnaire

A custom form designed by the authors to collect basic information, including gender, marital status, education level, and history of chronic diseases.

Suicide risk

Assessed using the Plutchik Suicide Risk Scale, a self-report instrument designed to differentiate between individuals with and without suicide risk. The scale consists of 15 items with a dichotomous response format (Yes/No). Each affirmative response scores one point; higher total scores indicate greater suicide risk, with a cut-off point established at 666. The instrument has been validated in Spanish populations, demonstrating adequate psychometric properties, including a Cronbach's alpha of 0.89 and sensitivity and specificity values of 88%. (18).

Attitude towards death

Assessed using the Revised Profile of Attitudes toward Death (PAM-R), a multidimensional self-report scale consisting of 32 items. The PAM-R comprises four factorially derived dimensions: 1) Fear of death, 2) Approach acceptance, 3) Escape acceptance, and 4) Neutral acceptance. Responses are recorded on a Likert-type scale ranging from totally disagree to totally agree. It demonstrated a Cronbach's alpha coefficient of 0.89 (19).

Vulnerability to abuse

Assessed using the Vulnerability to Abuse Screening Scale (VASS). The scale consists of 12 dichotomous items (Yes/No) distributed across four domains: vulnerability, dependence, dejection, and coercion. Affirmative responses are scored as one point. Higher total scores indicate greater vulnerability to abuse; a score below 6 suggests vulnerability to abuse. It demonstrated a Cronbach's alpha coefficient of 0.77 (20).

Family functionality

Assessed with the Family APGAR (Gómez & Ponce, 2010), a 5-item scale evaluating adaptation, partnership, growth, affection, and resolution. Items are scored from 0 to 2, yielding a total score between 0 and 10. It has a reported Cronbach's alpha of 0.84 (21).

Data collection procedure

Before starting data collection, a schedule of places to visit was compiled, including squares and public areas in the city of Saltillo, Coahuila. Older adults who met the inclusion criteria were identified, and informed consent was obtained from those who agreed to participate. Subsequently, the following instruments were administered: the sociodemographic data card, suicide risk assessment, attitude toward death scale, vulnerability to abuse scale, and finally, the family functionality assessment.

Statistical analysis

Quantitative analyses were performed using SPSS version 25. Categorical and ordinal variables were described using frequencies and percentages, while continuous variables were summarized with means, medians, and standard deviations. The Kolmogorov–Smirnov test indicated that the continuous data did not follow a normal distribution;

therefore, Spearman's rank correlation coefficient was utilized for bivariate analyses.

To address the primary objective, a multiple linear regression model was fitted to estimate the explained variance (R^2) and identify the predictive contribution of each independent variable toward suicide risk. This model provides standardized beta coefficients to indicate the direction and strength of associations, thereby clarifying the impact of the investigated psychosocial factors.

Results

The sample consisted of 260 older adults, whose ages ranged from 60 to 89 (69.25±6.80 years). The majority were women, possessed a secondary education, were married, and reported no chronic diseases (Table 1).

As shown in Table 2, risk of suicide was present in 13.8 (n=36) of the participants. Furthermore, vulnerability to abuse had a prevalence of 10.0% (n=26). Regarding family dynamics, moderate to severe dysfunctionality was reported by 33.9% (n=88) of the sample. Finally, attitudes towards death were generally ambivalent (i.e., demonstrating both acceptance and rejection).

As presented in Table 3, there was a significant positive correlation between age and suicide risk ($r = 0.194$, $p = 0.002$). Suicide risk also showed a significant positive correlation with vulnerability to abuse ($r = 0.221$, $p < 0.001$) and a significant negative correlation with family functionality ($r = -0.380$, $p < 0.001$), the latter being the strongest association in the model. Additionally, higher family functionality was significantly correlated with a less positive attitude toward death ($r = -0.135$, $p = 0.019$) and lower vulnerability to abuse ($r = -0.282$, $p < 0.001$).

The multiple linear regression model was statistically significant ($F = 13.457$, $p < 0.001$) and explained 17.4% of the variance in suicide risk (adjusted $R^2 = 0.174$). Among all predictors, family functionality ($\beta = -0.350$, $p < 0.001$) was the strongest and only significant independent predictor, accounting for the largest unique contribution to the model. (Table 4).

Table 1. Sociodemographic data of older adults (n=260)

Variables	Frequency	Percentage
Sex		
Man	100	38.5
Women	160	61.5
Schooling		
None	27	10.4
Primary	67	25.8
Secondary	75	28.8
Preparatory	25	9.6
Technical	33	12.7
Professional	33	12.7
Marital status		
Married	133	51.2
Widower	80	30.8
Free union	13	5
Single	13	5
Divorced or separated	21	8.1
No reported disease	148	56.9
Diabetes or hypertension	112	43.1

Table 2. Description of invisible factors and suicide risk (n=260)

Variable	Mean	Standard deviation	Minimum	Maximum	Kolmogorv-Smirnov test	P-value
Suicide risk	3.00	2.62	0	11	0.160	< 0.001
Attitude towards death	82.48	13.46	33	133	0.092	< 0.001
Vulnerability to abuse	3.45	1.92	0	12	0.181	< 0.001
Family functionality	7.38	2.61	0	10	0.168	< 0.001

Table 3. Spearman's rank correlation coefficient of independent variables with suicide risk (n=260)

Variable	Age	Suicide risk	Attitude death	Vulnerability abuse	Family functionality
Age	1	-	-	-	-
Suicide risk	r=0.194 p=0.002	1	-	-	-
Attitude death	r=0.064 p=0.303	r=0.052 p=0.402	1	-	-
Vulnerability abuse	r=0.105 p=0.092	r=0.221 p=0.0001	r=0.048 p=0.442	1	-
Family functionality	r=-0.105 p=0.092	r=-0.380 p=0.0001	r=-0.135 p=0.019	r=-0.282 p=0.0001	1

r= Correlation Coefficient, $p < 0.05$ is statistically significant

Table 4. Influence of invisible factors on the risk of suicide in older adults

Variables	Standardized beta	CI 95%		Standard error	t-students	P-value
Age (Year)	0.101	-0.005	0.083	0.022	1.757	0.080
Attitude death	0.013	-0.020	0.025	0.011	0.224	0.823
Vulnerability to abuse	0.095	-0.031	0.291	0.082	1.586	0.114
Family functionality	-0.350	-0.471	-0.231	0.061	-5.762	< 0.001
Adjusted R^2 =0.174					F =13,457	P < 0.0001

Discussion

The objective of this study was to determine the explanatory power of the attitudes towards death, vulnerability to abuse, and family functionality on suicide risk in older adults. The results confirm that suicidal behavior in old age is a multidimensional phenomenon, in which individual, relational, and contextual factors converge, with family functionality being the element with the greatest explanatory weight.

Descriptively, a notable proportion of older adults presented a risk of suicide, even though the majority were married and without chronic diseases. This coincides with previous studies indicating that suicidal risk in old age does not depend exclusively on physical illness, but also on less visible psychosocial conditions (6,22). This finding reinforces the need to analyze suicide in older adults beyond the traditional biomedical model.

Regarding attitude towards death, the results indicate an ambivalent posture characterized by the coexistence of acceptance and rejection. This pattern has been documented in previous research, which shows that, although older people may show acceptance of the life cycle and death as a natural event, fears associated with suffering, dependence, and loss of control persist (11,23). The absence of a significant correlation between the attitudes towards death and the risk of suicide suggests that this variable, by itself, does not constitute a direct risk factor, but rather its influence could be mediated by other elements, such as family functionality or the presence of abuse.

Regarding vulnerability to abuse, a positive and significant correlation was identified with suicide risk, which confirming its relevance as a psychosocial risk factor. International research has shown that abuse, even in its less visible forms such as emotional neglect or coercion, increases suicidal ideation by generating feelings of helplessness, humiliation, and hopelessness in older adults (24). The observed correlation supports the usefulness of the VASS scale as an early detection instrument, as it facilitates the identification of risk conditions before abuse becomes explicit (25).

A central finding of the study was the inverse relationship between family functionality and suicide risk, as well as its negative association with vulnerability to abuse. These results align with the literature, which positions the family as a fundamental axis in protecting mental health in old age. A functional family fosters communication, emotional support, and effective conflict resolution, factors that decrease the chance of self-destructive behaviors (16,26).

The correlational analysis also showed that the older you are, the greater the risk of suicide and lower family functionality, which coincides with research that indicates that advanced aging can imply a progressive reduction in support networks, greater dependency, and increased perception of burden, especially in fragile family contexts (3). This finding reinforces the importance of considering age not only as a chronological variable but as a marker of accumulated social vulnerability.

The multiple linear regression model showed that the variables analyzed explained 17.4% of the variance in suicide risk. This figure aligns with previous research in elderly populations where psychosocial factors tend to have moderate yet meaningful explanatory power. Within the model, family functioning was the only significant predictor, highlighting its important protective role against suicide risk. The lack of significance of attitude toward death and vulnerability to abuse in the final model were not statistically significant. Their effects might be influenced or moderated by family functioning, indicating that family dynamics play a key regulatory role.

From the perspective of collective health, these results confirm that the risk of suicide in older adults cannot be understood as an isolated individual phenomenon, but as the result of social, family, and symbolic processes that accumulate throughout the life course. Family functionality acts as a structural factor affecting both abuse exposure and how death and aging are perceived and reinterpreted. In this sense, the findings provide evidence for the design of prevention strategies that strengthen family and community networks and for the early detection of situations of social vulnerability (27).

A study argues that culture influences perceptions of death and suicide through shared beliefs, values, and meanings that shape how individuals interpret suffering, hopelessness, and the meaning of life; therefore, culture may act as a protective factor against suicide risk (28). Paphitis and cols indicate that domestic abuse is an important risk factor for suicide. Similarly, the present study found a relationship between abuse and suicide risk; however, it was not identified as a predictive factor, although it was associated with an increased risk (29).

Family functioning was identified as a predictive factor in this study, consistent with evidence indicating that, in Latino populations, family may constitute a risk factor for suicidal behavior when dysfunctional family dynamics, abuse, substance use, or limited emotional support are present, thereby increasing psychological vulnerability and suicide risk (30).

The present study has limitations that should be considered when interpreting the results. Its cross-sectional design does not allow establishing causal relationships between variables and limits the analysis to identifying associations. The non-probabilistic convenience sampling restricts the generalizability of the findings to the older adult population as a whole, as the sample was obtained exclusively in the city of Saltillo, Coahuila. Additionally, the use of self-report instruments may have introduced social desirability bias, particularly in sensitive variables such as suicide risk and vulnerability to abuse. Finally, the moderate explanatory capacity of the model suggests the influence of other factors not considered in this study.

It is recommended to systematically incorporate the assessment of family functioning and vulnerability to abuse into primary and community care for older adults as part of suicide prevention strategies. Strengthening the training of healthcare personnel in the early detection of psychosocial risk factors with a collective health approach is necessary. Likewise, future research is encouraged to use longitudinal designs and probabilistic sampling, include additional variables, and consider qualitative methodologies that allow for a deeper exploration of the subjective experiences of aging and suicide risk.

Conclusion

The findings of this study confirm that suicide risk in older adults is a multifactorial phenomenon influenced by psychosocial and family-related variables. Among the factors analyzed, family functionality emerged as the only significant predictor and the variable with the greatest explanatory weight, demonstrating an inverse relationship with suicide risk and vulnerability to abuse. While vulnerability to abuse correlated positively with suicide risk, it was not a significant predictor in the multivariate model. Likewise, attitude toward death presented an ambivalent pattern and did not demonstrate predictive capacity. Overall, the explanatory model accounted for 17.4% of the variance in suicide risk, highlighting the relevance of relational and contextual factors in late adulthood.

From an applied perspective, these results underscore the importance of strengthening family environments as a key strategy for suicide prevention in older adults. Interventions should prioritize early detection of family dysfunction and vulnerability to abuse, incorporating screening tools into primary health care and community programs. Public health policies should promote family-based and community-based support networks, foster social inclusion, and enhance multidisciplinary strategies aimed at protecting the mental health of older adults. Effectively addressing suicide risk from a collective health perspective necessitates integrating psychosocial assessment into routine geriatric care and strengthening protective family dynamics.

Future research should explore additional psychosocial, cultural, and structural variables that may increase the explanatory capacity of suicide risk models in older populations. Longitudinal studies are recommended to better understand causal relationships and temporal dynamics among family functioning, abuse vulnerability, and suicide risk. Furthermore, qualitative approaches could provide deeper insight into the subjective experiences of older adults, contributing to the development of more culturally sensitive and context-specific prevention strategies.

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Ethical Statement

This study complied with the provisions of the General Health Law on Health Research in Mexico and the Official Mexican Standard (31) NOM-012-SSA3-2012 for research involving human participants. Ethical approval was obtained from the Ethics Committee of the Contemporary University of the Americas. The official ethics approval reference number assigned by the Ethics Committee is: EAD12021-030.

Written informed consent was obtained from all participants prior to data collection. Participants were informed about the study objectives, the voluntary nature of participation, confidentiality measures, and their right to withdraw at any time. Due to the sensitive nature of the study, data collection was conducted by trained personnel capable of identifying emotional distress; assessments were paused or discontinued according to participants' preferences. When suicide risk was identified, a referral protocol was activated to provide immediate guidance and referral to local mental health services for professional evaluation and follow-up. All collected information was anonymized and handled confidentially.

Conflicts of Interest

The Authors declares that there is no conflict of interest.

Author Contributions

IAMF and DCP conceptualized and designed the study. ART contributed to data collection and preliminary analysis. JAMF performed statistical analyses and contributed to the interpretation of results. KPVG provided critical insights and supervised the research methodology. IAMF and ALCC provided overall project supervision, drafted the manuscript, and coordinated revisions. All authors reviewed, edited, and approved the final version of the manuscript.

Data Availability Statement

The datasets generated and/or analyzed during the present study are not publicly available due to confidentiality and ethical restrictions.

Use of Artificial Intelligence

AI-assisted tools were used to support language editing; these tools were not involved in data analysis, the writing of scientific content, the interpretation of results, or scientific decision-making.

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