Effect of Violence and School Victimization on Suicidal Ideation in Mexican Adolescents

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Abstract.
This study tests a model to predict suicidal ideation in adolescents, considering violence and school victimization, family and academic self-concept, and depressive symptoms as antecedents. 792 Mexican high school adolescents participated (49.4% women, 50.6% men) between 11 and 16 years old (M = 13.3, D.T. = 1.0), selected with a non-probabilistic sampling for convenience. The Suicidal Ideation, Violent Behavior at School, Victimization at School, Self-Concept Form-5 and CES-D scales were administered. From Structural Equation Models, the results showed that the model that best fits indicates a double relationship between school victimization and suicidal ideation: a direct and positive effect on suicidal thoughts, and, on the other hand, an indirect and negative effect through family support, and positive with depressive symptoms. Family self-concept was an important protection factor.

Keywords.

Resumen.
En este estudio se pone a prueba un modelo para predecir la ideación suicida de adolescentes, considerando como antecedentes la violencia y victimización escolar, el autoconcepto familiar y académico y la sintomatología depresiva. Participaron 792 adolescentes mexicanos de secundaria (49.4% mujeres, 50.6% hombres) entre 11 a 16 años (M = 13.3, D.T. = 1.0), seleccionados con un muestreo no probabilístico por conveniencia. Se administraron las escalas de Ideación Suicida, Conducta Violenta en la Escuela, Victimización en la Escuela, Autoconcepto Forma-5 y CES-D. A partir de Modelos de Ecuaciones Structurales, los resultados mostraron que el modelo que mejor se ajusta indica una doble relación entre la victimización escolar y la ideación suicida: un efecto directo y positivo sobre pensamientos suicidas, y, por otro lado, un efecto indirecto y negativo a través del apoyo familiar, y positivo con la sintomatología depresiva. El autoconcepto familiar resultó un importante factor de protección.

Keywords.
Ideación suicida, violencia, victimización, adolescencia, autoconcepto familiar.
1. Introduction
Suicide is a public health priority issue due to its multi-level repercussions on people and communities around the world. Adolescence represents an important period of suicide risk as the second cause of death among age groups of 15 and 29 (World Health Organization, 2014). In this respect, scientific literature suggests that suicidal thoughts are more frequent than effective suicide attempts among adolescents (Ruiz-Robledillo et al., 2019).

Regarding suicidal ideation, Klonsky et al. (2016) specify the role of suicidal thoughts through three theories: Interpersonal, Motivation/Volition Integrated Model, and the Three-Step Theory. In the first place, the Interpersonal Theory of Joiner (2009) approaches the suicidal capacity for action from social and interpersonal aspects, as well as from personal factors of pain/fear associated with violent experiences. On the other hand, the Motivation and Volition Integrated Model of O’Connor and Kirtley (2018) proposes understanding suicide starting from a pre-motivational phase that implies the recognition of personal and environmental conditions of vulnerability to give way to the emergence of suicidal ideation, which is generated from the perception of humiliation and pain. Finally, the Three-Step theory of suicide by Klonsky and May (2015) proposes to acknowledge pain and hopelessness as generators of suicidal thinking, the connection between the environment, ideation and dispositional variables, the experiences linked to pain, and concrete events. According to the above, the interaction between the personal level and the conditions of immediate systems and the environment can explain the process of suicidal ideation and the act of suicide itself. An outstanding aspect of this lies in the role that is given to certain vital experiences that can mark the transition towards the ideation of and attempt of suicide (Joiner, 2009). The experiences of the adolescents in violent situations and victimization, fundamentally at school, are of particular relevance to our study, both of which must be analyzed from an ecological perspective (Valdés Cuervo et al., 2018).

The study of violence and school victimization in Mexico is relatively recent, its beginnings can be found in the nineties with the study on bullying from the perspective of a qualitative approach (Santoyo Castillo & Frías, 2014). In relation to its empirical development, a recent meta-analysis by Vega-Cañich (2019) found variability in the bullying construct. Given this prospect, it is relevant to develop more scientific studies in the Mexican school environment, since it presents a moderating effect on suicidal ideation (Kim & Chun, 2019) and violence between peers such as the victim, aggressor, witness, and/or the defender generate dis-adjustments of the wellbeing of those involved (Tennant et al., 2019). In fact, school victimization shows a direct relation to suicidal ideation (Holt et al., 2015; Nurius et al., 2019; Romo & Kelvin, 2016; Strohacker et al., 2019). On the contrary, the aggressors seem not to relate directly to suicide risk when depression is controlled. However, a tendency to problems with depression has been observed in bullies (Klomek et al., 2008; Varela Garay et al., 2013). The effects of violent experiences also relate to a low academic performance (Clemmensen et al., 2018), which is associated with suicidal risk (Hernández-Bello et al., 2020).

As well as with the school environment, various investigations emphasize the predictive condition of the family context with suicidal ideation (DeVille et al., 2020; Fredrick et al., 2018) and its relationship with exposure school violence (Kaufman et al., 2019). Finally, along with the school and family environments, other studies place depression as the personal predictive factor of suicidal ideation in adolescents (Cardoso et al., 2018; Gómez Tabares et al., 2020). Depression also seems to play an important moderating role between bullying and suicidal ideation (Klomek et al., 2008). In this regard, a higher risk of depression (Klomek et al., 2019; Strohacker et al., 2019) and suicidal ideation (Cardoso et al., 2018; Nurius et al., 2019) has been observed in the victims.

Considering all the above, the objective of this study is to test a structural equation model to analyze the presence of suicidal ideation in Mexican adolescents, taking into consideration the influence of personal (symptoms of depression), family (family self-concept), and school (academic self-concept, violent behavior, and school victimization) environments. Ergo, the following hypotheses are proposed: 1) there is a direct relationship between violence and school victimization; 2) there is a direct relationship between school victimization and suicidal ideation in contrast to violent behavior; 3) the family environment constitutes a predictive protective condition against suicidal ideation; 4) poor academic performance is associated with violence and school victimization; and 5) depressive symptoms play a moderating role between suicidal ideation and school violence/victimization.

2. Method
2.1 Participants
The sample consisted of 792 high school adolescents from eight public schools in a city in southeastern Mexico. Of these, 50.6% (n = 401) were men and 49.4% (n = 391) women. The average age is 13.3 years (D.T. = 1.0) with a range between 11 to 16 years. Regarding level of education, 457 were in first grade (57.7%), 180 in second grade (22.7%), and 155 in third grade (19.6%); 468 were from the morning shift (59.1%) and 324 from evening shift (40.9%).

2.2 Instruments
The administered instrument consisted of a first section in which sociodemographic data such as sex, age, school grade, and place of residence was collected.
Suicidal Ideation Scale (Roberts, 1980). Mariño’s et al. (1993) adaptation of the scale for the Mexican population was administered. This instrument consists of four items that measure the occurrence of suicidal ideation symptoms in the last week (from 1 = 0 days to 4 = 5–7 days). A global media score of the scale was obtained resulting in $M = 1.52$ and $D.T. = .75$, with a reliability index of .83.

Violent Behaviour Scale at Schools (Little et al., 2003). The scale is composed by 25 items that measure violence in its manifest and relational forms (from 1 = never to 4 = always). On the one hand, manifest or direct aggression with 13 items ($\alpha = .88$), in its pure forms ($\alpha = .66$) of four items (e.g. “I am a person who fights with others), reactive ($\alpha = .74$) of four items (e.g. “When someone threatens me, I threaten them too), and instrumental ($\alpha = .79$) of five items (e.g. “I am capable to hit to get what I want); on the other hand, relational or indirect aggression with 12 items ($\alpha = .84$), in its pure forms ($\alpha = .64$) of four items (e.g. “I am a person who tells gossip and rumors about others), reactive ($\alpha = .59$) of four items (e.g. “If someone hurts or bothers me, I tell my friends not to relates to that person), and instrumental ($\alpha = .75$) of four items (e.g. “To get what I want I tell my friends not to relate or go out with others). A global mean score of the scale was obtained resulting in $M = 1.29$ and $D.T. = .26$, with a reliability index of .88.

School Victimization Scale (Cava et al., 2007). The scale is composed by 20 items with two subscales of victimization and four response categories (from 1 = never to 4 = always). On the one hand, the direct subscale of 10 items ($\alpha = .86$) that includes the physical dimension ($\alpha = .67$) of four items (e.g. “Some mate has hit me to really hurt me), the verbal dimension ($\alpha = .82$) of six items (e.g. “Some partner has yelled at me). On the other hand, the indirect or relational subscale with 10 items ($\alpha = .90$) (e.g. “Some partner has told others not to be my friends). A global mean score of the scale was obtained resulting in $M = 1.53$ and $D.T. = .48$, with a reliability index of .88.

Form-5 Self-Concept Scale (García & Musitu, 1999). The scale is comprised by 30 items that measure self-perception in five dimensions: family, academic, emotional, social, and physical (from 1 = never to 5 = always). For this study, the family and academic dimensions were used. Family self-concept ($\alpha = .81$) with six items (e.g. “I feel happy at home) assesses family support. Academic self-concept ($\alpha = .84$) with six items (e.g. “I do school work well) measures the perception of school performance. A global mean score was obtained for each type of self-concept, the family dimension with an $M = 4.14$ and $D.T. = .85$ and the academic dimension with an $M = 3.19$ and $D.T. = .87$. The scale obtained a reliability index of .71.

Center for Epidemiological Studies of the United States Depression Scale (Radloff, 1977). Herrero and Menezess (2006) adaptation was used, which evaluates depressive symptomatology with seven items (e.g. “I felt depressed) (from 1 = never to 4 = always). A global mean score of the scale was obtained, resulting in $M = 2.15$ and $D.T. = .65$. The short version validated in Spain with Spanish population resulted one-dimensional with adequate reliability ($\alpha = .82$) and the construct validity of the CESD-7 showed similarity with the original version (Herrero & Gracia, 2007). The CESD-7 showed good psychometric properties in Mexican samples Salinas-Rodríguez (2013). In our study, a reliability index of .73 was obtained.

2.3 Procedure

The sampling was non-probabilistic for convenience. The population provided by each educational establishment was considered. The selected schools were those authorized by their availability for the study. Each educational establishment was visited to obtain the corresponding permits by explaining to the authorities the objectives, importance, and scope of the study. To meet the ethical requirements regarding participants under 18 years of age, the school provided information and requested the written informed consent of the participants parents or legal guardians. The main objectives of the study were explained to the students, who were also informed that they could leave the study at any time without any prejudice. Finally, confidentiality was guaranteed and contact information of the researchers was included to respond to any possible inconveniences or doubts associated with the study.

2.4 Statistical Analysis

A structural equation model was tested with the EQS 6.3 program to analyze the influence of school violence on suicidal ideation, as well as the influence of other variables in the personal, familiar, and scholar levels. Robust estimators were used to correct deviations on multinormality (Bentler, 1995), which were evaluated from the normalized Mardia coefficient. These robust estimators were used to determine the statistical significance of the coefficients. The standardized regression coefficients included within the model were estimated, analyzing their level of significance. Since this is a saturated model with zero degrees of freedom and a chi-square equal to zero, it was not necessary to analyze more statistical indicators of adjustment.

3. Results

The normalized Mardia coefficient for the variables on Figure 1 was of 17.95, which suggested a deviation from the multinormality of the date and justified the use of robust estimators. Figure 1 shows the graphic representation of the structural model with the standard-
ized coefficient and their associated probability. This model explained 25% of the variance of suicidal ideation among adolescents in the school context. The model predicts, first, that victimization and school violence are positively related. Therefore, some experiences of school victimization are linked to aggressive behavior \( r = .37, p < .001 \). A second finding is that regardless of the levels of exerted violence, the experiences of victimization have a positive relationship with suicidal ideation \( \beta = .10; p < .001 \). But this relationship presents two ways of influence: a direct influence \( \beta = .10; p < .001 \) and an indirect influence \( \beta = .10; p < .001 \) through its effect on family self-concept and depressive symptomatology. Thus, the adolescents with experiences of victimization tend to register a decrease on family self-concept, which has a protective effect against depressive symptomatology \( \beta = -.34; p < .001 \). An increase in the symptoms is positively and significantly related to suicidal ideation \( \beta = .35; p < .001 \). In the case of school violence, an indirect influence seems to exist through its effect on family self-concept \( \beta = -.17; p < .001 \) and academic self-concept \( \beta = -.18; p < .001 \).

However, exerted school violence is not significantly related to suicidal ideation \( \beta = .06, ns \). Likewise, the family self-concept variable shows a direct and negative effect on suicidal ideation \( \beta = -.20; p < .001 \), while academic self-concept is not significantly related to suicidal ideation \( \beta = -.03, ns \). On the other hand, the personal variable of depressive symptomatology showed a direct and positive relation with suicidal ideation \( \beta = .35; p < .001 \).

It can be seen that the direct relationship between school violence and suicidal ideation was not significant. Nevertheless, school violence was significantly and negatively related to family self-concept \( \beta = -.17; p < .001 \) and academic self-concept \( \beta = -.18; p < .001 \). However, at the personal level, the results do not show a direct effect of school violence on depressive symptomatology \( \beta = .08, ns \). In other words, the adolescents’ recognition of acting violently with his peers seems to have a negative effect on their family and school perception, but, in the presence of feelings of lack of family and school involvement, exerting school violence has an indirect effect on depressive symptomatology and suicidal ideation.

On the other hand, the results confirm the direct, positive and significant effect of school victimization on suicidal ideation, as well as school victimization directly and negatively relates to family self-concept \( \beta = -.20; p < .001 \), but without showing a significant relationship with academic self-concept \( \beta = -.03, ns \). Likewise, a direct and positive effect is observed on depressive symptomatology \( \beta = .10; p < .001 \). These results show a double relationship between school victimization and suicidal ideation. A direct and positive effect on suicidal thoughts and, on the other hand, an indirect and negative effect through family self-concept and positive with depressive symptomatology.

## 4. Discussion

The study of suicidal ideation in adolescents has highlighted in recent years the relevance of attending to variables in the personal, family, and school spheres to enhance the comprehension of this complex phenomenon. In the present study, both the direct effects between school violence/victimization and suicidal ideation of the adolescent have been analyzed, as the indirect effect of those variables through family self-concept, academic self-concept, and depressive symptomatology.

The results obtained show the coexistence between violence and school victimization coinciding with the research findings (Walters, 2020). This coexistence, in turn, shows the negative and indirect effects in suicidal ideation through family self-concept and its relation with depressive symptomatology. Thus, both aggressors and victims that have a low perception of family support and the presence of depressive symptomatology are at greater risk of suicidal thoughts. Similarly, a direct relationship between school victimization and suicidal ideation is observed. This result confirms the previous studies that have pointed out the negative effect of school victimization on suicidal ideation (Nurins et al., 2019; Romo & Kelvin, 2016; Strohacker et al., 2019). No relationship is obtained when only violent behavior in the school environment and suicidal ideation are analyzed. This result is similar to the study by Espelage and Holts (2013), who find greater suicidal risk in the victims and aggressor-victims group when controlling depression. Nor was there evidence of a direct relationship between the aggressors and depressive symptomatology, contrary to what was observed in studies between violent behavior and increased depressive symptoms (Klomek et al., 2008; Varela Garay et al., 2013). An explanation to these findings can be linked to cultural aspects such as the normalization of violent behavior, as opposed to the impact of victimization of social interactions.

Another important aspect to consider is the double predictive effect of family self-concept on suicidal ideation. On one hand, a direct and negative relationship with suicidal ideation is observed, and, on the other hand, an indirect and negative relationship is shown through depressive symptomatology, in accordance with empirical literature that shows the protective role of the family, specifically the involvement of the adolescent in the family environment is perceived as positive (DeVille et al., 2020; Fredrick et al., 2018; Pérez-Amezcua et al., 2010). Regarding academic self-concept, it is only related with depressive symptomatology and no association to school victimization is obtained. This last result contrasts with the findings of other studies (Clemensen et al., 2018). An explanation for this finding requires assessing the types, participation roles, frequency, and intensity of the violence in the school context (Ol-
Finally, it was possible to observe the direct effect of depressive symptomatology on suicidal ideation, coinciding with what was found by other studies (Cardoso et al., 2018; Gómez Tabares et al., 2020). The close relationship between these variables confirms the emphasis on studying the early sources of depression from childhood (Bernaras et al., 2019). Similarly, the effect of school victimization on depressive symptomatology is emphasized: the victims being especially vulnerable to the presence of depressive symptomatology (Klomek et al., 2019; Strohacker et al., 2019) and suicidal ideation (Cardoso et al., 2018; Nurius et al., 2019).

Lastly, it is important to highlight that this research has certain limitations to consider for future studies. First, it is a cross-sectional study, although the results are consistent with those obtained from a longitudinal study by Klomek et al. (2013) dealing with the association of violence and victimization with suicidal ideation. Another limitation regarding the measurement of victimization in a school environment is that no distinctions were made between frequency, roles, and situations related to this experience, both as the victim and as the aggressors, as Olweus (2013) suggests. Therefore, it is necessary to assume the reported data with moderation, since the specific characteristics seem to influence the results on suicidal ideation and attempts (Klomek et al., 2019; Strohacker et al., 2019). In sum, the model shows that both the experiences of victimization at school and the perception of little support from the family are associated with depression, which suggests that these factors are key to preventive professional practice on adolescent’s mental health. Hence, the programs would be contemplating the interrelation of different areas (personal, scholar, and family) in the explanation of suicidal ideation.

### 5. Conclusions

It can be concluded that this work provides solid data to comprehend suicidal ideation and its mediative factors related to its prevention, incorporating diverse areas such as family, school, and personal adjustment, since this phenomenon is complex and multifactorial. This fact marks the need to consider the interrelation between contextual aspects (family and school) and personal aspects (depressive symptomatology) that contribute to the preventive understanding of two major current problems in young people: suicide and violence.

### References


