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Biopsychosocial risk and perception of the functionality of the family amongst adolescents from sixth grade in the Jesús Jiménez School

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Abstract

Background: Adolescence is a crucial stage in life. It is characterized by profound changes that define the passage from childhood to adulthood. The proactive detection of risk factors and an early intervention are essential to prevent risky behaviors. The objective of the study was to describe the prevalence of bio psychosocial risk and how adolescents perceive the functionality of the family.

Methods: The study's population was composed of 124 adolescents in sixth grade. The study included both men and women, over the age of 10 years, for whom their parents had provided informed consent. They answered 2 questionnaires: *Tamizaje de Riesgo del Programa de Atención Integral del Adolescente* [Risk Assessment of the Adolescent Integral Care Program] (PAIA) and the Family APGAR.

Results: The most frequent risk factors were: absence of confidant (36.3%), feeling of depression (23.4%), participation in fights (12.1%) and death-related ideas (8.1%). The prevalence of a functional family was 68.6%, of mild dysfunction 27.4% and of severe dysfunction, 4%. The perception of a good family function by adolescents was related to low biopsychosocial risk ($p=0.011$), greater communication with parents ($p=0.000$), absence of a feeling of depression ($p=0.002$), absence of death-related ideas ($p=0.000$) and absence of suicide attempts ($p=0.003$).

Conclusions: The biggest problems found in adolescents were absence of a confidant, feeling of depression, participation in fights and death-related ideas. The functional family was shown as a protective factor against depressive symptoms, death-related ideas and suicide attempts.

Keywords: Adolescent, family, risk-taking, family and community practice, family relationships.

Received Date: November 16th, 2011

Accepted Date: August 23th, 2012

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Abbreviations: EBAIS, Equipos Básicos de Atención Integral en Salud (Basic Health-Team for Integral Attention); PAIA, Programa de Atención Integral de la Adolescencia (Comprehensive Care Program for Adolescents).
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Adolescence is an crucial stage in life, characterized by profound changes that marked the passage from childhood to adulthood; it is a life span in which the person is vulnerable to multiple risks.¹ Studies had demonstrated that a proactive detection of risk behaviors and an early intervention in a clinical environment, are fundamental to prevent this kind of problem in adolescent.²

During an adolescent's development, family and school are the most influential components. Family dysfunction had been associated with the highest prevalence of risk behaviors in adolescents; in the other hand, an adequate family functionality is a protective factor against the development of risk behaviors.³

A useful instrument to explore a family's functionality is the Family APGAR, a quick and
Acta méd costarric. Vol 55 (1), January-March, 2013

simple technique developed by Smilkstein in 1978; this instrument has been incorporating in the daily practice of a family doctor, as a tool to approach family problems and in the research field.⁴

Researches had revealed that the use of screening questionnaires of emotional symptoms and risk behaviors at schools as an important strategy for early diagnosis and early implementation of prevention and treatment measures.³ Also, this routine application is supported by parents and teenagers.⁵

There is a biopsychosocial risk screening instrument widely used in Costa Rica, since its validation in 2000. This questionnaire was used in primary care, as a complement of the Caja Costarricense de Seguro Social's PAIA. It is based in a system of questions related to different risks factors, with a scoring for each answer, and the sum of all points classify the adolescent in low, intermediate and high risk.⁶

For all that has been presented, it was considered of vital importance to make a study of Jesús Jiménez School, to assess the risk factors and their family's functionality. This school stands out because of the higher number of registrations in the province of Cartago, and for having the most diverse socioeconomic strata population and diverse geographical zones in the province.

The general objective proposed in this research was to describe the prevalence of biopsychosocial risk and the perception of the family's functionality of sixth graders in the Jesús Jiménez School, during the first semester of 2011.

Materials and Methodology

This current study was of transversal type and had a quantitative approach with a descriptive scope. The studied population consisted of Jesús Jiménez School's sixth grade teenagers, through February to July 2011. Youngsters were ten years old or above, who were current students of sixth grade and had an informed consent from the parents; and those who didn't wish to be part of the research, or were absent in the questionnaire application date were excluded. To participate in the research, an informed consent must be signed by the parents and an informed assent from the teenagers was requested. The study was approved by the Local Bioethics Committee of Hospital Max Peralta.

The data recollection was made through the followed questionnaires: Risk Screening from the PAIA and Family APGAR. Both instruments were applied in a group formation but each teenager answered the questions individually and confidentially.

Before obtaining the analysis information, a review of each questionnaire was made, to detect which adolescents

presented risks factors, with the purpose of sending them on time for an adequate attention by professionals in psychology, social work and family medicine of Cartago Health Center.

Thereafter, the data was tabbed and depurated in an Excel 2007 program. Simple frequencies of all variables were made, and the prevalence with its respective 95% confidence indexes was estimated. For the quantitative variables, measures of central tendency and dispersion were calculated. Statistical association tests between independent variables (family's functionality perception) and dependent variables (biopsychosocial risk factors) were made; this comparison was made using the Chi square test. The statistical analysis was made with EPIDAT3.1 and SPSS17. The confidence level was 95% and the statistical significance level was $p < 0.05$.

Results

The total of students in sixth grade from this center was 164. There were 30 parents who didn't sign the informed consent. Ten teenagers that have the informed consent of their parents were excluded, six of these teenagers decided not to sign the informed assent and the other four, were absent during the questionnaire application date. Thus, only 124 teenagers were part of this study.

According to age, 46% (CI95% 36,8-55,1) of the population consisted of male, and 54% (CI95% 44,9-63,2), of female. The ages were between 11-14 years old, with an average of 11.66 years old, with a standard deviation of 0.75 and a variation coefficient of 6.43%. According to residence, almost half of the teenagers lived in zones that belonged to EBAIS El Carmen, Manuel de Jesús Jiménez and La Pitahaya, all attached to Cartago Health Center.

According to the score obtained on PAIA's Risk Screening, each partaker in this research was classify according to the level of biopsychosocial risk, in three groups: low (0-8 points), intermediate (9-13 points) and high (14 points or higher). The average score was 3.07 with a standard deviation (SD) of 2.6 and a variation coefficient of 84.62% (Table 1).

The prevalence of biopsychosocial risk factors was obtained through PAIA detection instrument, using

Table 1. Biopsychosocial Risk Groups Prevalence. Jesús Jiménez School, first semester 2011

Risk Grade	N	%	CI 95%
Low	120	96,8	92,0-99,1
Intermediate	3	2,4	0,5-6,9
High	1	0,8	0,0-4,4

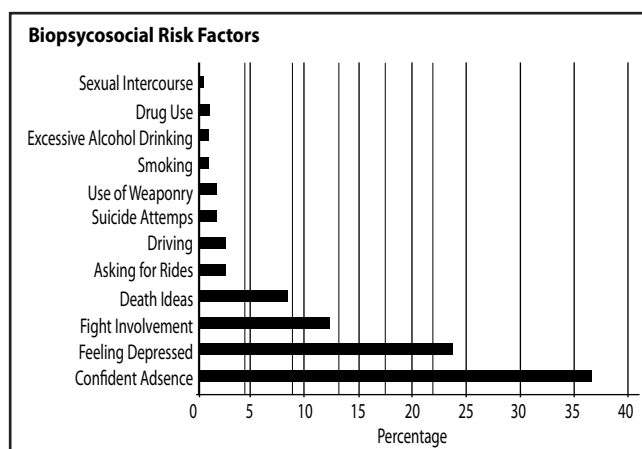


Figure 1. Biopsychosocial risk factors prevalence in percentage. Jesús Jiménez School, first semester, 2011

dichotomous closed questions, to determined if the teenager presented a risk factor, according to his/her recent behavior (Figure 1).

The data about how teenagers perceived the functionality of their families was obtained through Family APGAR. According to the scoring, it was stratified in three groups: Good Functionality (8-10 points), Mild Dysfunction (4-7 points) and Severe Dysfunction (0-3 points). The average score was 7.7 points, with a SD of 2.01 and a variation coefficient of 25.9% (Table 2).

Through the research, a significant relation between a good family functionality with absence of risk factors was defined: feeling depressed ($p=0,002$), suicide attempts ($p=0-003$) and death ideations ($p=0,000$). For the following variables, an association with family functionality was not found: smoking ($p=0,794$), excessive consumption of alcohol ($p=0,263$), drug use ($p=0,263$) and involvement in fights ($p=0,396$) (Table 3).

Also, an association between perception of a good family function and the presence of low biopsychosocial risk was determined ($p=0.011$). And also, an association between perception of functional families and the constant communication with the parents ($p=0,000$).

Discussion

In relation to the prevalence of biopsychosocial risk groups, the study showed a high percentage of low risk teenagers, indicating that this group is susceptible to receive primary prevention measures for risk behaviors.

The absence of a confident had the highest prevalence among biopsychosocial risk groups, presenting in more than one third of the teenagers among sixth graders. This fact increases the probability for teenagers to fall into risk

Table 2. Perception of Family Function Prevalence. Jesús Jiménez School, first semester 2011

Family Function	N	%	CI 95%
Good Function	85	68,6	60,0-77,1
Mild Dysfunction	34	27,4	19,2-35,7
Severe Dysfunction	5	4,0	1,3-9,2

Table 3. Association between the absence of risk factors and family function. Jesús Jiménez School, first semester 2011

Absent factors	Good Function	Percentage Mild Dysfunction	Percentage Severe Dysfunction
Feeling Depressed	74,7	24,2	1,1
Smoking	68,3	27,6	4,1
Excessive Alcohol Drinking	69,1	26,8	4,1
Drug Use	69,1	26,8	4,1
Suicide Attempts	68,8	27,9	3,3
Death Ideas	71,9	26,3	1,8
Fight Involvements	70,6	25,7	3,7

behaviors due to the lack of social support, as analyzed in a 2007's Spanish study.⁷

The second more prevalent risk factor in this population, was feeling depressed in last month; this problem was present in almost a quarter of the studied population, with the highest prevalence obtained in the study by Pérez-Milena and colleagues, where 12,9% of teenagers refer feeling "sad all the time".⁷

The presence of death ideas had a prevalence of 8.1%. It draws attention that the prevalence for this risk factor is higher in a 2008's Chilean study, when it revealed that 6.11% of teenagers refer feeling "extremely" desperate and senseless, indicating a high risk of suicide in this group.³

Suicide attempts had a prevalence of 1.6%. This amount is considered low when comparing it to a 1999's national study, when the prevalence of hopelessness (indicative of high suicide risk) was close to 25% in teenagers of high school 4th and 5th graders.⁸ However, the results are still concerning, when taking the Costa Rica's IV State of Children and Adolescent Rights as a reference, that reported in 2006 a total of 41 suicide attempts in teenagers⁹, the percentage found in the research was only the tip of the iceberg of the great problem suicide represents in the country.

The prevalence of teenagers involved in fights was of 12.1%; also the prevalence for the use of weapons among sixth graders had a prevalence of 1.6%; both factors represent a severe problem in schools. As manifested by PAHO (Pan American Health Organization), violence is one of the greatest difficulties of public health worldwide, so it is important to worked on school, community and family settings to stimulate teenagers to acquired preventive abilities against violent behaviors.¹⁰

The prevalence of driving or asking for rides/lifts was of 2.4% in both cases. These behaviors are life threatening for this population and other people as wells. The consequences of this risk behaviors are shown in United States statistics, where accidents (included those related to reckless driving of vehicles) are the main cause of death among teenagers.¹¹

In relation to drug use, the prevalence for active tobacco smoking was of 0.8%, also 0.8% for alcohol drinking in the last semester and 0.8% for other drugs. Comparing this data, IAFA's 2006 national research had a prevalence of active tobacco smoking of 4.2%, alcohol drinking in the last 12 months of 20% and other drugs in 6.6% among seventh graders.¹²

In 2006's national study, the onset age reported for alcohol drinking was 12.85 years old in males, and 13.01 years old in females; and the age onset for tobacco smoking was 12.38 years old for males and 12.88 years old for females.¹² The average age for the studied population was 11.66 years old, this number is below the age onset for tobacco smoking and alcohol drinking nationwide, justifying that the prevalence found in national statistics is lower.

In relation to sexual intercourse, the prevalence among sixth graders was 0%. In comparison with Santander and colleagues study, developed in Chilean schools, a prevalence of 14.3% was found in teenagers under age 13.³ On national level, 2010's Sexual and Reproductive Health poll, stages for sexual intercourse, an average of onset age of 15 for males and 16 for females. So, a 0% prevalence of sexual intercourse in a school population with an average age of 11.66 years old is according to Costa Rica's reality. This indicates that preventive interventions for teenagers must be started, inside the National Sexuality Policy, recently acknowledge by the Ministry of Health.¹³

The prevalence of the family's functionality perception on this study demonstrated that 68.6% had a good family function, differing totally from a 2008's Chilean study that reported that 66.5% of teenagers perceived their families as dysfunctional;³ however, there are important similarities with a 2009's Spanish study, where teenagers reporting a good family function was presented in 77% of cases.¹⁴ The prevalence of family dysfunction is 31.4% in this study, similar to statistics among general populations from different studies, with a family dysfunction between 16 and 35%.⁷

The fact that sixth graders perceived their families as functional is a beneficial factor; it is known that the family system is responsible for the teenager growth, fulfilling their tasks to acquired emotional maturity and that a functional family is and will always be for a teenager's health, the best preventive agent.¹⁵

The perception of a good family function showed a relation with the presence of low biopsycosocial risks ($p=0,011$). This association stands that a good family function can be a protective factor against risk behaviors among teenagers; instead, a family dysfunction would be related to a higher biopsycosocial risk, as demonstrated in Roustit and colleagues study; that defined an association between family disruption and psycosocial maladjustment in teenagers.¹⁶

The absence of feeling depressed as a risk factor had been linked to the perception of good family function ($p=0,002$). So, a functional family can be a protective factor against development of depression. In comparison, Pérez-Milena and colleagues study in Spain, found an association between family dysfunction and presence of depression symptoms, proposing that family dysfunction could be a predisposing factor for depression;⁷ similar to Santander and colleagues study in Chile, where the risk to present emotional symptoms was slightly superior in families perceived as dysfunctional.³

In other variable crossing, a good family function was associated with the absence of suicide attempts ($p=0,003$), showing that a functional family could be a protective factor against suicides in adolescents. This is an important finding, since the IV State for Children and Adolescents Rights, indicates suicide as one of the greatest problems among teenagers.⁹

With the obtained data in this research, the association between perception of a good family function and the absence of suicide ideas ($p=0,000$) was found, referring to a protective relation against suicide ideas in teenagers with functional families. The above agrees with the study results related to depression and suicide attempts references received by the Hospital Calderón Guardia's Adolescent Clinic, where family dysfunction was a crisis triggers.¹⁷

Also, a relation between perception of family as functional and constant communication with parents ($p=0,000$) was defined. This association confirms what Santander and colleagues described about teenagers belonging to functional families were the ones with better communication with their parents.³

Finally, it is recommended that future studies make a cohort or case-control design, based on this research, to analyze deeper the relationship of causality between the variables studied. In addition, it is necessary that the Caja Costarricense de Seguro Social continue with the routine

application of screening and risk assessment of family functioning of adolescents, both in schools and in the EBAIS, to ensure comprehensive care of this population.

Conflict of Interests: the author reports none.

Thanks: We thank MSc. Mayra Cartín Brenes for her valuable advice.

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