

# Association Between Family Functioning and Depressive Symptoms Among Colombian High-School Adolescents

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## ABSTRACT

The study aimed to estimate the correlation between family functioning and depressive symptoms among high-school adolescents in Santa Marta, Colombia. A cross-sectional study was done, which involved a sample of high-school students between 13 and 17 years old. Students completed the Family APGAR questionnaire that quantifies adaptation, participation, growth, affectivity, and problem-solving in the family context and the World Health Organization-5 Well-Being Index (WHO-5-WBI) quantifying depressive symptoms. Spearman ( $r_s$ ) correlations established the relationship between the Family APGAR item scores and the total WHO-5-WBI score. 1,462 students participated in the study ( $M = 15.98$ ,  $SD = 0.82$ ), and 60.33% were females. The correlations between the Family APGAR items and depressive symptoms scores were  $r_s = 0.34$  for adaptation,  $r_s = 0.37$  for participation,  $r_s = 0.33$  for growth,  $r_s = 0.33$  for affectivity, and  $r_s = 0.38$  for problem resolution, all with  $p$ -values  $< 0.01$ . In conclusion, the Family APGAR items correlated positively with depressive symptoms. Family functioning should always consider in studies that explore depressive symptoms in high-school students.

## Keywords

adolescents, depression, family functioning, cross-sectional studies

## RESUMEN

El estudio tuvo como objetivo estimar la correlación entre el funcionamiento familiar y los síntomas depresivos en adolescentes de media vocacional en Santa Marta, Colombia. Se realizó un estudio transversal, que involucró a una muestra de estudiantes de secundaria entre 13 y 17 años. Los estudiantes completaron el cuestionario APGAR familiar que cuantifica la adaptación, participación, crecimiento, afectividad y resolución de problemas en el contexto familiar y el Índice de Bienestar General 5 de la Organización Mundial de la Salud (OMS-5-IBG) que cuantifica síntomas depresivos. Las correlaciones de Spearman ( $r_s$ ) establecieron la relación entre las puntuaciones de los ítems del APGAR familiar y la puntuación total del OMS-5-IBG. Un total de 1462 estudiantes participaron en el estudio ( $M = 15,98$ ,  $DE = 0,82$ ), y el 60,33% eran mujeres. Las correlaciones entre los ítems del APGAR familiar y las puntuaciones de los síntomas depresivos fueron  $r_s = 0,34$  para adaptación,  $r_s = 0,37$  para participación,  $r_s = 0,33$  para crecimiento,  $r_s = 0,33$  para afectividad y  $r_s = 0,38$  para resolución de problemas, todos con valores de  $p < 0,01$ . En conclusión, los ítems del APGAR familiar se correlacionaron positivamente con los síntomas depresivos. El funcionamiento familiar siempre debe ser considerado en estudios que exploren síntomas depresivos en estudiantes de secundaria.

## Palabras Clave

adolescentes, depresión, funcionamiento familiar, estudios transversales

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### Introduction

Stress is one of the most used causes to explain depressive symptoms in adolescents, and this applies to the young person and his family. Thus, studies report that adolescents are at high risk of reporting depressive symptoms after experiencing some form of family dysfunction (Aseltine, 1996; Daley et al., 2000).

Family dysfunction can be a cause or consequence of depressive symptoms in adolescents. The relationship between depressive symptoms and adolescent family functioning is not well established (Keenan-Miller et al., 2012); however, research suggests a bidirectional character (Ewing et al., 2015; Keenan-Miller et al., 2012; Saha & Tamanna, 2019; Wichstrøm, 1999). In any case, family functioning becomes critical in preventing and timely diagnosis of depressive symptoms.

The prevalence of family dysfunction in families with adolescent children can be between 22% and 33% (Escribá et al., 2005; Zapata-Gallardo et al., 2007), and this prevalence can double in families with adolescents with depressive symptoms of clinical importance in 40% to 50% (Campo-Arias et al., 2005; Campo-Arias et al., 2006; Cogollo et al., 2007). Few studies show the relationship between family functionality and depressive symptoms (Ewing et al., 2015).

The Family APGAR has become a valuable instrument to assess the degree of satisfaction with family and social support because it is a short test, easy to administer. Without a clinical conception, it is a screening test in the context of family health care (Smilkstein, 1978). In the words of the same author: "it is a test that allows anticipating the needs of the family" and evaluates five dimensions: adaptation, participation, growth, affectivity, and problem-solving. Additionally, the author's vision of functionality is specified in the items that focus on the members' satisfaction, as Gómez & Ponce (2010) mentions well. "Smilkstein had the concept that the family functioning was the care and support that an individual receives from his own family" (p. 102). In adolescents, tests like this are part of the routine evaluation of family functioning. They are essential in primary care, given the relationship between family dysfunction and remarkable outcomes, such as academic performance, depressive symptoms, or substance use (Gómez-Bustamante & Cogollo, 2010; Gómez-Bustamante et al., 2013).

Therefore, below, a description is made of other theoretical models on family functioning related to a disaggregated analysis of Family APGAR items to find commonalities that complement and deepen the study of family variables in future research. The interest is tracing a path of the possible elements shared with other models that allow recovering the intention to use tests to anticipate adolescents' care needs with depressive symptoms in the framework of working with families.

Various studies report that the Family APGAR dimensions are related to two of the most used models to assess family functioning: Walsh's family resilience model (Walsh, 2003, 2012, 2016) and Olson's circumplex model (Olson et al., 2014).

Walsh's model focuses on family resilience, defined as "the family's capacity as a functional system, to fight and recover from stressful situations; this capacity makes the family more robust and recursive (Walsh, 2003, 2012, 2016a). Based on a meta-analysis, Walsh identified nine key transactional processes related to family functioning, such as family organization and communication factors linked to Family APGAR dimensions used in the present study (Walsh, 2003).

The organizational factors include flexibility, connection, and mobilization of social and economic resources. Flexibility is the ability to adapt and reorganize the family structure to give it continuity and prevent problems and the presence of various forms of leadership that prove to be nurturing, guiding and, protective, cooperative, caring (Walsh, 2016b). In the Family APGAR, the growth dimension is related to this flexibility factor. Because it is interested in the realization of the family as a product of the mutual support of its members, leading to emotional maturity. They must reorganize these resources to give continuity to the family unit; The connection implies mutual support, respect for the members' differences and needs, and the search for reconnection when there are unfair deals or disagreements (Suárez & Alcalá, 2014).

For the Family APGAR, the participation dimension is similar to the connection dimension since it implies the members' cooperation in decision-making and maintaining the family order (Walsh, 2016). Resource mobilization includes community mentoring and financial support. The Family APGAR uses a dimension like a resource mobilization called adaptation, which translates into "how time (space and money) is shared or the satisfaction with the time committed to the family by its members."

The communication factors proposed by Walsh mainly refer to clarity, shared emotional openness, and collaborative problem-solving. Clarity consists of detailed and reliable information between family members; shared emotional openness leads family

members to express their painful experiences and promotes positive interactions (Walsh, 2003). In the Family APGAR, there is a dimension like openness called affectivity, how emotional experiences are shared or the members' satisfaction with the intimacy and emotional interaction in the family". Collaborative solution refers to the creative search for solutions to problems, shared decisions based on negotiation and equity, and family goals. In the Family APGAR, there is a dimension related to the collaborative solution called problem-solving, marked by the family member's commitment to meet the other members' physical and emotional needs (Suárez & Alcalá, 2014).

Another widely known model for analyzing family functioning is the one proposed by Olson (Olson et al., 2014). The author established a typology to classify and manage the types of family relationships. The current investigation will focus on the three dimensions and their relationship with the Family APGAR.

Cohesion refers to family members' proximity to each other; indicators of cohesion are time or shared activities, joint decision-making, independence, or family members' dependence (Olson et al., 2014). In the Family APGAR, Olson's cohesion dimension links to all the communication factors mentioned in the Walsh model already explained above, while adaptability relates to the model's organizational factors. Adaptability is also known as flexibility. It refers to "the system's ability to change its power structure, the dynamics between roles and the rules of family relationships in response to stressful situations typical of the moment of family life (Walsh, 2003). For the Family APGAR, this dimension of Olson's Adaptability is identical to the so-called adaptation. Communication is the Olson model's transversal element; any change in this dimension modifies adaptation and family cohesion. Therefore, the model does not describe communication (Olson et al., 2014).

#### Family dysfunction and depressive symptoms

The family environment can influence depressive symptoms in different individual and relational ways (Caspi et al., 2003; Nomura et al., 2002; Weissman et al., 2016; Weissman, 2002). Individual factors include temperament and genetic predisposition to depressive symptoms, while relational factors include parental depression, marital conflict, and the dyadic parent-child relationship.

Individual factors make adolescents more likely to be more sensitive to the effects of parental discord and criticism (Patrick & Windle, 2001). Adolescents with genetic predispositions have a higher risk of suffering depression in adulthood, and this risk is higher if it increases in stressful environments (Caspi et al., 2003). In the present study,

it is clear that families with adolescents with depressive symptoms relate to a stressful situation that compromises their resources. Hence, family resilience may appear as a mediating factor.

Genetic predisposition also plays a role in adolescents; thus, the children of depressed parents are more at risk of showing poor behavioral and psychological results than those without a history of mental disorders (Weissman, 2002). This factor can mediate the higher frequency of depression in marital conflict situations (Nomura et al., 2002). Children of parents with a psychiatric history are at increased risk for anxiety and depressive disorders in adolescence (Weissman et al., 2016). For example, in a meta-analysis of 46 studies that examined the parental behaviors of depressed mothers, it was shown that they had a greater tendency to display hostile, negative, and low-commitment behaviors than non-depressed mothers (Lovejoy et al., 2000).

Likewise, depressive symptoms are associated with aspects of the parent-child relationship, especially in the dimensions of warmth/support and control/autonomy. Parental warmth or care refers to parental acceptance and responsibility, emotional warmth, and a tendency to perceive positive results (Gladstone & Parker, 2005). Studies generally indicate a significant and strong association between poor parental care and many depressive symptoms in adolescents (Chang, 2015; Cummings & Davies, 2002; Galarza et al., 2018). In the case of the control dimension, the results are mixed. Parents who exercise greater control over or overprotect their children reported a greater tendency to depressive symptoms. Nevertheless, other studies found no association between control and the presence of depressive symptoms (Chang, 2015; Greaven et al., 2000).

Conflict, understood as part of family dynamics, is healthy because it is moderate, allowing family members to resolve conflicts, develop problem-solving strategies, and serve as models for conflict resolution interpersonal (Cummings, 1994; Cummings et al., 2005). However, when marital conflict is intense, for example, divorce, these are associated with the appearance of emotional problems in adolescents. For example, adolescents of separated parents report more depressive symptoms 4 or 6 months after the separation. These decrease subsequently between the seventh and ninth months of the separation from the parents (Gobbi et al., 2015).

The present study

This study aims to estimate the correlation between the Family APGAR items with depression symptoms. To date, the different investigations in the Colombian context have globally managed the scores in the Family APGAR questionnaire without

disaggregating the different dimensions of the instrument. This disaggregation can better understand the factors of family dysfunction and provide a comparative panorama with other theoretical models. This approach promotes a typical dialogue between models that allow identifying and intervening in the depressive symptoms associated with family functioning, as long as the family anointing may account for some part of the symptoms (Ewing et al., 2015; Keenan-Miller et al., 2012; Saha & Tamanna, 2019; Wichstrøm, 1999).

The present study's objective was to estimate the correlation between family functioning and depressive symptoms in adolescents of vocational mean, tenth and eleventh grade, from Santa Marta, Colombia.

## **Method**

### ***Design***

Researchers designed a cross-sectional study. A research ethics board approved the project (a State University of Colombia, an ordinary session on 12th July 2018). The research considered ethical recommendations for research in human beings stipulated in resolution 8430 of 1993 of the Colombian Ministry of Health. The participants' parents signed the informed consent, and the students who agreed to participate gave the respective consent (Ministry of Health of Colombia, 1993).

### ***Participants***

The universe was 10,810 tenth- and eleventh-grade students enrolled in official and private educational institutions in Santa Marta, Colombia. Researchers estimated a probabilistic sample stratified by groups of 1,948 students. Each group is expected to consist of 30 students. They considered a 20% replacement for losses (not obtaining authorization from the educational institution, consent, or assent). It was expected to find a 50% prevalence of family dysfunction, an alpha error of 5%, and a margin of error of 2%. The participation of adolescent students between 13 and 17 was requested to respond autonomously to the research questionnaire without visual limitations or literacy.

## ***Instruments***

### *Family APGAR*

This instrument consists of five items that explore adaptability, participation, growth, affectivity, and resolving capacity. Each item presents five possible response options (never, seldom, sometimes, almost always, and always). The responses are rated from zero to four; therefore, the total scores can be between zero and twenty; the higher the score, the better the family functioning (Smilkstein, 1978). This instrument presented high internal consistency in Colombian school adolescents (Forero et al., 2006).

### *World Health Organization-5 Wellbeing Index (WHO-5-WBI)*

The WHO-5-WBI is a self-applied scale consisting of five items that request the perception of general well-being (absence of depressive symptoms) during the previous fifteen days. Each answer is rated from one to four; the total scores can be between five and twenty. Lower scores indicate depressive symptoms and higher acceptable general well-being (World Health Organization, 1998). The WHO-5-WBI has shown high internal consistency in previous studies with adolescents enrolled in the Colombian Caribbean (Campo-Arias et al., 2015).

## ***Procedure***

The period of information collection was between 1st September and 31st October 2018. The students filled out the sociodemographic information and completed the Family APGAR and the WHO-5-WBI. The research team explained the study's objectives to the educational institutions' authorities, distributed and compiled the signed informed consent to the parents or legal representatives and the students' assent.

## ***Analysis of data***

The descriptive analysis included observing the frequencies and percentages for categorical variables, the mean ( $M$ ), and the deviation ( $SD$ ) for quantitative variables. The correlation between the score in each item of the Family APGAR and the total score in WHO-5-WBI was established with the Spearman correlation ( $r_s$ ) since the Family

APGAR has an ordinal response pattern,  $r_s$  equal to or greater than 0.30, with p-values < 0.01. Cronbach alpha reported the reliability of the Family APGAR and WHO-5-WBI. Researchers completed the analysis in IBM-SPSS 23.0.

## Results

One thousand four hundred sixty-two students between the ages of 13 and 17 participated ( $M = 15.98$ ,  $SD = 0.82$ ); women represented 60.33% of the sample, tenth-grade students 55.27%, and residents in low-income neighborhoods 49.66% of the participants. See Table 1.

Table 1.

*Characteristics of the students (N = 1,462).*

Variable	n	%
<b>Age</b>		
13	5	0.34
14	38	2.60
15	382	26.17
16	600	41.00
17	437	29.89
<b>Gender</b>		
Female	882	60.33
Male	580	39.67
<b>Grade</b>		
Tenth	809	55.33
Eleventh	653	44.67
<b>Income</b>		
Low	547	37.41
Middle-high	725	49.59
No answer	190	13.00

In the present study, both Family APGAR and WHO-5-WBI showed high internal consistency, with Cronbach alpha of 0.82. For the Family APGAR, the total score was between 0 and 20 ( $M = 12.41$ ,  $SD = 4.22$ ), and the WHO-5-WBI was between 5 and 20 ( $M = 12.19$ ,  $SD = 3.21$ ). Table 2 presents the Family APGAR response pattern.

The correlations for each Family APGAR item and the total WHO-5-WBI score were between 0.33 and 0.38. The correlation between the total scores between both scales was  $r_s = 0.45$ ,  $p < 0.01$ . See more details in Table 3.



Table 2.

*Response pattern in the Family APGAR, frequencies, and (percentages).*

Item	Never	Seldom	Sometime	Frequently	Always
Adaptability	52 (3.56)	157 (10.74)	432 (29.55)	440 (30.09)	381 (26.06)
Participation	100 (6.84)	193 (13.20)	536 (36.66)	387 (26.47)	246 (16.83)
Growth	71 (4.86)	133 (9.10)	416 (28.45)	470 (32.15)	372(25.44)
Affectivity	113 (7.73)	207 (14.16)	546 (37.35)	374 (25.58)	222 (15.18)
Resolution	67 (4.58)	197 (13.47)	471 (32.22)	411 (28.12)	316 (21.61)

Table 3.

*Correlation between each Family APGAR item and the total score in WHO-5-WBI.*

Item	$r_s^*$
Adaptability	0.34
Participation	0.36
Growth	0.33
Affectivity	0.33
Resolution	0.38

\*All p-values < 0.01.

## Discussion

The present analysis shows statistically significant correlations between the Family APGAR dimensions and depressive symptoms in adolescents with a vocational average in Santa Marta, Colombia.

The association between the adaptability dimension of the Family APGAR and depressive symptoms in the present study was significant, which aligns with previous studies that confirm that adolescence is when conflicts increase in intensity and number, especially in the first part of this stage.

The statistically significant correlation between depressive symptoms and the Family APGAR participation dimension aligns with research on emotional warmth, care, and affective control (Chang, 2015; Gladstone & Parker, 2005). Thus, families with a lower emotional connection can be considered less warm and caring, and consequently,

adolescents show a greater tendency to report depressive symptoms (Gladstone & Parker, 2005). Families with high affective control also report more depressive symptoms (Chang, 2015).

Regarding the correlation of the growth dimension of the Family APGAR and depressive symptoms, it is consistent with studies that show that high levels of stress go against family growth. For example, some studies indicate that adolescents with a genetic predisposition present depressive symptoms in stressful environments, such as family conflict (Caspi et al., 2003). Therefore, it can infer that the association between the growth dimension of the Family APGAR is linked to depression to the extent that stress and family crises prevent the activation of adaptive family resources from resolving it. In general, it has been observed that adolescents living amid family conflicts show a higher risk of depressive disorders in families living in conflict situations (Lim, Chung & Joung, 2016).

This study shows a statistically significant correlation between the affective dimension of the Family APGAR and depressive symptoms. These are in line with the studies indicating that maternal depression can be linked to difficulties for adolescents in establishing emotional commitment and developing positive interactions that show affection both within and outside the family (Lovejoy et al., 2000). These authors suggest in the same way that the accumulated effect over time of negative interactions between the depressive mother and the child can generate future difficulties for emotional expression in the child and be associated with depressive symptoms.

Finally, the problem-solving dimension of the Family APGAR was significantly associated with depressive symptoms. This finding is consistent with the postulates of the response style theory. The theory states that those who are distracted by the presence of thoughts in a dysphoric state of mind and who have problems solving the situation tend to depression than anxiety, which was more frequent in girls than in boys (Alloy et al., 2017).

### ***Implications for psychology***

Nurses and psychologists play a critical role in medical care in school to evaluate family functioning and its implication on students' psychological well-being. School psychology can design and develop preventive programs that show promising results to address family dysfunction and depressive symptoms, such as training in problem-solving

can improve family communication or better affective response in families with a member with a mental disorder (Santesteban-Echarri et al., 2018; Tompson et al., 2012). Unfortunately, psychologists in school settings are scarce in middle-income countries like Colombia.

### ***Strengths and limitations***

An essential contribution of the present investigation is to present the correlations of the Family APGAR's disaggregated items and the scores on depressive symptoms or general well-being in adolescents. However, this study has a cross-sectional research limitation that does not specify the direction or direction of causality. Students from sixth to ninth grade (middle school) did not participate. They did not consider other models to measure family functioning, resilience, or circumplex, such as parents and other family members' perceptions, to have a complete overview of family dynamics.

### ***Conclusions***

In conclusion, all aspects of family functioning quantified with the Family APGAR (adaptation, participation, growth, affectivity, and problem-solving) correlate positively with depressive symptoms. Family functioning should always consider in studies exploring depressive symptoms in school-aged adolescents. New research that includes sixth through ninth-grade students and exploration of family functioning from other theoretical perspectives is needed.

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