Social and family factors associated with quality of life in children in schools from Piura, Peru

Factores sociofamiliares asociados a la calidad de vida en niños de colegios de la ciudad de Piura, Perú

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Abstract

Objective: To determine the socio-familial factors associated with quality of life within the family in children of schools in Piura, Peru. **Subjects and Method:** A cross-sectional study in a convenience sample of children between 3 to 6 years in schools in the city of Piura, Perú. The quality of life was measured by the HOME test, with data adjusted to the Machover and Koppitz test, and was also associated with other social and family variables. *P* values were obtained by generalised linear models, adjusting for the residence of each subject. **Results:** Of the 431 interviewees, 64% (275) were male. The median age was 4 years old. A poor quality of life was observed in 50% of children. Traits of violence (*P* < .001) and aggression (*P* < .001) were associated to higher frequencies of poor quality of life, adjusted for shyness, dependence, and immaturity. The perception of parent's love (*P* = .005), living with both parents (*P* < .001), playing with someone at home (*P* = .036), the person with whom plays most is the mother (*P* = .003) or both parents (*P* = .004) were associated with the quality of life in the survey. **Conclusions:** A large percentage of children with a poor quality of life was found. The social and family protective factors were to live with both parents, and the demonstration of affection between both parents and play with both.

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Introduction

The World Health Organization (WHO) establishes that mental health is a priority, especially if it is related to children development[1, 2], because an adequate development of its mind sphere will affect its future, forging its identity, the capacity to manage thoughts and emotions, the creation of social relationships and the aptitude to learn, as well as the active participation in the society[3]. There are several factors involved in the mindset of infants, but one of the most important aspect without any doubt is family. However, some research studies report that there are more than one million children from developed countries live in poor conditions[4], creating an inadequate environment around the child[5,6], as in cases of family violence, continuous relocations, among others[7]. This causes 3 to 4 times more vulnerability in children, reflected in anxiety and aggressiveness[4].

According to Wallon's theories, children at school are still living a personality development, so it is susceptible and influenced by the environment in which it is developed[8]. Therefore, identifying the quality of life in the family environment of these children is extremely important and it requires a detailed evaluation[9]. In psychology, one of the tests widely used for its evaluation is the test of the human figure, which is a projective technique of evaluation of the personality, as well as the emotional and social traits[9]. It also provides information about children's anxiety, concern, and attitudes[10]. If these results conform to the Home Observation for Measurement of the Environment (HOME) scale, it can be a useful instrument in order to evaluate the quality of life[11].

In Peru, although mental health is the second research priority[12], it is mostly addressed in adults[13]. The objective of the study was to determine the social and familiar factors associated with the quality of life in children of the schools of Piura, Peru.

Subjects and Methods

Desing and population

A cross-sectional observational study was carried out between January snd June 2015, in 5 educational institutions (3 private and 2 national) from the city of Piura. A census-type convenience sampling was conducted, performing an interview to 445 students at the initial level, between 3 and 6 years old. Students enrolled in the study period were included, with prior consent - through a signed document from their parents - and verbal assent of the children, where they stated that they agree to participate in the study (rejection rate = 2,7%). Those who did not respond correctly to the test

(unanswered questions and/or incomplete answers), or did not correctly perform the indicated drawings (according to the minimum criteria that were required for the evaluation of the test) were excluded, achieving a total of 433 children evaluated.

Variables

The main variable was the quality of life of the evaluated child, established under the analysis of the graphic revision of the drawings made by the infants. Anxiety, shyness, dependence, violence and aggressiveness were analyzed in each one of them (all of these using the Machover and Koppitz test, which consists of the analysis of the child's drawing on himself and/or his family) [14, 15]. Subsequently, the answers were interpreted based on the HOME scale, obtaining the variable of children's quality of life. Good quality of life was considered: dependence and/or immaturity; Regular quality of life: anxiety-dependence or anxiety-shyness, and poor quality of life: anxiety-dependence-shyness and/or aggressiveness and/or violence[10]. For statistical analysis reasons, family's life quality was classified as bad ('interest' category) or not bad (linking the regular and good categories). It should be noted that the HOME scale also contemplates many more evaluation parameters, but only those described above were considered in order to response to the study objective.

In addition, we measured social and family variables of the children: gender, age, type of educational institution (public or private), cohabitation with parents (with both parents, with one of them or with another person), interpersonal relationships in the family (expression of affection from parents to children), alteration of the harmony at home (if there are frequent shouts at home and the person who frequently generates the noise) and finally, if the children play inside their home and with which members of the family perform this activity.

Procedure

After obtaining the respective permission from the educational institutions, as well as the consent of the parents and/or caregivers, the children were evaluated, which was done during the regular classes at school, taking groups of 5 at a time in a place inside the same institution, without distractions and with adequate light. The verbal assent of the children was considered, avoiding that they felt forced to do something that they did not want. The decision to make verbal assent in the children was made (this in despite knowing that infants of this age range are not able to provide a correct assent) as a result of the agreement between the researchers and the educational institutions where the interwiew were carried out. Thus, the test of human figure of Machover and Koppitz and the data gathe-

ring began, the latter was designed and codified by a psychologist specialist in family therapy.

The data sheets were handled by codes to maintain confidentiality. Less than 1% of data records were excluded because they were not completed properly. Then, they were double digitized in a database generated in Microsoft Excel program (version 2010, Windows) for analysis.

The project was approved by the Ethical Committee of the National Child Teaching Hospital San Bartolomé (code CEI: EX15021). In addition, reports were sent to each of the Schools enrolled.

Estatistical analysis

It was performed with the program Stata v. 11.1 (Stata Corp LP, College Station, TX, USA). Frequencies and percentages were used for the descriptive analysis of the qualitative variables. The normality of the quantitative variables was evaluated using the statistical test of Shapiro Wilk (this option was chose to have a limit point for the determination of 'normality' -0.05-, compared to the method of visual observation of the Curve of normality in each variable), followed by the best measure of central tendency and dispersion according to the result obtained (from its median and range, being the measures recommended according to the previous analysis, compared with the mean and standard deviation).

For the bivariate analysis of life quality according to the institution of origin, Pearson's chi-square statistical test was used without correction (since it fulfilled the assumptions for its use). Generalized linear models were used to obtain crude and adjusted Prevalence Ratios (PRa), 95% confidence intervals (95% CI) and p values. To perform this analysis, the *Poisson family*, the log link function and the school of origin were used as the cluster of adjustment. A 95% confidence level was considered for all statistical tests; *p value* <0.05 was considered statistically significant.

Results

From 431 interviewees, 63.8% were males and the median age was 4 years (range: 3-6 years of age). 7.2% did not live with both parents and most stated that they lived alone with their mother (54.8%); In addition, 21.1% reported that there are regular shouts at home, especially of both parents (40.5%). Other descriptive values are shown in Table 1.

The poor quality of life in children was 49.7% (214). When determining the frequency for each school evaluated, the percentages differed between 33 to 71% (*p* < 0.001, using the chi-square test) (Figure 1).

Association of violence and/or aggressiveness was considered as poor quality of life plus some other parameters such as anxiety, shyness, dependence and immaturity; the latter were independently associated with quality of life in most cases. This is shown in Table 2.

When performing the bivariate analysis to determine the social and familiar factors that are associated to the quality of life, the perception that child's parents love him/her was obtained (p = 0.005), living with both parents (*p* <0.001), the fact that he/she playes with someone at home (*p* = 0.036), the mother (*p* = 0.003) or both parents (*p* = 0.004) is associated with quality of life in the children surveyed. This is summarized in Table 3.

Table 1. Socio-educational characteristics of children from five schools in Piura

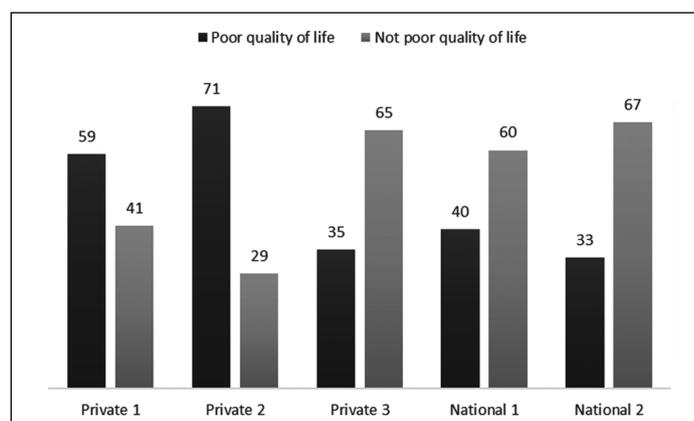| Variable	n	%
Sex		
Female	156	36.2
Male	275	63.8
Age (years) *	4	3-6
You live with both parents		
Yes	399	92.8
Do not	31	7.2
I live alone with my dad	5	16.1
I live alone with my mom	17	54.8
I live alone with another person	9	29.1
At home, they shout regularly		
Do not	340	78.9
Yes	91	21.1
My dad shouts more	27	30.3
My mom screams more	24	27.0
Shout more both	36	40.5
More siblings scream	2	2.2

* Median and rank.

Figure 1. Percentage of poor quality of life in children according to each school evaluated. *Value p < 0.001, using Chi-Squared test.

Table 2. Poor quality of life of children regarding personality traits according to the Machover and Koppitz test associated with the HOME scale test

Variable	Mala calidad de vida n (%)		RP(IC95%) / p value	
	Yes	No	Bivariate	Multivariate
Anxiety	95 (44.4)	108 (49.8)	0.9 (0.6-1.3) / 0.526	No evaluado
Shy	89 (41.6)	139 (64.1)	0.6 (0.5-0.8) / < 0.001	1.0 (0.9-1.2) / 0.827
Dependence	97 (45.3)	142 (65.4)	0.7 (0.5-0.8) / < 0.001	0.9 (0.8-1.0) / 0.104
Immaturity	78 (36.5)	114 (52.5)	0.7 (0.5-0.9) / 0.045	0.8 (0.7-1.1) / 0.149
Violence	99 (46.3)	0 (0.0)	2.9 (1.4-6.0) / 0.004	3.3 (2.5-4.5) / < 0.001
Aggressiveness	144 (67.3)	1 (0.5)	4.1 (3.3-5.0) / < 0.001	4.1 (3.2-5.2) / < 0.001

RP (prevalence ratio), 95% CI (95% Confidence Interval) and p value obtained with generalized linear models, with Poisson family, log link function and using clusters to the school of origin.

Table 3. Bivariate analysis of poor quality of life according to socio-familial variables of children from five schools in Piura

Variable	Mala calidad de vida n (%)		RPc(IC95%)	p value
	Yes	No		
Sex				
Female	62 (29.0)	94 (43.3)	0.72 (0.48-1.08)	0.116
Male	152 (71.0)	123 (56.7)		
Age (years) *	4 (3-6)	4 (3-6)	0.99 (0.83-1.18)	0.901
School				
Particular	164 (76.6)	133 (61.3)	1.48 (0.97-2.26)	0.071
National	50 (23.4)	84 (38.7)		
Dads love each other **				
Yes	198 (92.5)	187 (86.6)	**1.44 (1.12-1.87)**	**0.005**
Do not	16 (7.5)	29 (13.4)		
They show affection **				
Between parents	173 (80.8)	172 (79.3)	1.05 (0.72-1.54)	0.796
Father to son	187 (87.4)	189 (87.1)	1.01 (0.61-1.69)	0.960
You live with parents				
Yes	202 (94.4)	197 (91.2)	**1.31 (1.24-1.38)**	**< 0.001**
Do not	12 (5.6)	19 (8.8)		
They shout at home				
Yes	50 (23.4)	41 (18.9)	1.14 (0.67-1.94)	0.632
Do not	164 (76.6)	176 (81.1)		
You play at home				
Yes	207 (96.7)	215 (99.1)	0.63 (0.41-0.97)	0.036
Do not	7 (3.3)	2 (0.9)		
Play more with				
Dad	45 (21.8)	41 (19.3)	1.08 (0.89-1.32)	0.434
Mom	56 (27.2)	88 (41.3)	**0.71 (0.57-0.89)**	**0.003**
Both of them	83 (40.3)	51 (23.9)	**1.44 (1.12-1.84)**	**0.004**
Brothers	16 (7.8)	31 (14.6)	0.67 (0.40-1.13)	0.131

RPc (crude prevalence ratio), 95% CI (95% Confidence Interval) and p value obtained with generalized linear models, with Poisson family, log link function and using clusters to the school of origin. * Median and rank ** Self-perception of the child.

We found that the frequency of poor quality of life decreases if the person who the children spent most of the time playing with was the mother when the multivariate analysis was performed (PR: 0.74, CI 95: 0.61-0.91, $p = 0.005$) Or siblings (PRa: 0.65, CI 95: 0.44-0.97, $p = 0.034$), adjusted by the school of origin, the perception that the parents love them or living with both parents (Table 4).

Discussion

The family is the nucleus of child development; thus, the quality of family life becomes an aspect of great repercussion in the life of children[16, 17]. This has been ratified by studies in populations of neighboring countries (Chile), which study the quality of life and the family environment[18].

Poor quality of life was found in half of the children evaluated, unlike a longitudinal study in Brazil, where it was only found in 15.5% of the child population, which is probably due to the fact that about 98% of the parents had favorable attitudes towards the child[19]. In addition, women were found to have a lower frequency of poor quality of life, which is contradicted by a study, conducted in Europe, where males scored higher in the quality of life survey[20]; this may be due to the difference of the populations evaluated, so further research should be carried out in a larger number of populations.

Poor quality of life was more frequent in private schools than in public ones, which is in agreement with a study that indicates that there is a greater satisfaction with their lives in the children of public schools, compared to that found in private schools[21]. This difference is probably represented by different physical environments and the diversity of experiences, which are related to the socioeconomic level that the family can have, as well as to the other characteristics that comes from this variable[17] in addition to the perceptions that would generate in the Schoolchildren[22].

According to the evaluation of the test, those children with patterns of violence and aggression tend to have a poor quality of life, which would be ratified with a report from the United Nations (UN), which mentions that between 80 to 98% of children who have suffered some type of violence have a significant impact on their daily development, as well as the emergence of anxiety and depression, which can be related to poor quality of life and even to their ability to relate to others[23]. This is related to similar research carried out in Chile, where these conditions are emphasized as influential in the quality of life[24].

Finally, the fact that children play more with their mother was associated with a lower frequency of poor

Table 4. Multivariate analysis of poor quality of life according to the socio-familial variables of children from five schools in Piura

Variable	RPa(IC95%)	*p* value
Daddy loves you **	1.28 (0.92-1.78)	0.141
You live with parents	1.17 (0.96-1.43)	0.118
You play at home	Omitted by convergence	
Play more with		
Dad	Compare category	
Mom	**0.74 (0.61-0.91)**	**0.005**
Both of them	1.15 (0.98-1.36)	0.092
Brothers	**0.65 (0.44-0.97)**	**0.034**

RP (adjusted prevalence ratio), 95% CI (95% Confidence Interval) and p value obtained with generalized linear models, with Poisson family, log link function and using clusters to the school of origin. *Median and rank. **Self-perception of the child.

quality of life. This may be due to the great influence of the parents-child relationship[25], which may lead to a mismatch in social interactions[26] and it differs according to the characteristics of the family and who takes the lead in it[27]. It is important to note that almost all children living with both parents had a poor quality of life, probably due to the existence of dysfunctional homes, which was not a studying reason in this research, but it should be evaluated in future studies. Thus, family has a fundamental role in the development of the child, however, although the problem is highly identified, it seems not to be totally understandable or even acceptable to lead the creation of new policies in order to improve this situation[28].

The study had the limitation of the selection bias, since the sampling was not feasible because of the restriction of information that some of the schools had - despite of having the permition -, reason why it cannot be inferred from the schools evaluated or to consider confidence ranges as an accurate measure. Despite of this, the results are important because they are the first report of this problem in our environment.

Finally, some data were lost because the interviewees did not answer all the questions. However, this does not affect statistical significance because of the small amount of data lost.

Conclusions

According to the results, it is concluded that a large percentage of children had a poor quality of life, which is associated with violence and aggressiveness in children, and indirectly, to play frequently with

their mother and/or siblings, which may have an influence on the future of the child. Likewise, the social and familiar factors that protect the quality of life are the coexistence with both parents, the demonstration that both parents love each other and play with both of them.

Ethical Responsibilities

Human Beings and animals protection: Disclosure the authors state that the procedures were followed according to the Declaration of Helsinki and the World Medical Association regarding human experimentation developed for the medical community.

Data confidentiality: The authors state that they have followed the protocols of their Center and Local regulations on the publication of patient data.

Rights to privacy and informed consent: The authors have obtained the informed consent of the patients and/or subjects referred to in the article. This document is in the possession of the correspondence author.

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Conflicts of Interest

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