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Original Article

Sociodemographic influence in health-related quality of life in adolescents

Influência sociodemográfica na qualidade de vida relacionada com a saúde dos adolescentes

Influencia sociodemográfica en la calidad de vida relacionada con la salud de los adolescentes

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Abstract

Objective: To determine the sociodemographic variables (gender, age, level of formal education and cohabitation) that have influenced the perception of health-related quality of life of adolescents.

Methods: This was a descriptive, correlational and quantitative study including a non-probabilistic convenience sample of 567 adolescents. Of these, 50.6% were girls and attended 2nd and 3rd cycles of basic education in grouping of schools in central Portugal. The participants mean age was 12.4 years-old (SD = 1.59), boys age ranged from 9 to 16 years-old and girls from 10 to 17, most of them lived within a nuclear family (77.4%). Data were collected from January to June 2018 using a Portuguese version of *Kidscreen-52*[1)] scale along with a questionnaire of sociodemographic characterization. The IBM SPSS Statistics for Windows (Version 24.0. Armonk, NY: IBM Corp) was used for statistical analyses.

Results: Adolescents have a positive perception of their quality of life regarding health. A statistical difference related with age, One-way ANOVA test (F = 31.980; p = 0.000), school year (F = 15.293; p = 0.000) and cohabitation (F = 11.491; p = 0.010).

Conclusion: Boys present a higher perception of quality of life, as well as younger adolescents and those who live with their parents (mother and father).

Resumo

Objetivo: Identificar as variáveis sociodemográficas (sexo, idade, escolaridade e coabitação) que influenciam a perceção da qualidade de vida relacionada com a saúde dos adolescentes.

Métodos: Estudo descritivo-correlacional de natureza quantitativa, numa amostra não probabilística por conveniência, constituída por 567 adolescentes, a frequentar o 2º e 3º Ciclo do Ensino Básico num Agrupamento de Escolas do centro de Portugal. Os participantes apresentavam média de idade de 12,4 anos (Dp=1,59), os rapazes entre 9-16 anos, e as meninas entre 10-17 anos, 50.6% do sexo feminino e a maioria coabita numa família nuclear (77,4%). Na coleta de dados utilizou-se a versão portuguesa da escala *Kidscreen-52*[1)] e questões de caracterização sociodemográfica. Os dados foram coletados no período de janeiro a julho de 2018 e o tratamento estatístico foi realizado utilizando o Statistical Package for the Social Sciences® (SPSS - versão 24.0).

Resultados: Os adolescentes têm uma perceção positiva da sua qualidade de vida relacionada com a saúde, com diferença estatística para a idade, teste Anova (F=31,980; p =0.000), para o ano de escolaridade, (F=15,293; p=0.000) e Coabitação (F=11,491; p=0.010).

Conclusão: Os rapazes apresentam uma melhor percepção sobre a qualidade de vida, assim como os adolescentes mais jovens e os que coabitam com os pais (mãe e pai).

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Conflicts of interest: none to report.

Resumen

Objetivo: Identificar las variables sociodemográficas (sexo, edad, escolaridad y cohabitación) que influyen en la percepción de calidad de vida relacionada con la salud de los adolescentes.

Métodos: Estudio descriptivo correlacional de naturaleza cuantitativa, en un muestreo no probabilístico por conveniencia, constituido por 567 adolescentes que cursan de 5° a 9° año de primaria en un Agrupamiento de Escuelas del centro de Portugal. Los participantes tenían edad promedio de 12,4 años (Dp=1,59), los varones de 9 a 16 años y las mujeres de 10 a 17 años, 50,6% de sexo femenino y la mayoría cohabita en una familia nuclear (77,4%). En la recolección de datos se utilizó la versión portuguesa de la escala *Kidscreen-52*[1] y cuestiones de caracterización sociodemográfica. Los datos se recolectaron de enero a julio de 2018 y el tratamiento estadístico se realizó utilizando el Statistical Package for the Social Sciences® (SPSS - versión 24.0).

Resultados: Los adolescentes tienen una percepción positiva de su calidad de vida relacionada con la salud, con diferencia estadística por edad, test Anova (F=31,980; p =0.000), por año de escolaridad, (F=15,293; p=0.000) y cohabitación (F=11,491; p=0.010).

Conclusión: Los varones presentan una mejor percepción sobre la calidad de vida, así como los adolescentes más jóvenes y los que cohabitan con los padres (madre y padre).

Introduction

Quality of life is a major concern for modern society. There is an increasing interest about individuals' well-being. In this context, considering that adolescents are in constant development, they need a safe and structured environment where they can have a growth in healthy and well-balanced manner and in an environment that provides them a positive development in terms of physical, educational, emotional and social spheres. The World Health Organization[1,2] and Portugal's Directorate-General of Health,[3,4] encourage promotion of a healthy development for adolescents as an investment for the future, since healthy options provide results for well-being not only in this stage of life, but also in adulthood. During adolescence human beings acquire the foundations for future health and life styles, attitudes and behavior patterns that may guarantee a better quality of life.

The concept of Quality of Life (QoF) is related with perception that an individual has about his/her life situation, in the context of cultural and value system in which individuals live, and about his/her goals and expectations. QoF is a broad concept that is affected in a more complex manner by individuals' physical health, psychological state, level of dependency, social relationships, personal beliefs and convictions, and by his/her surroundings.[5]

The health-related quality of life (HRQoL) concept has indicators that guide the perceived health. Therefore, according to Gaspar and Matos[1]: "The health-related quality of life is considered as a construction that includes well-being components and physical, emotional, mental, social and behavioral functions as they are perceived by the individuals or by the others."

Many studies on children and adolescents' development and health-related quality of life have been focusing on multiple contextual variables in life of adolescents under development because, once risk factors are identified, they can represent a starting point or the main focus for strategies and actions for health promotion and disease prevention.[6] However, to observe adolescents' health based on gender perspective has a considerable potential for definition of strategies that reduce health differences associated with gender and their possible persistence in adult life. According to some authors[7], differences associated with gender related with some health behaviors tend to increase in adolescence.

QoF is a cross-sectional research to other fields of knowledge within the social and human sciences. However, in the health field, the QoL is particular relevance for nursing area because the area is person- and family-centered and not on ill body.

Because of the scarcity of studies on health-related quality of life in children and adolescents, and considering adolescence as an important milestone in human development, this study seek to contribute to improve understandings on the impact of sociodemographic factors on the quality of life of a group of adolescents based on the following research question: What sociodemographic variables (gender, age, level of formal education, cohabitation) influence the perception of health-related quality of life in adolescents? This study aims to identify these variables that may influence perception of QoF in adolescents' health.

Methods

This was a descriptive, cross-sectional and quantitative study including a non-probability convenience sample of 567 adolescents. Of these , 50.6% were girls aged 10-17 years-old (mean = 12.4; SD = 1.59) mean age of 12.38 years-old for girls and 12.41 for boys. Participants were attending the 2nd and 3rd cycles of basic education in a grouping of schools in the central region of Portugal. Most of adolescents (77.4%) were living with their parents, 18.5% lived with their mothers only, and 4.1% with others (father, grandparents, aunts/uncles).

The study was initiated after receive approval by Ethics Committee of the Higher School of Health of Viseu (No 20), by the data protection committee (Re. 03.01, official letter no 38790 December 18th, 2017), by the Ministry of Education (registration No 0012100017) and by the grouping of schools director. All parents or legal responsible who agree to participate in the study signed the consent term.

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Data were collected using a Portuguese adapted and validated version of the Health-related quality of life scale - KIDSCREEN 52 by the "Social Adventure" team. [1,6] The instrument has 52 items and 10 dimensions that describe the health-related quality of life: health and physical activity, feelings, general mood state; self-perception; free time; family, home and neighborhood environments; economic issues; friends; learning and school environment; and bullying. For the dimensions, each item was scored in a Likert-type scale: 1 = Never/Nothing; 2 = Rarely/Little; 3 = Sometimes/Moderately; 4 = Often/Much; 5 = Always/Totally; the higher the score the greater the quality of life perception by children and adolescents. The bullying dimension, the score was inverted so that quality of life was higher when such negative feelings were rare. A low score implies that the individual felt disturbed, disrespected and rejected by his/her peer; a high score means that the individual felt respected and accepted by his/her peers.

After calculation of different items belonging to each dimension, the results were transformed into values from 0 to 100 using the following formula: [(gross score - minimum expected score)/amplitude] * 100. Results were separated by dimensions, and a score of 50 was the mean score for each dimension. For this reason, children/adolescents' perception of health-related quality of life was considered positive when scores were superior to this mean value and, when the opposite was observed, scores lower than this mean value, they were considered a negative perception of the health-related quality of life.

Information collected was storage, processed and analyzed using the IBM SPSS Statistics for Windows (Version 24.0. Armonk, NY: IBM Corp), the t-test was used for differentia means, the Levene's, test, the ANOVA and Kruskal-Wallis test were also adopted. We also used 95% confidence interval (IC) and significance level of $p<0.05$.

Results

We analyzed the relation between HRQoL and sociodemographic variables (gender, age, level of formal education and cohabitation). To verify whether the HRQoL and its dimensions were discriminated by sex, a t-test was conducted to determine mean differentiations. Overall, no statistical difference was found between boys and girls in HRQoL perception. However, variances were not homogeneous for dimensions feelings; family, home and neighborhood environments; economic issues; friends; and learning and school environment. We observed that boys have a better HRQoL perception compared with girls, except in relation to economic issues, home and neighborhood environments, learning and school environment and provocation. The t-test values indicated significant differences for dimensions health and physical activity, general mood state, self-esteem, autonomy, and learning and school environment, only this latter was superior and significant in adolescents ($p<0.05$) (Table1).

The analyzing of age influence in HRQoL and different dimensions showed statistical significance

Tablet 1. t-test between genders and HRQoL

Dimensions	Masculine (n=280)		Feminine (n=287)		Levene's test	t-test	
	Mean	Standard deviation	Mean	Standard deviation	*p-value*	t	*p-value*
Health and physical activity	79.4	14.8	73.7	17.5	0.008	4,230	0.000
Feelings	82.4	15.1	79.8	17.1	0.129	1,928	0.054
General Mood State	80.8	16.5	77.4	19.7	0.000	2,180	0.030
Self-perception	62.9	12.9	59.7	14.8	0.014	2,789	0.005
Free time	63.8	14.9	60.6	17.3	0.004	2,385	0.018
Family, home and neighborhood environments	84.1	15.5	83.3	16.4	0.461	0.576	0.565
Economic Issues	82.6	22.7	84.9	21.0	0.106	-1,292	0.197
Friends	81.8	16.3	81.6	16.0	0.914	0,154	0.878
Learning and school environment	69.5	17.6	73.0	18.8	0.338	-2, 287	0.023
Provocation	86.8	19.5	89.4	15.6	0.019	-1,750	0.081
Global score	80.2	11.4	78.68	16.6	0.002	1,432	0.153

Table 2. One-way ANOVA test between age and HRQoL

Dimensions	10-11 years-old (1) (n=190)		12-13 years-old (2) (n=218)		≥ 14 years-old (3) (n= 159)		ANOVA		EV (%)
	Mean	SD	Mean	SD	Mean	SD	F	p-value	
Health and physical activity	80.7	15.0	77.4	16.3	70.3	16.6	19.000	0.000	6.31
Feelings	86.6	14.0	80.4	16.7	75.4	16.0	22.241	0.000	7.31
General Mood State	84.2	16.0	77.7	18.4	74.8	19.3	13.031	0.000	4.42
Self-perception	66.9	10.5	61.0	14.8	55.1	13.7	34.868	0.000	11.00
Free time	65.6	14.3	61.4	17.8	59.1	15.4	7.527	0.001	2.60
Family, home and neighborhood environments	88.0	13.3	82.3	17.0	80.4	16.5	11.712	0.000	3.99
Economic Issues	86.1	22.0	84.4	21.0	80.1	22.5	3.355	0.036	1.18
Friends	85.3	15.3	82.3	15.5	76.5	16.7	13.922	0.000	4.70
Learning and school environment	81.0	15.1	69.4	18.0	62.2	16.8	57.107	0.000	16.84
Provocation	88.8	16.3	86.8	20.0	89.0	15.6	0.949	0.388	0.34
Global score	84.5	10.5	78.8	12.7	74.3	12.3	31.980	0.000	10.19

Table 3. One-way ANOVA test for school year and HRQoL

Dimensions	5th year (1) (n=96)		6th year (2) (n=119)		7th year (3) (n= 101)		8th year (4) (n=122)		9th year (5) (n=129)		ANOVA test		EV (%)
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	F	p-value	
Health and physical activity	80.8	15.2	78.4	17.0	79.0	15.5	75.3	17.0	70.5	15.4	7,574	0.000	5.12
Feelings	87.5	12.6	85.1	15.7	82.4	15.0	77.5	17.4	75.0	16.1	13,076	0.000	8.51
General Mood State	84.2	16.6	82.6	15.7	80.0	17.3	74.6	20.0	75.4	19.2	6,369	0.000	4.34
Self-perception	66.9	11.5	65.6	12.3	61.9	14.1	58.6	14.5	55.3	13.5	15,313	0.000	9.83
Free time	65.5	15.2	65.9	14.4	61.2	18.7	60.4	16.9	58.8	14.9	4,549	0.001	3.14
Family, home and neighborhood environments	86.7	15.1	88.4	12.6	82.2	17.1	82.9	16.3	79.1	16.8	6,603	0.000	4.49
Economic Issues	84.2	22.9	86.0	22.2	81.9	23.2	88.0	17.7	78.7	22.4	3,477	0.008	2.42
Friends	85.9	15.0	84.0	16.5	83.9	14.9	81.0	15.4	75.3	16.5	8,176	0.000	5.50
Learning and school environment	81.6	14.8	79.2	16.0	70.5	17.4	65.5	19.0	62.4	16.0	28,556	0.000	16.89
Provocation	87.1	18.6	90.1	16.8	86.8	19.3	86.1	20.5	89.9	12.5	1,313	0.264	0.92
Global Score	84.3	11.0	83.5	11.3	79.7	12.3	77.0	12.7	74.0	12.3	15,293	0.000	9.82

between age and HRQoL (Table 2), with superior mean values in all dimensions for those aged 10-11 years-old excepted in dimension *bullying* in which the mean value was high in adolescents (≥14 years) but with no statistical significance (p>0.05). The results show a less positive HRQoL perception among those who were older age in all dimensions except for *Bullying.*

The influence of level of education in HRQoL and on its different dimensions, we observed that the level of education influences significantly the HRQoL perception in all dimensions (p<0.05). Mean indexes were higher among children attending 5th and 6th years except in the dimension, bullying that was higher among adolescents attending 8th year of school (Table 3).

Table 4. Kruskal-Wallis test between family and HRQoL

Dimensions	Parents (n=439)	Mother (n=105)	Father (n= 8)	Other (n=15)	Kruskal-Wallis test	
	Mean Rank	Mean Rank	Mean Rank	Mean Rank	$\times^2$	*p-value*
Health and physical activity	298.6	240.7	295.1	241.6	10,696	0.013
Feelings	293.2	254.9	264.0	230.1	6,496	0.090
General Mood State	297.5	239.8	282.1	197.9	14,868	0.002
Self-perception	292.7	255.4	284.1	228.9	6,201	0.102
Free time	292.0	254.1	264.9	268.9	4,853	0.183
Family, home and neighborhood environments	290.4	267.7	202.8	253.7	4,264	0.234
Economic Issues	294.2	257.1	204.3	217.0	10,091	0.018
Friends	292.2	256.4	259.7	249.9	4,966	0.174
Learning and school environment	287.0	265.4	351.4	290.5	2,897	0.408
Provocation	291.0	270.1	243.9	198.8	7,096	0.069
Global Score	296.3	243.1	269.3	219.2	11,441	0.010

The relation between cohabitation and HRQoL

The analysis of the influence of family (individuals with whom the subjects lived with) on HRQoL perception in adolescents showed that type of family have a significant influence on HRQoL in adolescents, more specifically in *Health and physical activity, General Mood State* and *Economic Issues* ($p<0.01$), this finding indicates a better HRQoL perception among those who live in a nuclear family (composed by mother and father) (Table 4).

Discussion

According to adolescents' perception, considering the assessment of all domains of Kidscreen scale, their quality of life is good, and corroborates with national[1] and even international[8] studies.

The relationship of sociodemographic variables (gender, age, level of education and cohabitation) and adolescents' perception on HRQoL, we observed that, in first place, that boys had higher mean values compared with girls. Girls, however, had better perception of HRQoL in *Learning and School Environment* dimension, a similar result reported by other studies.[7-9] Such perception is probably due to that girls have better academic performance because they "on average, have better performance compared with boys".[10]

These results corroborate, in part, with those observed in Gaspar and Matos's study[1,8], in which boys had a better perception of their HRQoL in most dimensions except for *Learning and School Environment.* According to these authors' study, only the dimensions *Economic Issues* and *Friends* did not present differences in relation to sex. In relation to dimensions, *Health and Physical Activity, General Mood State, Self-esteem,* and *Autonomy*, we observed that boys had higher mean values compared with girls. Such fact has been associated with physical changes during pubertal stage that often provoke body image dissatisfaction in girls, what have influenced their psychoemotional well-being. [7,11-13] In girls the hormonal changes that are characteristic of puberty occur along with mood swings and weight and body fat gain, change abruptly their body image, and make them vulnerable in a time that requires higher social demand.[14]

In relation to age, as reported in the study by Gaspar and Matos,[1,15] younger individuals (≤11 years-old) are those who have the better perception of HRQoL (M=84.5), followed by the group aged 12-13 years-old (M=78.8) and, lastly, by the group age equal or higher 14 years-old (M=74.3). The empirical data demonstrated that the average values were higher in all dimensions for adolescents aged 10 to 11 years-old except for the dimension bullying, in which the mean was higher for the group aged ≥14 years-old. In other words, the HRQoL perception decreases as age increases, what has been documented in many studies whether within the scope of quality of life or in competence perception. [1,7,8,15] Gaspar also observed that children have higher average values of HRQoL perception compared with adolescents except in bullying dimension. Gaspar and Matos[1] have also observed signifi-

cant differences between children's and adolescents' groups, as the former have shown a higher quality of life perception compared with the latter. Therefore confirming, based on Bronfenbrenner's assumptions,[16] that children and adolescents' quality of life perception must be integrated to an ecological perspective of their development and functioning. Similarly, a study performed in 2012 in Sweden including 600 children and adolescents aged 11 to 16 years-old also demonstrated that HRQoL perception was significantly low in adolescents rather than in children.[17] The decrease of well-being related to age may be associated with physical, cognitive and social child-to-adulthood transition that boys and girls face in this period. Such changes can include: body changes, new physical appearance that may provoke dissatisfaction and anxiety, cognitive changes, new cognitive tools that allow adolescents to have more complex thoughts (about the world in general, about themselves and particular circumstances), the seeking for their own identity, new social challenges associated with relationships with their parents and colleagues, first dating relationships, first sexual experiences, among others.[15]

Also, regarding the *bullying* dimension, we observed differences associated with age but in opposite direction, and without significance. A study performed in11 European countries with 16,210 children and adolescents aged 8 to 18 years-old, reported that younger age, parents with low level of education, as well as overweight are associated with higher bullying behavior.[18]

The dimension *Family, home and neighbourhood environments* is one the dimensions with the highest mean values in younger children. A number of authors have stated that family relationships affect the well-being of adolescents, and that those who promote their autonomy and share their time with the family encourage a positive environment for a better HRQoL in adolescence. [13,15]

A study conducted in Portugal by Maria et al.,[19] including 431 adolescents with a mean age of 12.8 years-old, reported that the dimensions 'social and peer relations' and 'family relationships and autonomy' were those with higher mean indices, whereas 'physical well-being' and 'learning and school environment' were the dimensions with worse results. In relation to the individuals with whom children and adolescents lived with, significant differences could not be found in most dimensions except for *Health and Physical Activity, General Mood State* and *Economic Issues.* Our study shows that children and adolescents who live in a nuclear family presented a better perception of their own HRQoL.. These results agree with the study performed by Berman et al [17] reporting that children and adolescents living with both parents had a better perception of their own HRQoL.

Conclusion

Male adolescents had a better perception on HRQoL compared with their female counterparts. Younger adolescents who were attending an early school year, as well as those who living in a traditional nuclear family, had a better perception of HRQoL. Considering the impact that knowledge about sociodemographic factors may have in the health-related quality of life in adolescents, there is need to seek for mechanisms or adequate intervention strategies both for community and for schools and families in order to reduce the effects of such factors towards children and adolescents' physical, mental and social development. Our results have the goal, based on the scope of the *MaiSaúde Mental* project, to contribute to create an interventional program for schools that is designated for children, adolescents, teachers, parents and legal responsible.

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Collaborations

Bica I, L Pinho MD, Silva EMB, Aparício G, Duarte J, Costa J and Albuquerque C contributed to the conception of the study, analysis and interpretation of data; drafting of the manuscript, critical review relevant for intellectual content and approval of final version to be published.

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