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The Health-Related Quality of Life of Students Involved in School Bullying

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Abstract

Aim: To analyse health-related quality of life (HRQL) in relation to participation in bullying (frequency and role). The main goal was to investigate how effects of bullying are related to role and to determine whether the effect of bullying involvement on HRQL is independent of perceived social support.

Methods: Effects of sex and role on various HRQL dimensions were investigated in a representative sample of students (N=769) in Talavera de la Reina (Spain) using Kidscreen-52. T-tests were used to analyse sex differences in HRQL, victimisation and aggression; a chi square test was used to investigate role effects and ANOVA was used to identify the HRQL profile associated with each role. Linear regression was used to determine whether the effects of victimisation and aggression on HRQL were independent of the potential effect of social support.

Results: Being involved in school bullying negatively affects children's HRQL, whose impact is greater in aggressive victims and pure victims, respectively. Aggression has no independent effect on HRQL, whereas victimisation has a negative effect on HRQL and mood regardless of level of social support; life satisfaction is generally higher among students with social support.

Conclusion: Stability and persistence of victimisation appear to influence HRQL such that the effects of bullying on HRQL are greatest in roles that have greatest involvement in bullying.

Keywords: Bullying; Health-related quality of life; Social support; Bullying roles

Introduction

Bullying is defined as a form of exercise of power that damages intentionally and persistently to a classmate [1]. In children and adolescents victimisation causes serious, persistent health problems. Suffering bullying has been associated with mental health problems such as anxiety and depression, difficulties in psychosocial adjustment, low academic achievement, low self-esteem and negative effects on physical health such as headaches or stomach problems, irritability and difficulty sleeping. Finally, it has been associated with participation in behaviours which are harmful to health, such as abuse of alcohol, illegal drugs and tobacco [2,3]. Aggressors also exhibit mental health problems including risk behaviours to health, and may develop problems of antisocial behaviour and delinquency [4].

In other words, involvement in bullying as either victim or aggressor seems to compromise the healthy development of children and adolescents; it affects the physical, psychological and social wellbeing of those involved at time and these effects may endure into the medium and long term [5,6]. Although behaviour which meets formal definitions of bullying has the deeper and more persistent consequences, occasional or less victimisation or intimidation which does not meet the criteria for bullying may also have consequences for the children involved [7].

There is increasing interest in using indicators of health-related quality of life (HRQL) to evaluate health, identify risk situations and inform efforts to provide appropriate care. Measures of HRQL provide a holistic perspective on health as they encompass several aspects of functional capacity and wellbeing. HRQL is a construct encompassing both objective aspects of health, and subjective perceptions of physical and psychological wellbeing and emotional and social functioning [8].

Despite the huge social interest in the healthy development of children and adolescents there has been little research on the relationship between bullying and HRQL, although some studies suggest that victims have worse HRQL [6].

The HRQL among other roles involved in bullying situations has been even less studied; some studies have found that aggressors had greater family satisfaction and lower satisfaction with themselves than non-aggressors; it has also been reported that aggressive victims have less family support than not involved in bullying [9,10].

In the last few years special attention has been paid to the capacity of social support to modulate the potential consequences of victimisation; it has been found that victims who perceived themselves to have social support show better psychosocial adjustment, greater resilience and lower stress levels [11,12].

To our knowledge there have been few studies exploring the relationship between victimisation and HRQL in Spain [13], although some studies have examined bullying and life satisfaction [14,15] we did not uncover any studies comparing quality of life in the different bullying roles.

The aim of this study was to relate HRQL in children and adolescents to involvement in bullying (not involved; aggressor; pure victim; aggressive victim). We also wanted to find out whether the effects of bullying participation on HRQL were independent of perceptions of the social support available at school and in other areas of life.

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Methods

Participants

The sample consisted of 769 adolescents of both sexes (54% male, 46% female; SD=0.501) in the 2nd (49.7%, SD=0.500) or 3rd (50.3%, SD=0.500) years of secondary school, aged between 13 and 17 years (M=14.13, SD=0.931) attending one of eight schools (50% public, 50% private schools) in the city of Talavera de la Reina (Castilla-La Mancha, Spain).

Participants were selected using multi-stage, stratified cluster sampling. The sampling units were public and subsidised schools and strata were established in courses, taking 2nd and 3rd of secondary school, since the literature indicates that are the courses with more occurrence of bullying [16]. The sample (N=769) has a confidence level of 97% with a margin of error of 3.2%.

Instruments and measures

HQRL was evaluated using Kidscreen-52, a questionnaire designed to evaluate HRQL in children and adolescents. There is comparative data on the psychometric properties of the test in European and Spanish populations [17]. The Spanish version of the questionnaire was found to generate data with fewer than 5% missing values (acceptability) with acceptable responses portions of the lower and upper ends of their distributions and have high internal consistency (Cronbach's alpha>0.70) [18].

The Spanish version of Kidscreen-52 consists of 52 items that assess ten dimensions. Responses to all items are given using a five-point Likert scale evaluating intensity or frequency ('none', 'a little', 'moderately', 'very', 'very much' and 'never', 'rarely', 'often', 'very often', 'always', categorized between 1-5, respectively). Scores for all dimensions correspond to the sum of scores (1-5) for the relevant set of items.

In this study, all dimensions had adequate reliability and internal consistency: physical wellbeing (Cronbach's alpha=0.77); psychological wellbeing (Cronbach's alpha=0.89); self-perceived mood and emotions (Cronbach's alpha=0.88); autonomy (Cronbach's alpha=0.84); parental relationships and family life (Cronbach's alpha=0.87); peers' social support (Cronbach's alpha=0.82); school environment (Cronbach's alpha=0.83); social acceptance (Cronbach's alpha=0.77) and economic and financial resources (Cronbach's alpha=0.87). It has also been taken as a measure of overall quality of life: the Kidscreen-10 (Cronbach's alpha=0.82), with contrasted psychometric properties by Ravens-Sieberer et al. in 2010, which allows accurate and stable measurement of HRQL.

We also used the 22-item Victimisation Peers Scale [19]. The first ten items describe direct victimisation situations and the next ten items indirect victimisation situations. Responses are given on a four-point Likert scale ('never', 'rarely', 'often' and 'always'). Using analysis with oblimin rotation the authors of the scale uncovered a three-factor structure that explained 62.18% of the variance: relational victimisation, manifest physical victimisation and manifest verbal victimisation [19].

In this study, we used the sum of all items of the full scale as a global measure of victimisation (Cronbach's alpha=0.929). The full 25-item Violent Behaviour at School Scale [20] was used as a global measure of aggression (Cronbach's alpha=0.88), responses to the scale are given on 1 to 4 scales ('never', 'rarely', 'often' and 'always'), contrasted reliability and validity [21].

The participation in bullying situations have been established from the frequency of having been victimised or having been a bully. Then, we consider uninvolved who never or rarely have committed or been assaulted; bullies, those who have committed often/always in at least one of the forms of harassment; victims who have suffered often/always in at least one of the forms of harassment; finally, bully/victim are who have been often involved as aggressors and victims.

The frequency criterion is recognised as a method of discriminating the roles of participants in bullying situations and has been used in previous research [22].

Procedure

Data were collected using self-report questionnaires. These were distributed to students in selected classrooms. The questionnaires included brief instructions and the experimenter who distributed them was available to answer any questions or clarify the instructions. Participation was voluntary and participants were assured that their data would remain anonymous.

First of all, we wrote to the heads of the selected schools to obtain permission to collect data in their schools. The letter described the study and included copies of the questionnaire, the consent form and a request for cooperation from the regional education authority.

When a school had agreed to participate we wrote to the legal guardians of children in randomly selected classes to obtain their consent to their children's participation and arranged a time to administer the questionnaire in school.

Statistical analyses

All data were analysed with the Statistical Package for Social Sciences (SPSS-V.19) for Windows.

First, we calculated scores on all HRQL dimensions of Kidscreen-52 and measures of victimisation and aggression. Sex differences in victimisation and aggression were evaluated using t tests.

Second, we calculated pairwise correlations between the main variables used in the study: victimisation, aggression, global quality of life (Kidscreen-10) and HRQL dimensions (Kidscreen-52).

Third, the percentages are described by participant roles. Sex differences were evaluated using chi squared tests and ANOVA was used to evaluate group differences in global quality of life and specific quality of life dimensions.

Subsequently, linear regression was used to check whether the effects of victimisation and aggression on quality of life were independent of the potential effect of social support; the variables were introduced in steps.

Results

Table 1 shows descriptive statistics for the various HRQL dimensions measured with Kidscreen-52 (physical wellbeing, psychological wellbeing, mood and emotions, self-perception, autonomy, parental social support, peers social support, school environment and economy) and the other main study variables (victimisation, aggression and quality of life) (Table 1).

Independent samples t-tests were used to assess sex differences. These tests indicated that girls were less aggressive than boys and had lower overall quality of life and lower scores for physical and psychological wellbeing, mood, perception, autonomy and parental social support (Table 2).

Variables	N	Minimum	Maximum	M	SD
Physical wellbeing	769	7	25	18.5	3.5
Psychological wellbeing	767	6	30	24	4.8
Mood	767	7	35	27.1	5.3
Self-perception	767	5	25	19	3.9
Autonomy	766	5	25	19.6	4.1
Parental social support	768	6	30	25	4.5
Economy	764	3	15	12.3	2.7
Peers' social support	766	6	30	25.4	3.9
School environment	768	6	30	21.1	4.6
Quality of life	766	21	55	42.7	5.9
Victimisation	767	20	75	29.4	8.8
Aggression	767	25	82	33	7.6

Table 1: Descriptive statistics.

Variables	Sex	N	M	SD	t	Sig. (two-tailed)
Victimisation	Boys	413	28.83	8.21	--	--
	Girls	354	30.02	9.37		
Aggression	Boys	413	34.01	8.36	4.07	0
	Girls	354	31.79	6.39		
Quality of life	Boys	413	43.87	5.35	6.15	0
	Girls	353	41.28	6.15		
Physical wellbeing	Boys	415	19.56	3.18	10.04	0
	Girls	354	17.15	3.42		
Psychological wellbeing	Boys	414	24.69	4.23	4.27	0
	Girls	353	23.24	5.21		
Mood	Boys	415	28.2	4.81	6.53	0
	Girls	352	25.71	5.61		
Self-perception	Boys	413	20.02	3.37	8.53	0
	Girls	354	17.73	4.07		
Autonomy	Boys	414	20.07	3.93	3.49	0
	Girls	352	19.03	4.28		
Parental social support	Boys	414	25.66	3.97	4.41	0
	Girls	354	24.26	4.85		
Peers' social support	Boys	414	25.39	3.74	--	--
	Girls	352	25.33	4.14		
School environment	Boys	415	20.75	4.62	--	--
	Girls	353	21.41	4.64		
Economy	Boys	412	12.35	2.66	--	--
	Girls	352	12.21	2.81		

Table 2: Sex differences in main variables.

Variables		Sex		Total
		Boys	Girls	
Not involved	n	128	119	247
	%	30.80%	33.60%	32.10%
Aggressor	n	131	81	212
	%	31.60%	22.90%	27.60%
Victim	n	47	54	101
	%	11.30%	15.30%	13.10%
Aggressor/victim	n	109	100	209
	%	26.30%	28.20%	27.20%

Table 3: Distribution of bullying roles by sex.

Involvement in bullying varied as follows: 32.1% of the sample reported that they were not involved, 27.6% reported having been the aggressor with at least an act often, 13.1% of the sample reported often being a victim of at least one form of bullying and 27.2% reported that they were aggressive victims. There were sex differences in the distribution of bullying roles (χ^2=8.206; p=0.042), with a smaller proportion of girls reporting involvement as an aggressor (Table 3).

Correlation analysis (Table 4) shows that both victimisation, such as aggression were negatively correlated with global quality of life (Kidscreen-10) and with nearly all specific HRQL dimensions (Kidscreen-52), namely with physical and psychological wellbeing, mood, self-perception, autonomy, parental social support, peers' social support and school environment. Aggression was most strongly associated with quality of life in the school environment (r=-0.416, p<0.01). Most other dimensions of HRQL were more negatively correlated with victimisation, especially mood (r=-0.523, p<0.01).

We also observed, however, that self-reported aggression (but not victimisation) was positively associated with age whereas global quality of life and most HRQL dimensions, except autonomy and peer support, were negatively associated with age. All HRQL dimensions were positively correlated with each other (Table 4).

ANOVA with bullying role as the grouping factor revealed group differences in all HRQL dimension (Table 5).

Post hoc Bonferroni tests showed that aggressive victims had lower scores than the other groups for most HRQL dimensions; in fact, their scores were lower than those of the not involved group and the aggressor group in all dimensions and lower than the pure victim group with respect to mood-, self-perception-, parental support- and school environment-related HRQL.

The victim group had lower scores than the not involved group and the aggressor group for all HRQL dimensions except physical wellbeing. The aggressor and not involved groups had similar scores on all HRQL dimensions except school environment support.

Finally, linear regression was used to assess whether victimisation predicted quality of life independently from social support. Age and sex were entered into the models as control variables (Table 6).

The obtained model explained 69.6% of the variance; a Durbin-Watson test indicated that the assumption of independence of errors was valid and that the model factors were not affected by multicollinearity.

Being a victim of bullying had a negative effect on quality of life (β=-0.11, t=-5.01, p<0.001) independent of perceived social support from family, peer and within the school environment. However, it is the one with less strength in the model, although variables were entered by steps. In first step, victimisation, by itself, explained 20% of the variance of the model that was the only variable (β=-0.45, t=-14.13, p<.001; F=199.65; p<0.001).

Since correlation analysis showed a strong relationship between victimisation and mood, we also used mood as the dependent variable in a linear regression model, controlling for any effects of sex and age (Table 7).

The model did not seem to be affected by correlation or collinearity problems and explained 48.6% of variance. All variables included in the model were related to mood; parental social support, school environment social support and peers' social support were positive predictors of mood, whereas victimisation was a negative predictor.

Being a victim (β=-0.33, t=-11.29, p<0.001) had an effect on mood, regardless of perceived social support from peers, parents and school; it was the strongest predictor in the model. Variables were introduced in steps, in the first step victimisation was the only variable included; this model explained 27.3% of the variance in mood (F=285.37; p<0.001).

Finally, we investigated whether the effect on quality of life of

Variables	Age	Victimisation	Aggression	Quality of life	Physical wellbeing	Psychological wellbeing	Mood	Self-perception	Autonomy	Parental social support	Peers' social support	School environment
Victimisation	-0.006	--	--	--	--	--	--	--	--	--	--	--
Aggression	0.160**	0.346**	--	--	--	--	--	--	--	--	--	--
Quality of life	-0.191**	-0.456**	-0.262**	--	--	--	--	--	--	--	--	--
Physical wellbeing	-0.146**	-0.170**	-0.088*	0.658**	--	--	--	--	--	--	--	--
Psychological wellbeing	-0.159**	-0.347**	-0.197**	0.706**	0.446**	--	--	--	--	--	--	--
Mood	-0.213**	-0.523**	-0.231**	0.756**	0.396**	0.656**	--	--	--	--	--	--
Self-perception	-0.137**	-0.383**	-0.246**	0.543**	0.392**	0.469**	0.511**	--	--	--	--	--
Autonomy	-0.01	-0.292**	-0.100**	0.704**	0.333**	0.481**	0.444**	0.325**	--	--	--	--
Parental social support	-0.193**	-0.311**	-0.240**	0.638**	0.294**	0.520**	0.498**	0.386**	0.456**	--	--	--
Peers social support	0.021	-0.369**	-0.124**	0.568**	0.306**	0.513**	0.376**	0.309**	0.516**	0.344**	--	--
School environment	-0.178**	-0.334**	-0.416**	0.609**	0.283**	0.421**	0.441**	0.309**	0.280**	0.419**	0.283**	--
Economy	-0.139**	-0.257**	-0.053	0.409**	0.222**	0.287**	0.337**	0.261**	0.344**	0.366**	0.366**	0.183**

Table 4: Pairwise Pearson's correlations between quality of life, age, victimisation and aggression dimensions.

Variables		Mean	SD	F	Sig.
				Effect of group	
Psychical wellbeing	Not involved	18.7	3.35	5	0.002
	Aggressor	18.94	3.35		
	Victim	18.38	3.52		
	Aggressive victim	17.71	3.73		
Psychological wellbeing	Not involved	25.08	4.03	23.22	0
	Aggressor	25.13	3.95		
	Victim	23.34	4.72		
	Aggressive victim	21.97	5.57		
Mood	Not involved	28.83	4.51	54.25	0
	Aggressor	28.81	4.48		
	Victim	25.9	5.08		
	Aggressive victim	23.74	5.47		
Self-perception	Not involved	20.27	3.23	31.34	0
	Aggressor	19.51	3.52		
	Victim	18.62	3.78		
	Aggressive victim	17.04	4.21		
Autonomy	Not involved	20.62	3.37	20.58	0
	Aggressor	20.39	3.73		
	Victim	18.56	4.22		
	Aggressive victim	18.08	4.67		
Parental social support	Not involved	26.08	3.9	23.14	0
	Aggressor	25.94	4.03		
	Victim	24.47	4.16		
	Aggressive victim	23.08	4.92		
Economy	Not involved	12.63	2.22	11.74	0
	Aggressor	12.88	2.19		
	Victim	11.42	3.19		
	Aggressive victim	11.68	3.28		
Peers' social support	Not involved	26.18	3.18	18.91	0
	Aggressor	26.24	3.1		
	Victim	24.01	4.93		
	Aggressive victim	24.14	4.43		
School environment	Not involved	22.6	4.15	28.65	0
	Aggressor	21.42	4.53		
	Victim	21.16	3.92		
	Aggressive victim	18.81	4.78		

Table 5: Descriptive statistics and ANOVA for HRQL dimensions and bullying roles.

Variables	β	t	p	F	R²	FIV	Durbin-Watson
Parental social support	0.29	12.36	0	--	--	1.42	--
School environment support	0.35	15.17	0	--	--	1.36	--
Peers' social support	0.32	14.27	0	--	--	1.26	--
Victimisation	-0.11	-5.01	0	--	--	1.27	--
Model	--	9.66	0	287.69	0.696	--	2.02

Table 6: Results of linear regression with quality of life as dependent variable and victimisation and social support as independent variables.

Variables	β	t	p	F	R²	FIV	Durbin-Watson
Victimisation	-0.33	-11.3	0	--	--	1.27	--
Parental social support	0.216	6.94	0	--	--	1.42	--
School environment social support	0.189	6.2	0	--	--	1.36	--
Peers' social support	0.127	4.32	0	--	--	1.26	--
Model	--	11.16	0	119	0.486	--	1.95

Table 7: Result of linear regression with mood as dependent variable and victimisation and social support as independent variables.

Variables	β	t	p	F	R²	FIV	Durbin-Watson
Aggression	-0.003	-0.11	-0.904	--	--	--	--
Parental social support	0.311	12.86	0	--	--	1.4	--
School environment social support	0.381	16.36	0	--	--	1.3	--
Peers social support	0.352	15.88	0	--	--	1.18	--
Model		8.17	0	329.92	0.686	1.25	2.02

Table 8: Results of linear regression with global quality of life as dependent variable and aggression and social support dimensions as independent variables.

being an aggressor was independent of social support using the same procedure. The results indicated that the relationship between aggression and quality of life was mediated by other variables and that being an aggressor had no independent effect on quality of life ($β=-0.003$, t=-0.11, p=-0.904) (Table 8).

Discussion

The results indicate, first of all, that the schoolchildren in our sample had relatively high global HRQL and relatively high scores for specific dimensions of HRQL.

There were sex differences in HRQL. Girls had lower global HRQL and lower scores in several HRQL dimensions (physical and psychological wellbeing, mood, self-perception, autonomy and parental support). These data are consistent with the well-established finding that females have lower HRQL than males throughout life.

It has been noted that factors specific to adolescence may help to explain this fact, as menarche and the associated hormonal changes may have a negative impact on regulation of emotion and ability to cope with stressful events. The greater cultural requirements and gendered expectations and ideals of beauty may make girls and women more susceptible to psychosomatic disorders [23,24]. However, as women also report worse quality of life than men in adulthood and old age factors not linked to adolescence, such as women's lower levels of physical activity, increased emotional sensitivity or greater concern relatives' welfare might also be factors in their lower quality of life throughout the lifespan [25,26].

We found that 27.6% of the sample reported being aggressors, which is consistent with values for the prevalence of aggression observed with the same instrument in eleven European countries [16]. The prevalence of victimisation was 13.1%, 27.2% reported being aggressive victims and 32.1% that they were not involved in bullying. Girls were less likely than boys to be aggressors, which is a well-established finding and consistent with a wider body of research indicating that sex and gender variables appear to be associated with frequency and type of aggression [26,27].

Both participate on intimidation or aggression as experience it has a negative impact on the HRQL of schoolchildren. Victimisation has a greater negative impact on almost all aspects of HRQL than aggression or intimidation except perceived school support; the negative impact on mood is particularly marked.

Our results suggest that the more aggressive a child's behaviour is, the worse his or her school adjustment; this is a consistent finding; aggression has been linked with poor school adjustment, lower academic achievement, truancy and expulsion. More specifically, underachievement has been shown to be a risk factor for being an aggressor and low involvement in school and lack of contact with teachers have been identified as risk factors for involvement in bullying [28-30].

If we consider the relationships between HRQL and the various bullying roles it is clear that children who are not involved in bullying have the best scores on all HRQL dimensions. Aggressors score similarly to those not involved in bullying, except with respect to school support. There is evidence that aggressors are at high risk of involvement in antisocial behaviour in the future, and a lower HRQL in adulthood [14,31,32]. However, in our sample, aggression did not appear to have a negative impact on HRQL. Aggressors did report receiving less support in from the school environment, which suggests that the problems arising from their behaviour are largely confined to school.

Victims, especially aggressive victims, had lower quality of life than the other groups. Being bullied at school appeared to be linked to perceived difficulties in several important aspects of child and adolescent development, a finding which has been reported in international studies on quality of life [7].

Aggressive victims scored even worse than pure victims on most HRQL dimensions. Previous studies had indicated that aggressive victims are the group at greatest risk of developing social and psychological problems [22,23]. The aggressive victims have, thus, a deepening of the pattern of victimisation and the aggression, which leads to a worse perception of their physical and psychological wellbeing, lower mood, worse perception of themselves and their autonomy, as lower perception of social support in all domains (school, family and peers).

The literature suggests that life satisfaction is higher among teenagers who have social support from peers, perceive their teachers as a source of support and find their parents a good source of emotional support; social support has been shown to promote psychological wellbeing and our data corroborate this [33,34].

The regression results confirmed that victimisation has negative effects on overall HRQL and mood that are independent of perceived support from parents, peers and the school environment [4,8,13,20,35].

In contrast, when school environment support was introduced into the model the negative relationship between aggression and quality of life disappeared. This suggests that the negative impact of participation in aggression on HRQL is due to its negative impact on school support.

Social support has been investigated as a potential resilience factor in victims but there has been less attention paid to the potential benefits for aggressors, so this may be an interesting line for future research. In particular, it would be interesting to investigate whether aggressive victims suffer the combined effects of the lack of support that is associated with aggressive behaviour and poor reputation that is associated with victimhood.

The pattern of associations among bullying, social support and HRQL underscores the importance of contextual factors to an understanding effects of bullying; anti-bullying interventions should take into account the whole school context and not just the nature of vulnerable groups [36,37].

Conclusion

The results of this study should be viewed with caution as it is based on self-report data. Furthermore, because it was a cross-sectional study we cannot determine the direction of associations. It is important to note, however, that self-report is a commonly used method of obtaining HRQL data in large populations; the use of a representative sample means that the results allow some level of generalisation.

Our results may be useful for promoting healthy development in school. It is clear that notwithstanding the impact of individual, family and social factors, their school environment is critical to children's welfare.

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