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Prevalence of the bullying phenomenon in a schools sample of Palermo, Sicily: a pre-post intervention observational study among teachers

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Summary. *Background and aim of the work:* Bullying involves a significant percentage of school-age children. According to the latest available surveillance data, in Sicily, the estimated prevalence among 11-15 years old children is 14%. This study aimed to estimate a prevalence of the bullying phenomenon, observed by teachers, in a sample of secondary schools of Palermo, Sicily. Moreover, after the conduction of preventive interventions among teachers, aimed to evaluate any modification in bullying prevalence. *Methods:* A cluster sampling selection according to socio-economic level of the school neighborhood was carried out. Two anonymous online questionnaires, pre and post-intervention, were administered to the 63 teaching staff, belonging to second and third year classes of ten secondary schools enrolled. Preventive interventions were conducted among teachers by experienced researchers. *Results:* Prevalence of bullying reported decreased significantly from 44.4% to 19.0% (p-value 0.001), comparing pre and post-intervention questionnaires. A reduction in the prevalence of verbal and physical bullying and a concomitant slight increase of indirect bullying were also observed. All the characteristics, reported by the teaching staff, for describing bullies, victims and observers of bullying have been categorized under three different content domains (affective-relational discomfort, socio-cultural context, and character/natural disposition). *Conclusions:* The present study estimated the prevalence and the characteristics of bullying phenomenon in a sample of secondary schools of Palermo, evaluating the reduction of bullying episodes among students, after a preventive interventions conducted among teaching staff. Data obtained confirmed the effectiveness of this approach and suggested an extension of the project at Regional Level.

Key words: bullying prevalence, secondary schools, teachers, socio-economic level

Introduction

Bullying is one of the most relevant social and health problem for school-age children and adolescents all over the world (1, 2).

In recent decades, the bullying phenomenon has gained increasing interest in public health, catalyzing many efforts in research, prevention and action frameworks (3-9).

Bullying can be defined as a systematic abuse of power that manifests itself with intimidation - forms of physical, verbal or psychological persecution - repeated over time, conceived and acted with the intention to cause fear, anguish or damage to the vic-

tim, perpetuated by a person or by a group of people, stronger within an unbalanced relationship with the victim (10).

Intentionality, duration over time and asymmetry in the relationship are the three main peculiarities of bullying. Moreover, victims of bullying are often selected for their condition of diversity and/or fragility.

In Italy, bullying involves a significant percentage of school-age children: 2 in 10 kids between 11-17 years reported to have been bullied two or more times in a month, with a higher prevalence among girls (11).

In Sicily, the first Italian region by territorial extension and the fourth by resident population, the estimated prevalence of children aged 11 to 15, who claims to have undergone at least one act of bullying in the last two months, was of 14% in 2011 (12).

According to literature, teachers demonstrate ignorance regarding some aspects, such as the lack of a clear motivation for the attacks, their repetition, and the fact that most of the time they happen far from the adults. Therefore, it is evident that teachers are aware of bullying, but incompletely, making it difficult to identify it in the classroom and differentiate it from other recurrent behavior in the school environment, such as jokes and lack of discipline (13-15).

The "Bullying In Sicilian Schools" (BIAS) study was designed with the aim to estimate the prevalence of the different form of bullying observed and perceived by teachers, at the beginning of the school year, in a representative sample of secondary schools of Palermo, the most populated city of Sicily, and at the end of the same school year, after the implementation of structured and targeted bullying prevention interventions addressed to teachers (16).

Material and methods

A pre-post intervention observational study involving 63 teaching staff members, belonging to second and third years classes of secondary schools of the city of Palermo, was conducted. Ten schools were enrolled in the study after a cluster sampling selection by neighborhood socio-economic index. To this purpose, schools were categorized in high (A), medium (B) and low (C) (16).

Two previously validated anonymous online questionnaires were administered pre and post intervention, respectively, to the teaching staff (16).

Operating procedures

In October 2017, during a dedicated meeting conducted by the BIAS's working group in collaboration with the Regional Bullying Observatory of Sicily (Italy), the project was presented to the bullying referent teachers of each school enrolled. The contents of the questionnaire and study timeline were illustrated in depth.

Afterwards, in November 2017, during the Class Council of each class recruited in the study, an online pre-intervention questionnaire was administered to the teachers' bullying referent, following a collegial consultation (16). Further, from January to May 2018, informative and formative interventions was dedicated to the enrolled teachers.

Finally, in June 2018, a post-intervention questionnaire was administered with the same proceeding of the pre-interventional one, with the aim to detect any changes in bullying prevalence.

Pre-intervention questionnaire

The pre-intervention questionnaire started with a preliminary question investigating whether bullying episodes, identified according to the World Health Organization definition, had occurred among students in the previous two months of school activities (September and October 2017) (10). If the answer was affirmative, the class council referent was in charge to complete the remaining part of the questionnaire.

The pre-intervention questionnaire was structured in 10 items, with multiple or open answers, aimed to investigate (16):

(1) the type of bullying mainly reported (verbal, physical or indirect);
(2) the places where bullying occurred;
(3) the number of students involved;
(4) bullying episodes reported by the victims or by other classmates to teachers, school chief or parents;
(5) the action taken to face or prevent bullying at school;

(6) the potential support provided by school staff to victims of bullying;
(7) the perceived need of specific interventions to prevent bullying;
(8) the type of intervention suggested by the teachers;
(9) the three main characteristics of bullies, victims or observers.

All the characteristics reported by the teaching staff to describe bullies, victims and observers of bullying have been categorized under three different content domains: affective-relational discomfort, socio-cultural context, and character/natural disposition. A qualitative analysis of such characteristics was then carried out.

Intervention

Five working groups (WGs) were defined to realize the intervention in the ten enrolled schools.

Each WG organized the intervention in two schools and was composed by at least three members of the BIAS project: a) a member of the Regional Scholastic Office, in charge of connecting the working group and the teachers; b) one or two Local Health Unit representatives with proven experience in the management of adolescent psychological problems and, particularly, bullying; c) one or two medical doctors from the University of Palermo, with an expertise in Public Health and Preventive Medicine.

The intervention was conceived to improve the teachers' ability to identify bullying episodes following the hypothesis to determine a positive cascade effect on the whole school community, starting from students' behavior. Thus, the targets of the intervention were all the 63 teachers of the classes enrolled from the sampled schools.

The intervention was implemented within four meetings lasting 3 hours each.

During the first meeting, data of the pre-intervention questionnaire were presented and discussed in a plenary session. Then, teachers were involved in conceiving and realizing effective activities oriented to increase awareness of bullying and in promoting preventive actions in the school context.

So, during the following 3 meetings, participatory approaches for planning (i.g. word café, role playing, goal oriented project planning) were implemented to structure an activity to be proposed by each WG.

As an expected outcome, during the intervention timeframe, part of the teachers voluntarily organized with their students initiatives, such as cooperative learning, peer education and role playing to address and prevent the bullying at school.

Post-intervention questionnaire

The post -intervention questionnaire included 10 multiple-choice or open-ended questions.

First of all, teachers were asked to indicate, if there had been any bullying in their class during the previous six months (January to May 2018). Again, questions about type of bullying, reported by the victims or other classmates were asked.

Modification in the frequency of bullying episodes were investigated as compared to pre-intervention period. Furthermore, an evaluation of the interventions implemented, with a specific concern on its methodology and the prevention strategies to be proposed for the next school years, was performed.

Finally, in July 2018, all the teachers and working group members plenary discussed and shared the initiatives carried out by each group, the results of the post-intervention questionnaire and the future perspectives of the study.

Data collection and analysis

The questionnaires were both self-administered throughout the use of a dedicated online form developed with the Google Forms platform. A McNemar test was performed to evaluate any prevalence modification between pre-and post-intervention.

All categorical variables were reported as absolute and relative frequencies (percentages). Chi-square test (with the Fisher's correction when appropriate) was used to compare categorical variables.

For the open-ended questions, a qualitative analysis was performed using a content analysis approach. The text strings were systematically read, coded and all the emerging contents were then categorized and classified by a medical doctor with expertise in adolescent mental health.

All the informatics supports (computers, servers, memories and portable disks, etc.) dedicated to the collection, conservation (even temporary) and the processing of data, have been provided with adequate security and protection mechanisms to prevent access to data by unauthorized persons.

The dataset, after being checked and cleaned of any errors or duplicates, was imported to EpiInfo ver.3.5.1 for statistical analysis.

The present study obtained the approval of the Palermo Ethical Committee 1, in the session of the 12th of July 2017 (protocol number: 07/2017) (16).

Results

Pre-post intervention questionnaires analysis

The prevalence of bullying episodes reported by teachers in the 63 classes decreased significantly from 44.4 % (n=28) of the pre intervention period to 19.0 % (n=12) of the post intervention period (p-value 0.001) (Table 1).

There was no substantial difference in bullying prevalence between second and third classes both in pre (45.5% vs 43.3%, respectively) and post-intervention (21.2% vs 16.7%, respectively) surveys (Table 1).

Furthermore, as shown in Table 1, a dissimilar significant prevalence (p-value <0.01) of bullying episodes was observed among schools by neighborhood socio-economic index. Specifically, a higher prevalence of bullying was observed in group B (66.6%), followed by C (36.8%) and A groups (25%).

Differently, after post-intervention questionnaire, the prevalence of reported bullying episodes was significantly higher in group C (36.8%), followed by group B (20.8%) and A (0%) (p-value <0.01).

As reported in Table 2, a reduction in the prevalence of verbal (n=20; 71.4% vs n=7; 58.3% respectively) and physical (n=4; 14.3% vs n=0; 0% respectively) bullying was observed comparing pre- and post-intervention data. Conversely, an increase of indirect bullying, passing from 14.3% (n=4) to 41.7% (n=5) was observed. More frequently the episodes of bullying were reported in classrooms (67.9%) followed by common spaces like hallways, bathrooms or school entrance (39.2%) and outside the school (32.1%) (table 2). In the majority of bullying phenomena observed before interventions, no more than five students were involved (82.1%). Both in pre- and post-intervention questionnaires the preferred reference person for the victims, to talk about bullying, resulted the teacher (53.1% and 50% respectively), followed by parents (28.6% and 33.3% respectively) and classmates (10.7% and 8.3%) (Table 2). Also a borderline statistically significant consistent decrease of the percentage of other students of the classrooms reporting bullying episodes involving classmates (from 46.4% to 16.7%) was observed (Table 2).

Table 1. Distribution of bullying episodes by school year attended and school neighborhood socio-economic index in pre- and post-intervention

n=63	Pre-intervention bullying, n (%)		p-value	Post-intervention bullying, n (%)		p-value
	Yes	No		Yes	No	
Reported bullying episodes in the last two (pre-intervention) and six (post-intervention) months						
	28 (44.4)	35 (55.6)		12 (19.0)	51 (81.0)	0.001
School year attended						
- *Second year (n=33)*	15 (45.5)	18 (54.5)	0.53	7 (21.2)	26 (78.8)	0.44
- *Third year (n=30)*	13 (43.3)	17 (56.7)		5 (16.7)	25 (83.3)	
Neighborhood socio-economic index						
- *High (A) (n=20)*	5 (25.0)	15 (75.0)	< 0.01	0 (0.0)	20 (100.0)	<0.01
- *Medium (B) (n=24)*	16 (66.7)	8 (33.3)		5 (20.8)	19 (79.2)	
- *Low (C) (n=19)*	7 (36.8)	12 (63.2)		7 (36.8)	12 (63.2)	

Table 2. Characteristics of the bullying phenomenon reported by the teaching staff of the n. 63 classes of the schools sampled in the City of Palermo reported in pre- and post-intervention questionnaires

	Bullying prevalence Pre-intervention n=28 n (%)	Bullying prevalence Post-intervention n=12 n (%)	p-value
Type of bullying occurred			
- *Verbal*	20 (71.4)	7 (58.3)	0.09
- *Physical*	4 (14.3)	0 (0.0)	
- *Indirect*	4 (14.3)	5 (41.7)	
Places were bullying phenomena occurred *(possible multiple responses)*			
- *Classrooms*	19 (67.9)	-	-
- *Common spaces (hallways, bathrooms, entrance)*	11 (39.2)	-	
- *Outside the school*	9 (32.1)	-	
Students involved in the bullying episodes			
- *At least five*	23 (82.1)	-	-
- *More than five*	5 (17.9)	-	
Victims of bullying talks with someone about episodes suffered *(possible multiple responses)*			
- *Yes, with teachers*	15 (53.6)	6 (50.0)	0.54
- *Yes, with classmates*	3 (10.7)	1 (8.3)	
- *Yes, with parents*	8 (28.6)	4 (33.3)	
- *No*	2 (7.1)	1 (8.3)	
Other students of the classrooms reported bullying episodes involving classmates			
- *Yes*	13 (46.4)	2 (16.7)	0.06
- *No*	15 (53.6)	10 (83.3)	
In counteracting bullying phenomena, who provided a support? *(possible multiple responses)*			
- *Colleagues*	28 (100.0)	-	-
- *School chief*	17 (60.7)	-	
- *Parents*	9 (32.1)	-	
Could a formative or educational intervention change the bullying attitude?			
- *Yes*	23 (82.1)	-	-
- *No/ I don't know*	5 (17.9)	-	
Suggested target for intervention on bullying prevention, (n=23)			
- *Teachers*	13 (56.6)	-	-
- *Selected students and parents*	5 (21.7)	-	
- *Whole classrooms*	5 (21.7)	-	
Bullying trend observed, (n=28)			
- *Increasing*	5 (17.8)		
- *Stable*	1 (3.6)		
- *Decreasing*	22 (78.6)		

Teachers received a strong support in counteracting bullying phenomena always by colleagues (100%), often by school chief (60.7%) and parents (32.1%). The majority of teaching staff enrolled required a formative or educative intervention for changing bullying attitudes (82.1%) and more than an half (56.5%) preferred an intervention among teachers (table 2).

As further shown in table 2, in the 78.6% of teaching staff reporting at least one episodes of bullying in the pre-intervention questionnaire (n=28), a decreasing trend of bullying in their classrooms after intervention was documented.

Finally, the 95.2% (n=60) of teaching staff considered helpful and useful the interventions carried out

and the 79.4% (n=50) of respondents implemented preventive intervention not only among collegues but also among students, throughout standardized and evidence-based methods, such as cooperative learning, peer education and role playing (data not shown in Tables).

Qualitative analysis

Table 3 shows the results of the qualitative analysis with the specific characteristics reported of bullies, victims of bullying episodes and observers, for each specific domain. In particular, within the area of "affective-relational discomfort" the characteristics categorized were for bullies (frustration, relational discomfort, roles disavowal, attention-seeking, warnings indifference, exclusion fear, emotional shortage), for victims (relational difficulties, lack of social skills, anxiety, inability to ask for help, fragility, social exclusion), and for observers (fear of marginalization, need to feel accepted, fear of social exclusion, fear to expose themselves, omertà/accomplice silence, need to identify with someone else). For the domain of "socio-cultural context" instead for bullies were reported: social discomfort, ignorance, lack of positive model, vulgarity, familiar discomfort, rules refusal, socio-economic and cultural disadvantage; for victims: socio-economic and cultural disadvantage, disability and isolation; and for observers: low or excessive involvement, passivity and poor solidarity. Lastly, within the domain of "character/natural disposition", bullies' characteristics reported were: prevarication, abuse, tyranny, arrogance, evil, aggressiveness, cockiness, immaturity, shallowness, self-doubt, low self-esteem, fragility; victims characteristics were: loneliness, fragility, subservience, insecurity, subjugation, weakness, shyness, low self-esteem, passivity; and for the observers: curiosity, superficiality, passivity, fear, cowardice, insecurity, indifference, lack of self-esteem, individualism, complicity.

Discussion

To the best of our knowledge, the BIAS study represents the first study conducted in Italy with the aims to estimate the prevalence of bullying among

Table 3. Qualitative analysis of the characteristics of bullies, victims and observer of bullying episodes reported by the teaching staff of the n. 63 classes participating to the pre-interventional study

Affective-relational discomfort	Socio-cultural context	Character/natural disposition
	Bullies	
Frustration, relational discomfort, roles disavowal, attention-seeking, disregards for warnings, exclusion fear, emotional shortage;	Social discomfort, ignorance lack of positive model, vulgarity, familiar discomfort, rules refusal, socio-economic and cultural disadvantage;	Prevarication, abuse, tyranny, arrogance, evil, aggressiveness, cockiness, immaturity, shallowness, self-doubt, low self-esteem, fragility;
	Victims of bullying episodes	
Relational difficulties, lack of social skills, anxiety, inability to ask for help, fragility, social exclusion;	Socio-economic and cultural disadvantage, disability, isolation;	Loneliness, fragility, subservience, insecurity, subjugation, weakness, shyness, low self-esteem, passivity;
	Observers of bullying episodes	
Fear of marginalization, need to feel accepted, fear of social exclusion, fear of expose yourself, omertà, need to identify with someone else;	Low or excessive involvement, passivity, poor solidarity;	Curiosity, superficiality passivity, fear cowardice, insecurity indifference, lack of self-esteem, individualism, complicity.

secondary school students by interviewing the teachers and to evaluate the potential reduction of bullying episodes after a preventive intervention.

We reported a 44% prevalence of the bullying phenomena before preventive interventions conducted.

This estimate is very high as compared to previous evidences available on the topic provided by the national survey "health-behavior in school-aged children" (HBSC), documenting a 14% prevalence of bullying episodes (12).

This difference could be explained by different aspects. As first, the HBSC survey, predominantly analyzing life-styles, attitudes and habits of Italian adolescents, posed only a generic question referring to potential episodes of bullying suffered at school (12). More in depth, an important difference in the definition used by the two questionaries should be noticed, since in HBSC the word "bullying" was used to detect the prevalence without a specific explanation, while in the BIAS study at the beginning of both pre and post intervention questionnaires, the universally and scientifically recognized definition of bullying was reported to help teachers in correct identification of bullying episodes (10). Furthermore, the BIAS study provided estimates by interviewing the teaching staff, while HBSC was addressed directly to student. All of the previous evidences taken together let us conclude that the HBSC study could have largely underestimated the bullying phenomenon in the school setting.

According to the survey results, about two thirds of the bullying episodes reported took place within the classrooms. This could be attributable to the specific perception of teachers that spend most of their time in classrooms. Contextually, about a third of bullying episodes took place in common areas and outside the school building, in accordance with literature data, indicating that places near or on the route, to and from school, are at high risk of bullying episodes (17 - 19).

Of interest, the majority of the interviewed teachers declared to have direct information from children victims of bullying. This data has to be taken into account because, as reported internationally, teachers represent the primary actors in creating and maintaining a positive classroom climate, as well as in promoting healthy interpersonal relations among their students and in the prevention of bullying episodes (20-22).

With regard to the effectiveness of the preventive interventions taken in place by the teachers, a significant decrease in bullying prevalence was highlighted through the post test questionnaire.

In particular, the episodes of bullying were zeroed in schools of higher socio-economic level and significantly decreased in those of average level. Only for the schools located in the most deprived areas of the city the prevalence has not changed. This trend is in line with the available literature, documenting the difficulty to prevent bullying phenomenon in disadvantaged context (23, 24).

Moreover, the qualitative analysis of the characteristics of bullies, victims and observers of bullying episodes reported by the teaching staff through the pre-intervention questionnaire highlighted three semantic domains: affective-relational discomfort, sociocultural context, and character/natural disposition.

In particular, teachers outlined a common ground for the sociocultural context within a disadvantage economic position for both bullies and victims, while for bullies emerged a specific role of the family in terms of "familiar discomfort, lack of positive model, vulgarity and rules refusal". Lastly, in line with the current literature disability was highlighted to play a role with regard to victims selection by bullies (25, 26).

Furthermore, according to the dimension explored by the character/natural disposition domain, it was possible to recognize the well-known bully profile, corresponding to the prevaricator features with a lack of confidence in him/herself (23). It is important to notice how "fragility" and "low self-esteem" were indicated for both bullies and victims, while features of "indifference", "passivity" and "individualism" emerged for observers. Attention should be also paid to "omertà/ accomplice silence" as one on the main characteristic attributed by the teachers to the observers, this probably reflecting the influence of the Sicilian cultural specific background within the genesis of phenomenon of bullying in this specific setting.

A controversial aspect of the methodology applied in our study could be the collegial answering approach to the questionnaires. In fact, although this could have overshadowed some perceptions of single

teachers, on the opposite, it has generated and has allowed at the same time the opportunity to improve and spread the dialogue within the teaching staff on the bullying issue.

An important limitation of our study is the involvement of schools from urban setting only, so introducing a potential selection bias that has to be prevented by extending the future investigation also to suburb and rural areas.

Last but not least, even if a comprehensive interpretation of the occurrence of the bullying phenomenon documented by the BIAS study will be possible only after the integration with the students' perception, we strongly believed that these findings could already have important implications for designing further intervention, strategies and programs for bullying prevention.

Conclusions

The BIAS study has allowed us to estimate the prevalence and the main characteristics of bullying phenomenon in a sample of secondary school of the Palermo city, together with the effectiveness of specific preventive interventions targeted to the teaching staff in reducing bullying episodes among students. Despite the discussed limitations, this preliminary findings could be considered as a first step of a wider project extended to students' perceptions on the topic. If the effectiveness of this approach in reduction and prevention of bullying phenomena will be confirmed also among students, the BIAS model should be applied on regional or national scale.

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