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## Patterns, Characteristics, and Correlates of Adolescent Bully-Victims in Urban Tanzania

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Received: 17 September 2013; in revised form: 29 September 2013 / Accepted: 12 October 2013 / Published: 23 October 2013

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**Abstract:** Bullying is an understudied issue of public health importance in low-income countries. In the present study, we aimed to explore social and demographic factors associated with bullying among adolescents in a low-income country urban setting. We divided a sample of 2,154 school-attending adolescents into two groups, those who had been bullied during a 30-day period and those who were not. We considered age, sex, mental health, parent-relationship, hunger and social deprivation and truancy in our comparison of these two groups using logistic regression. Multinomial regression was also used to determine if there was a dose response relationship between bullying frequency and the aforementioned selected variables. We found that school-attending adolescents in Dar es Salaam were more likely to be truant, suffer from mental health problems and have experienced hunger. Adolescents who had parents which were more aware of their free time activities, were less likely to report being bullied. There were also significant differences in bullying frequency and certain variables, most notably with truancy, economic and social deprivation, and signs of depression. School settings in Dar es Salaam offer a potential for intervening in what are potentially harmful effects of bullying behavior among bully victims.

**Keywords:** bullying; adolescents; school health; Africa; urban setting

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## 1. Introduction

Bullying is an important public health problem globally. While it occurs in all countries, considerable variations in prevalence have been observed. Within high-income country (HIC) settings, bullying prevalence ranges from a low of 5/6% (*males/females*) to 36/32% [1]. In low-income country (LIC) settings which have made population-based data available, differences range from 8/7% to 63/58% for students who reported being bullied at least once during a one month period [2]. Being bullied has been found to be associated with economic deprivation, poor mental health, one's level of social support, quality of the parent-child relationship, and truancy [1,3–7]. In a recent longitudinal study of U.S. high school students, Klomek and colleagues found that bullying frequency was strongly associated with depressive symptomatology and other risk behaviors [8].

As with other forms of interpersonal violence, the effects of bullying on the health and well-being of bullying victims can potentially be severe. Victims of bullying may develop serious mental health problems, problems in school, and may be at greater risk for suicidal behaviors [9,10]. With the possibility of such deleterious sequelae, it is crucial that effective bullying interventions are available in communities in every corner of the globe. In order for globally-available interventions to become a reality, however, adequate epidemiologic data is needed to inform the development of culturally-relevant programs, namely data discerning similarities and differences in risk and protective factors in various countries. A program developed for communities in high- or middle-income countries may not be easily translatable for implementation in LICs.

Despite the global public health significance of bullying and the need for intervention, it is one of the most understudied issues among adolescents in LIC settings [2]. Several lines of research [1,2,11], have identified associations between bullying and social inequalities, poor mental health and detrimental risk behaviors. These three areas have encompassed the majority of bullying research since the 1970's, when it began to be considered an important impediment to the healthy development of adolescents [12,13]. While this legacy has provided insight into the patterns of victimization among young people, the majority of current knowledge on the subject has been derived from investigations carried out in high-income country settings. This means that there may still exist important gaps in basic knowledge about risk and protective factors for bullying in LICs.

Compared with HIC settings, bullying has only relatively recently begun to be examined as a problem in African schools [14]. Of the few African countries that have school-based data on bullying [15–22], some context specific phenomena have emerged that have not been observed or widely studied elsewhere: HIV-status related bullying and an inverse relationship with having siblings [23]. These preliminary findings unique to African countries highlight the need for continued research on bullying patterns across the continent. Furthermore, they suggest that the current empirical knowledge of risk and protective factors for bullying victimization may not be entirely descriptive of bullying phenomenon in Africa.

There are additional factors which make bullying research from Sub-Saharan Africa (SSA) school settings scientifically relevant. These include the absence of very poor students in schools, who while potentially at even greater risk, are not present in data collection efforts [1,24]. There also exist considerable variations in school environments. For example, some schools mix older and younger students in classrooms. In some settings, this has been found to increase bullying risks for younger students [13,25]. While we do not focus on these issues in the present study, they serve as examples of context specific challenges which have made examinations of bullying patterns in African settings difficult.

The primary aim of this study was to explore several social and demographic factors—known to be associated with bullying victimization—among adolescents in an urban LIC setting. Specifically, we looked at bullying trends in Tanzania, which is generally regarded as one of the most politically and economically stable countries in Africa [26]. Given that most research has been conducted in HIC settings and that a nascent body of literature suggests that factors associated with bullying in African countries may differ from those in countries elsewhere, this epidemiologic research is necessary to arriving at a global understanding of bullying patterns. Our findings will add to the growing body of literature on bullying patterns in LIC, thereby creating a more comprehensive, encompassing picture of this global public health problem.

## **2. Methods**

### *2.1. Setting*

The data which informs this study was collected in Dar es Salaam (DES), which is Tanzania's largest and most important economic center. A coastal city, it is one of the fastest growing urban centers on the African continent and currently has a population of approximately 3.5 million. Roughly 33% of the population of DES are under the age of 14 years [27].

### *2.2. Sample*

Data were collected cross-sectionally by way of a two-stage cluster sampling procedure. This was done to produce data which was representative of all students in secondary schools in DES. Only schools from DES were included in the sample, and there is no available data on the composition or structure of the schools. At stage one, schools were selected with a probability proportional to enrollment size. At stage two, classes were randomly selected with all students in the selected classes being eligible to participate. The school response rate was 100% with the overall student response rate being 87%. A total of 2,176 students participated. Prior to conducting analyses, we excluded 22 adolescents who did not have complete data resulting in a final sample of 2,154 (52% females). The ages of the participants ranged from 11 to 16 years ( $M = 13.05$ ;  $SD = 1.38$ ). No information is available on economic status of the sample as this information was not collected with the survey. The Tanzanian Ministry of Health and Social Welfare had approved the survey.

### *2.3. Measurements*

We derived our data from the Tanzanian Global School-based Student Health Survey (GSHS). The GSHS is a self-administered questionnaire that collects relevant information for the discernment of risk

and protective factors for adolescents of school age in 43 mainly low- and middle-income countries. Additional information about the GSHS can be found elsewhere [28].

Our definition of bullying was derived from the GSHS questionnaire, which itself is based on the definition provided by the World Health Organization [28]. Participants were asked: *“During the past 30 days, on how many days were you bullied?”*. The responses were *“0 days; 1 or 2 days; 3 to 5 days; 6 to 9 days; 10 to 19 days; 20 to 29 days; and all 30 days”*. Subsequently they were asked to identify the type of bullying they have been subjected to: *“I was hit, kicked, or locked indoors”*; *“I was made fun of because of my race or color”*; *“I was made fun of because of my religion”*; *“I was made fun of with sexual jokes, comments or gestures”*; *“I was left out of activities on purpose or completely ignored”*; *“I was made fun of because of how my body or face looks”*; *“I was bullied in some other way”*. In this study we divided the entire sample into two categories: those that had been bullied and those who were not, both within the 30 day recall period. This was done by dichotomizing the responses to the question *“...how many days were you bullied”*. Bullied children were those that reported being bullied *“3–5 days”*; *“6 to 9 days”*; *“10 to 19 days”*; *“20 to 29 days”*; or *“all 30 days”*. Those who were not bullied (responses of *“0 Days”* or *“1–2 Days”*) were considered controls; there were no other criteria for inclusion in the control group. These cutoffs take into consideration the repeated over time nature of bullying and have been used in previous research on the topic [29,30].

Previous research documents that rates of victimization differ significantly by age and by gender [31], and as such, these variables were examined in the present study. We also investigated the associations of bullying victimization with the following independent variables, which were derived from questions from the GSHS survey:

- (a) Truancy. For truancy we used *“During the past 30 days, on how many days did you miss classes or school without permission?”*, response options included *“0 days; 1 or 2 days; 3 to 5 days; 6 to 9 days; 10 or more days”*. Students were considered truant if they had missed three or more days of school within the preceding 30 days.
- (b) Hunger and social deprivation. Hunger was measured using *“During the past 30 days how often did you go hungry because there was not enough food in your home?”* A category for social deprivation was created using *“During the past 12 months, how often have you felt lonely?”*
- (c) Psychosocial factors. Psychosocial factors included signs of depression and anxiety. For signs of depression we used responses to the question *“During the past 12 months, did you ever feel so sad or hopeless almost every day for two weeks or more in a row that you stopped your usual activities?”* the responses were *“yes; no”* with yes responses being used for analysis. For anxiety we used the responses to *“During the past 12 months, how often have you been so worried about something that you could not sleep at night?”* which was dichotomized into *“never; rarely; sometimes”* against *“most of the time; always”* with the latter being used as the independent variable.
- (d) Extent of parent-child relationship. To measure the extent of the parent-child relationship we used the responses to *“During the past 30 days, how often did your parents or guardians really know what you were doing with your free time?”* The responses were dichotomized into *“most of the time/always”* and *“never; rarely; sometimes”*.

(e) Social network. Social network factors encompassed number of friendships: “*How many close friends do you have?*” with choices being “0; 1; 2; 3 or more” and we assessed the association with bullying for each friendship category.

#### 2.4. Statistical Analysis

We first tested the extent to which the bullying dependent variable was related to the selected independent variables using Pearson correlation coefficients. Then, in the bivariate analyses we used Pearson's chi-square for categorical variables and t-tests for continuous variables. We then used logistic regression to examine the strength of variable associations with bullying, while adjusting for covariates (age, gender and economic deprivation). The results for the bivariate analyses are reported as proportions, or means (age) along with their p-values. Significant p-values indicated that there were significant differences between bullied and non-bullied groups. We reported the results for the regression analyses using adjusted odds ratios (aOR) with 95% confidence intervals (CI). Statistical significance for both the bivariate and multivariate analyses were established at  $p < 0.05$ . We also conducted analyses to examine a possible dose response relationship between the number of days adolescents had reported being bullied and each of the variables under study. To do this we conducted a multinomial logistic regression using the following bullying categories: “0 days”, “1 to 2 days” and “3 or more days”. The effect measurements were reported as relative risk ratios (RRR) along with 95% confidence intervals. All analyses were conducted using Stata/IC 12 [32] and the R Statistical Environment [33] for Linux.

### 3. Results

Within the recall period, 24.1% ( $n = 519$ ) of respondents reported having been bullied one or more days with 2.3% ( $n = 50$ ) reporting bullying during each of the 30 days. This corresponded to event rates of 2.89 (95% CI = 2.64/3.14) and 0.28 (95% CI = 0.20/0.36) respectively per 1,000 person years. The reported types of bullying included being: kicked, pushed or shoved (24.5%); made fun of because of race/color (10.6%); made fun of because of religion (8.5%); made fun of about sex (10%); left out of activities (7.3%); made fun of about their body (11.3%); or made fun of in some other way (27.3%). The Pearson correlation test demonstrated that all variables with the exceptions of gender and number of friendships were statistically significantly correlated with bullying victimization (Table 1). However, only social deprivation showed a slightly more than moderate positive correlation ( $r = 0.30$ ), and parent's knowledge about free time showed a fairly sizable negative correlation ( $r = -0.49$ ). Signs of depression ( $r = 0.20$ ), truancy ( $r = 0.17$ ), and anxiety ( $r = 0.16$ ) had the next strongest correlations among the remainder of the variables, with economic deprivation having a slightly less than moderate positive correlation ( $r = 0.13$ ). In the bivariate analyses (Table 2) we found significant associations between bullying, hunger and social deprivation. Adolescents who reported being bullied were more likely to suffer from anxiety, signs of depression and be absent from school. We also found a significant association between parents knowing about their children's free time activities and bullying.

**Table 1.** Pearson correlation coefficients between bullying and selected variables.

Variable	Pearson coefficients	<i>p</i> -value
Age	0.060	0.010
Gender	0.028	0.211
Truancy	0.168	<0.001
Economic deprivation	0.130	<0.001
Social deprivation	0.300	<0.001
Number of friends	−0.010	0.659
Parent's knowledgeable about free time	−0.489	0.029
Anxiety	0.161	<0.001
Signs of depression	0.197	<0.001

**Table 2.** Bivariate analyses of bullied vs. non-bullied adolescents in Dar es Salaam, Tanzania (2006).

Variable	Bullied (n = 684)	Not bullied (n = 1,470)	P-value
<b>Mean age (SD)</b>	13.1 (1.37)	13.0 (1.34)	0.015
<b>Gender (male)</b>	50.0	47.0	0.211
<b>Truancy (3 days or more)</b>	16.5	6.7	<0.001
<b>Deprivation</b>			
Economic (yes)	7.5	2.9	<0.001
Social (yes)	13.7	3.3	<0.001
<b>Number of friends</b>			
No close friends	9.8	8.1	0.432
One close friend	13.8	12.9	-
Two close friends	18.7	20.6	-
Three or more close friends	57.8	58.5	-
<b>Parent relationship</b>			
Parents knowledgeable about free time	32.6	38.6	0.007
<b>Psychosocial</b>			
Anxiety (yes)	10.0	2.6	<0.001
Signs of Depression (yes)	34.0	18.0	<0.001

In the multivariate model (Table 3), compared with controls, we found no significant association with either age or gender. Bullied adolescents were nine percent more likely to report being anxious (aOR = 1.09; CI = 1.20–3.01), slightly more than twice as likely to report both signs of depression (aOR = 2.03; CI = 1.63–2.53) and social deprivation (aOR = 2.76; CI = 1.86–4.10). Hunger was significantly associated with being bullied (aOR = 1.78; CI = 1.10–2.84). We found that having one or more friends was slightly protective, even if not statistically significant. A parent who knew what their children were doing during their free time represented a significant protective effect against bullying (aOR = 0.78; CI = 0.64–0.95).

In the bivariate analysis according to days of bullying exposure (Table 4), we observed statistically significant dose-response trends for truancy, economic and social deprivation, number of close friends (non-friend group), parent knowledge of free time, and anxiety. While significant categorical differences existed among signs of depression, no clear trend was visible.

**Table 3.** Multivariate analysis of bullied vs. non-bullied adolescents in Dar es Salaam, Tanzania (2006).

Variable	Any bullying	
	aOR (95%CI)	P-value
Age	1.06 (0.99–1.14)	0.107
Sex (male)	1.01 (0.82–1.23)	0.956
Truancy (3 days or more)	2.26 (1.65–3.08)	<0.001
<b>Deprivation</b>		
Economic (yes)	1.77 (1.10–2.84)	0.018
Social (yes)	2.76 (1.86–4.10)	<0.001
<b>Number of friends</b>		
No close friends	Reference	-
One close friend	0.88 (0.58–1.34)	0.558
Two close friends	0.83 (0.56–1.22)	0.339
Three or more close friends	0.89 (0.63–1.25)	0.490
<b>Parent relationship</b>		
Parents knowledgeable about free time	0.78 (0.64–0.96)	0.016
<b>Psycho-social</b>		
Anxiety (yes)	1.90 (1.20–3.02)	0.006
Signs of Depression (yes)	2.03 (1.63–2.53)	<0.001

**Table 4.** Bivariate analyses according to days of exposure to bullying among adolescents in Dar es Salaam, Tanzania.

Variable	Not bullied (N = 1,470)	Bullied 1 or 2 times (N = 277)	Bullied 3 or more times (N = 311)	P-value
Mean age (SD)	13.0	13.1	13.1	0.058
Gender (male)	47.0	46.0	53.2	0.123
Truancy (3 days or more)	6.7	12.0	20.1	<0.001
<b>Deprivation</b>				
Economic (yes)	2.9	4.3	10.3	<0.001
Social (yes)	3.3	8.7	20.6	<0.001
<b>Number of friends</b>				
No close friends	8.1	10.2	12.1	0.030
One close friend	12.9	17.5	10.2	
Two close friends	20.6	17.1	17.7	
Three or more close friends	58.5	55.3	60.0	
<b>Parent relationship</b>				
Parents knowledgeable about free time	38.6	35.4	29.9	0.014
<b>Psychosocial</b>				
Anxiety (yes)	2.6	8.3	12.0	<0.001
Signs of depression (yes)	17.9	28.5	16.9	<0.001

In Table 5, the results of the multinomial logistic regression confirmed that significant dose response relationships existed after controlling for other covariates. With increasing exposure to

bullying victimization, truancy (RRR = 1.70 to 2.81), social deprivation (RRR = 1.80 to 4.48) and signs of depression (RRR = 1.67 to 2.57) had associations which increased in both strength and direction.

**Table 5.** Multinomial logistic regression analysis by bullied category.

Variable	Bullied 1 or 2 times RRR (CI)	P-value	Bullied 3 or more times RRR (CI)	P-value
<b>Age</b>	1.09 (0.98–1.20)	0.104	1.03 (0.93–1.13)	0.620
<b>Gender (male)</b>	0.87 (0.66–1.15)	0.326	1.12 (0.85–1.48)	0.412
<b>Truancy (3 days or more)</b>	1.70 (1.09–2.62)	0.018	2.81 (1.92–4.11)	<0.001
<b>Deprivation</b>				
Economic (yes)	1.12 (0.55–2.30)	0.762	2.30 (1.31–4.05)	0.004
Social (yes)	1.80 (1.03–3.12)	0.039	4.48 (2.85–7.02)	<0.001
<b>Number of friends</b>				
No close friends	1.25 (0.79–1.97)	0.342	1.38 (0.89–2.14)	0.151
One close friends	1.33 (0.92–1.93)	0.128	0.69 (0.44–1.08)	0.101
Two close friends	0.82 (0.57–1.18)	0.292	0.92 (0.65–1.32)	0.666
Three or more close friends	-	-	-	-
<b>Parent relationship</b>				
Parents knowledgeable about free time	0.89 (0.68–1.18)	0.449	0.67 (0.50–0.89)	0.006
<b>Psychosocial</b>				
Anxiety (yes)	2.06 (1.14–3.72)	0.017	1.70 (0.96–3.00)	0.067
Signs of depression (yes)	1.67 (1.23–2.26)	0.01	2.57 (1.93–3.42)	<0.001

#### 4. Discussion

Nearly one in four adolescents reported some form of bullying during the recall period—whether physical or psychological in nature. Compared with global data from high-income countries, the prevalence of bullying in DES was slightly higher than reported rates in the United States. Prevalence rates were similar to those in France but lower than rates in Russia [34]. When compared with data from countries in the region, with a similar period of recall, students in Tanzania were bullied less than those in Ghana [11] and South Africa [20]. The reasons for a lower rate compared with their African counterparts might be related to greater overall economic and political stability in Tanzania [26]. Additionally, Tanzania has a longstanding social tradition since independence of interdependent community relationships and other longstanding traditions which elevate tolerance (religious and social) and acceptance of ethnic and cultural differences [35].

The findings presented in this study confirm several detrimental behavioral and social patterns reported in the peer-reviewed literature, namely that students from economically disadvantaged backgrounds, as implicated by reports of hunger, and those who are socially deprived are more likely to be bullied by peers. Additionally, those who are bullied are more likely to suffer from poorer mental health (signs of depression) and miss days of school [11], and a dose-response relationship existed between these two variables and frequency of bullying.

This study's findings of the protective association with parent supervision is congruent with other studies which have found that supportive parenting and supervision results in improved health outcomes and enhanced social development [36]. Extending this rationale, parents who are more

knowledgeable about the whereabouts and free time activities of their adolescents, are potentially also more likely to have open relationships with them. This openness can mean that adolescents feel more comfortable discussing problems with peers with their parents, which may result in timely intervention.

Our study was unique for the previous findings in the literature we were unable to confirm. Compared with other African studies which have found differences in bullying rates by gender [21,23], we found no significant differences by gender. This finding may underscore gender-based cultural or contextual variations in what behaviors might be considered bullying. Furthermore, some research provides evidence that victimization declines with age among adolescents [31]. After controlling for covariates, we were not able to replicate this finding. A potential explanation may lie in cultural factors which may be more supportive of younger adolescents. In both instances, another likely explanation may be in the inherent limitations of the data used in the analyses.

While hunger was strongly associated with reported bullying, the association may have more complex underpinnings in a LIC setting. Researchers in Colombia argued that qualitative differences in equality, as they related to resource access, were more predictive of bullying behavior among adolescents [37]. This was in contrast to other work which focused mainly on the quantitative aspects of poverty [1,34].

To revisit the significant findings of truancy and mental health problems in bullying victims, these may be potential points of intervention for public health professionals in the region. The dose-response relationships between bullying frequency and truancy, and signs of depression, make a strong case for the inimical nature of bullying and its effect on victims' functioning and mental health. It is quite possible that the reported signs of depression and anxiety are contributing to truant behavior; it is well-documented that signs of depression and anxiety can substantially interfere with one's ability to participate in school and work activities [38]. Designing school-based interventions to address and treat these mental health issues in victims may improve functioning, and subsequently reduce truant behavior.

This study adds to the literature on bullying in the African region, and to our knowledge, is the first study on bullying in Tanzania using a population-based sample. Its contribution lies in its examination of risk and protective factors for bullying. In practice, it provides information on the nature of bullying in a LIC urban context. However, its contribution should be considered in view of several limitations. As the study is cross-sectional, causality cannot be assessed. The study is also limited in its ability to examine or control for exposures that may have originated in the home. The data used in this study did not disaggregate victimization by setting and thus no further analyses were possible to examine bullying behavior for example, on the way to or from school. Additionally, the data were self reported, variables of interest were each derived from only one survey item, and the survey did not capture the responses of adolescents who were not in school on the days in which the questionnaire was administered. As the survey was conducted only in DES, the results found in this study are not generalizable to the entire country.

## 5. Conclusions

As the results in this study have demonstrated, bullying takes a harmful toll on the health and well-being of school-attending adolescents in Dar es Salaam. More attention should be given to

devising ways in which prevention efforts could be realized in school settings. In one intervention study in the United States focusing on problem solving skills, emotional management and empathy, rates of verbal, physical and sexual aggression decreased among a similarly adolescents in mid-western schools [39]. Given that bullying victims more likely to be truant and suffer from poorer mental health, a school-based intervention designed to ameliorate individual psychological symptomatology and encourage school attendance may be beneficial. In addition, group-level programming which encourages healthy peer-relationships may be envisaged with the aim of promoting well-being among bully-victims and non-victims alike. More research is needed, especially multi-level studies, which might convey more information on bullying differences that might exist between schools and in diverse settings.

### Acknowledgements

The authors would like to thank the local study coordinators and school officials as well as the Centers for Disease Control (Atlanta, United States) and the World Health Organization (Geneva, Switzerland) for their role in the organization of data collection. The authors are greatly appreciative of the students who took part in the Tanzanian contribution to the GSHS. The first author was supported by a grant from Suomen Kulttuurirahasto (Helsinki, Finland). The four anonymous reviewers are acknowledged for their comments and suggestions which helped to strengthen the manuscript. The authors would like to thank Ursuline Nyandindi for her assistance in the collection of the Tanzanian GSHS data.

### Conflicts of Interest

The authors declare no conflict of interest.

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