

The Paradoxical Effect of Social Support on Suicidal Ideation in Bullying Involvement in Different Cultural Contexts

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Abstract

This study examined the buffering effect of perceived social support on the association between bullying involvement and suicidal ideation. Cultural differences between Luxembourgish and Indian students were explored as well. The Olweus Bullying Questionnaire, the Participant Role Behaviour Questionnaire, and the Child and Adolescent Social Support Scale were used. Data of 483 high school students aged between 12 to 18 years were analysed using hierarchical regression. Significant cultural differences between Luxembourg and India in bullying involvement, perceived social support and suicidal ideation occurred. Importantly, it was found that perceived social support did not play a buffering role, but instead highly perceived social support from a close friend intensified the relationship between high cyber- and relational victimization and suicidal ideation.

Keywords: Cyber-bullying • Victimization • Bystander • Suicidal ideation • Perceived social support • Cultural differences

Introduction

Bullying involvement in the educational setting is a worldwide phenomenon, extending its occurrence from rather individualistic countries such as Norway [1] to collectivistic countries such as India [2], thereby crossing geographic and cultural boundaries. Depending on assessment methods, prevalence rates for bullying involvement fluctuate heavily across studies, however Modecki et al. [3] found in a meta-analysis including 80 studies across different cultural contexts a mean prevalence rate of traditional bullying perpetration of 35% and victimization of 36% as well as 15% for cyberbullying perpetration and 15% of victimization. Concerning their distribution among grade levels, Nansel et al. [4] found that middle school students (from 6th to 8th grades) are more likely to be victimized than 9th and 10th grade students. Although traditional bullying behaviour decreases with age [4], cyberbullying seems to increase during middle school years [5].

Bullying and cyberbullying

According to Olweus [1], bullying is defined as an intentional aggressive behaviour by one individual or a group of people, normally perpetrated constantly over time. In addition, there is also a power imbalance between the perpetrator and the victim [1]. In traditional bullying, power imbalance refers for example to a benefit of the bully in physical strength, vogue and psychological confidence [1]. A small student who is bullied by a taller student reflects a possible power imbalance, making the perpetrator feel powerful over his or her weak victim [6]. Bullying can occur in the form of cyberbullying and in three traditional forms, namely verbal bullying (e.g.,

name calling, derogatory remarks), physical bullying (e.g., kicking, spitting) and relational bullying (e.g., disseminating false rumours, social exclusion) [1].

There are some features that distinguish cyberbullying from traditional bullying [7]. As the word 'cyber' already indicates, cyberbullying is carried out by electronic means, such as emails, chat or text messages [7]. The whole bullying act takes place in the cyberworld and the cyberbully may hide his identity behind his or her screen and therefore remains anonymous [8]. The fact of anonymity may increase the cybervictims' powerlessness, as the cyberbully could be anyone, including also possible friends [8]. In traditional bullying the facial expression of the victim is visible for the bully, so he or she is able to see the emotional consequences for the victim [8]. In contrast, in cyberbullying the cyberbully does not see his or her victim's facial emotional expression, which may lower his or her remorse and bad conscience for the cybervictim [9].

A major difference between cyberbullying and traditional bullying is that in cyberbullying pictures and mean messages can spread quickly through the whole Internet making humiliation visible for a large audience [10]. On top of that, the offending content remains present for a prolonged time and even when the insulting material is deleted the digital traces remain forever [11]. Another serious problem is that cybervictims cannot get away from the perpetrator, because they are accessible 24/7 [8]. So, in contrast to traditional bullying, there exists a constant threat of humiliation, as the Internet is available the whole time [7]. The cybervictim has hence no possibility of withdrawal and consequently his or her home is no longer a safe place to retreat [8]. These circumstances may lead to overwhelming feelings of powerlessness and make it especially wearing for the cybervictim [8,12].

Aside from bullies and victims there is another group which has been partly neglected in bullying research [13], namely bystanders, i.e., adolescents observing the bullying scenario [14]. According to Salmivalli [14], bullying is a group phenomenon, including not only perpetrator and victim, but she pointed out that adolescents participate in bullying episodes in different ways, either as bullies, victims or bystanders. Salmivalli et al. [15] assume that bystanders can adopt different roles, namely defender of the victim, reinforcer of the bully, assistant of the bully and outsider. The defender provides help to the bullied victim by defying the bully during the bullying incident or by consoling the victim afterwards, while the reinforcer cheers the bully on and emboldens him by laughing or giving positive feedback regarding the bullying [15]. Although the assistant does not start the bullying, he or she however affiliates with the bully, when the victimization has begun [15]. The last identified bystander by Salmivalli et al. [15] is the outsider, a person who is aware of the victimization, but does not take sides and elides the bullying episode. Although outsiders' distance themselves from the bullying scenario, they are however in some sort involved due to their knowledge of the victimization [14].

Bullying involvement and cultural differences

Most researchers have focused on individual differences in bullying involvement, but only few have taken into account the cultural context where children are born and raised [16]. This raises the question of the influence of cultural values on bullying behaviour among adolescents. A notable difference between Asian and European cultures lays on their focus on either collectivist or individualistic values [17]. Asian cultures favour group inclusion and interdependence, whereas European cultures tend to value individual independence and autonomy [18]. Adolescents in individualistic societies, like Luxembourg, are taught to be competitive and performance-oriented with a focus on self-actualization, whereas

collectivistic societies emphasize the preservation of group harmony and cohesion [19]. With regard to bullying victimization and cyber victimization, collectivist countries seem to be affected to a lesser extent than individualistic countries [20,21]. India is predominately ruled by collectivistic values like cohesion, however, its hierarchical caste system, where groups of people are ranked, promotes bullying [22]. Indian culture differentiates between in-group and out-group people, meaning that depending on their religion, caste and social affiliation, people either supports each other or is likely to discriminate those not belonging to their group [23,24]. Further, while serving the in-group is of utmost importance, status differences and inequalities among group members are prevalent also within the in-group, a pattern which has been described as vertical collectivism by Singelis et al. [25].

Indian culture disposes furthermore of an additional risk factor for bullying, namely in the shape of a high-power-distance culture, which advocates social inequality and therefore may make bullying acceptable [26]. In contrast, low-power-distance cultures, like Luxembourg, rely on the idea that social inequalities are not right and that imbalances of power should be suppressed [18]. Given that India has grown to be one of the best information and communication sectors in the world, making computers and mobile phones affordable even for the poor population, cyberbullying and cyber victimization is no longer only limited to Western countries [18].

Further, there seem to be cultural differences between collectivistic and individualistic cultures with regard to social support [17]. First of all, culture affects the perception of the self and relationships with important others, in that in individualistic cultures the self is seen as independent and striving to obtain private goals [27], whereas in collectivistic societies a more interdependent view of the self prevails, where the person is entirely connected with others and group goals are considered as more important than personal needs [28]. As for relationships, individualistic cultures view relationships as independent, meaning that relationships imply a low binding character [29], whereas in collectivistic societies relationships are seen as more stable and people ascribe a huge value to maintaining group harmony [30]. Strong social ties imply also high relational responsibilities and moral obligations to support others [31]. From this difference, one could presume that people from a collectivistic culture prefer social support for dealing with a stressor; however studies show that this is not the case [17]. As in a collectivistic culture the emphasis lies on not being a burden for the company, asking for help or speaking about personal problems may challenge harmony of their social networks [17]. Due to these relational concerns, people in a collectivist context may view social support to be less utile in coping with stressful situations, than people growing up in an individualistic culture [32].

Bullying involvement and suicidal ideation

Suicide attempts and suicidal ideation are not a rarity among adolescents [33]. According to an American study, 17% of college students thought during the last previous month about suicide, 13.6% made concrete suicide plans and 8% undertook a suicide attempt [33]. It is quite alarming that suicide accounted for the third leading cause of death among adolescents aged 15 to 19 years in the year 2014 [34]. What is now the contribution of bullying involvement for suicidal ideation? Bullying is considered as a heavy adolescent health concern, as it not only affects school achievement, prosocial behaviour and physical health, but also psychological well-being for both victims and perpetrators [35-38]. Even an association between bullying involvement and suicidal ideation is assumed [39].

To understand the association between bullying and suicidal ideation, the present study makes use of the general strain theory [40]. This theory postulates that strainful, emotionally stressful social relationships or events abet people to perpetrate deviant or criminal acts [40]. Whereas the implications of strain on delinquency are well supported, the effects are not limited to externalizing deviance like violence against other people, but also involve aggression against oneself, like suicidal ideation and self-harm to cope with the strain [41]. According to Agnew [40], strains are generated from interactions in which the person is treated against his or her expectations or is not pleased with the outcomes, thus developing negative affective states, which may shove them to deviant actions to cope

with the strain. Agnew [42] postulates that bullying should be considered as a source of deviant acts as it fulfils the three conditions of strains: bullying is sensed as unfair and unjust, because it infringes fundamental principles of justice [42]. In addition, it has a crucial significance [42], as peer relationships are for adolescents of utmost importance [43]. Furthermore, it is tied to low social monitoring, as bullying involvement often takes place out of sight of adult authority [42].

There is not only a strong relationship between bullying victimization and suicidal ideation and suicidal attempts [44], but also bullies suffer psychological distress, like depression [45] and suicidal ideation [46]. Klomek et al. [47] found that students who frequently bullied others in school were three times more likely to have suicidal ideation compared to students who never bullied others. Also, gender differences were found in association with bullying involvement and suicidal ideation, in such that victimized girls suffered 4.2 times more from suicidal ideation than non-bullied girls, while victimized boys experienced suicidal thoughts 2.5 times more often than non-bullied boys [37]. Concerning bullying perpetration, girls who bully others suffered from suicidal ideation eight times more than non-bullying girls, while boys who bully others experienced suicidal thoughts only 3.8 times more often than non-bullying boys [37]. Due to the afore-mentioned specific features of cyberbullying, it is not surprising, that also cyberbullying and cyber victimization were significantly associated with suicidal ideation [48]. Unfortunately, current research provides little knowledge of the psychological implications for bystanders [49]. However, as adolescents who witness community violence are at higher risk of experiencing thoughts of ending their life [50], there is evidence to suggest that observing bullying may also have similar negative consequences. Although bystanders constitute the vast majority of pupils involved in school bullying, research on this topic is quite scant [13].

Concerning suicide rates, there seem also to be cultural differences, in such that individualistic cultures present a higher suicide rate than collectivistic cultures [51]. Research findings suggest that there exists a relationship between bullying involvement and suicidal ideation [37,44,46,48,52]. However, not all adolescents who are victimized, witness bullying episodes or act as a bully will develop suicidal thoughts, so there must be factors that buffer the negative effects of being bullied, watching bullying episodes or bullying others [53].

Perceived social support as a protective factor

One protective factor that requires contemplation is perceived social support [54]. Perceived social support should not be confounded with received support, which defines the helping behaviour that is actually provided by others, while perceived social support refers to the belief and appraisal that one is helped and supported in times of need [55]. The person believes that he or she is part of a social network where people are concerned for his or her well-being [56]. Thereby, the belief that others are available and will provide appropriate help may change his or her appraisal of the whole situation [54].

Research shows that the source of social support for people changes over life: whereas for children, parents are seen to be the most important providers of support, for adolescents' peer support is of utmost importance [43]. Although perceived social support from parents and teachers diminish as children grow up, these sources however need to be considered, mainly because parent support is supposed to extenuate the effects of stress [43,57]. It has been shown that perceived social support is a much better predictor of mental health than received support [58]. For example, low levels of perceived social support from family, peers or school was associated with emotional problems, such as depressed mood or feelings of uselessness, and/or behavioural problems, such as initiating brawls or being often absent from school [59]. In addition, numerous research findings have revealed that low perceived support by peers and family is linked to increased suicidality [60-62]. These findings are concurrent with the interpersonal theory of suicidal behaviour [63], which suggests that the alienation from important others, such as family and peers increases the risk for suicidal ideation and suicide attempts. The perception that one has no or little peer and family support leads to a lack of belongingness and connectedness within the person [63]. According to Joiner's [63] interpersonal theory of suicidal behaviour, the association between low

social connectedness, referred to as thwarted belongingness, and suicide hazard is due to a lack in meeting a crucial human psychological need [64]. This fundamental human need is satisfied, when people perceive that there is a stable and affective interpersonal relationship they can count on [65]. Joiner's theory [63] emphasizes that perceived social support may lead to a feeling of affiliation, which is negatively associated with suicide risk. This means that adolescents with little social connectedness and social ties, comprising also those who are bullying victims or bullying perpetrators, would be at a greater risk of experiencing suicidal thoughts [63].

In contrast to the idea that every adolescent benefits from social support, the stress-buffering hypothesis emphasizes that perceived social support is only beneficial for those adolescents who are exposed to highly stressful demands [66], such as for example intimate partner violence [67]. So, perceived social support may shield negative effects of bullying involvement, as bullying involvement is considered a source of stress and negative arousal [1,68].

Although, 'only' one third of individuals with suicidal thoughts transit to committing a suicide attempt, suicidal ideation is however a tremendous risk factor and just a step away from actually planning to attempting suicide [69]. Therefore, if perceived social support buffers the association between bullying involvement and suicidal ideation, the type of social support (parent, close friend or teacher) acting as a protective factor from crossing that line, needs to be assessed [69].

Based on the general strain theory, the interpersonal theory of suicidal behaviour and prior empirical findings, the following research hypotheses are generated: First, we hypothesize that there are cultural differences among Luxembourgish and Indian students regarding bullying involvement, suicidal ideation and perceived social support. Secondly, we hypothesize that bullying involvement, either victimization perpetration or bystander-behaviour, predicts suicidal ideation, and that cyber victimization is a stronger predictor of suicidal ideation than traditional bullying victimization. Furthermore, we hypothesize, that perceived social support moderates the relationship between bullying victimization, both traditional and cyber, and suicidal ideation, meaning that perceived social support serves as a buffer between bullying victimization and suicidal ideation.

Methods

Participants

The sample consisted of N=483 participants of which 41.4% were of Luxembourgish nationality (n=200), 39.5% were Indians (n=191) and the rest were other nationalities. A bit more than a half of the sample was female (52.2%). The mean age of the adolescents who completed the survey was 14.7 years (SD=1.43) and the age ranged from 12 to 18 years.

Chi-square test revealed that there were significant gender differences in the composition of the sample ($\chi^2=13.15$; $p<0.001$, N=483). Specifically, there were more males in the Indian sample (57.6% males) and more females in the Luxembourgish sample (43.5% males). Furthermore, significant differences between the two nationality groups in terms of age were found ($\chi^2=155.35$; $p<0.001$, N=483). Specifically, twelve and thirteen year old adolescents were more represented in the Indian than in the Luxembourg sample (41.4% vs. 2.0%), whereas more fourteen to eighteen year old students were represented in the Luxembourgish sample (58.5% vs. 50.3% for the fourteen and fifteen year old; 39.5% vs. 8.4% for the above sixteen year old).

Measures

The online questionnaire was posted on social media, such as online forums, and was sent to 17 schools in Luxembourg and 2 in India, more precisely RCM Higher Secondary School and St' Mark's High School in Chennai, Tamil Nadu. The head office of the schools then decided which classes participated in the study. The questionnaire was completed during school time under the supervision of the teacher or the researcher. Furthermore, students were informed that their responses were anonymous.

Olweus Bullying Questionnaire: Bullying victimization and perpetration were assessed by items from the Olweus Bullying Questionnaire, whereby each of the two scales comprises physical, verbal and relational bullying,

as well as cyberbullying [70]. One item measured physical bullying ("I was hit, kicked, pushed, shoved around, or locked indoors"), three items measured verbal bullying (e.g., "I was called mean names, was made fun of, or teased in a hurtful way"), two items assessed relational bullying (e.g., "Other students told lies or spread false rumours about me and tried to make others dislike me") and one item cyberbullying ("I was bullied with mean or hurtful messages, calls or pictures, or in other ways on my mobile phone or over the Internet"). On a 5-point Likert scale, ranging from "none", "only once or twice", "2 times a month", "about once a month" or "several times a week", students had to rate how often they experienced different kinds of bullying victimization and bullying perpetration during the last 2 months at school [70]. It can be claimed that reliability of the Olweus Bullying Questionnaire is well-grounded ($\alpha=0.88$ for victimization scale and $\alpha=0.87$ for perpetration scale [71]). Furthermore, concurrent validity of the Olweus Bullying Questionnaire and peer ratings is quite satisfying ($r=0.34$ to $r=0.40$; [72]). These correlations can be considered as high, as usually correlations between self and peer ratings are $r=0.26$ [73].

Participant Role Behaviour Questionnaire: Different bystander roles, namely defender, assistant and outsider, both in the real and in the cyber world, are assessed by the participant role behaviour questionnaire [74]. The cyber-/defender participant role was assessed in each case by three items (e.g., "During the last school year, I have tried to stop bullying in my class"). Outsider and cyber-/outsider behaviour were measured by three items (e.g., "During the last school year, I have ignored incidences of bullying on the Internet."). Cyber-/Assistant participant role was assessed as well in each case by three items (e.g., "During the last school year, I helped a friend bully a classmate.").

Students are asked to respond on a 5-Likert scale ranging from "never" to "several times a day". Good internal consistency ($\alpha=0.73-0.91$ for subscales, $\alpha=0.80$ for bullying scale; $\alpha=0.87$ for cyberbullying scale) has been demonstrated [74]. Exploratory and confirmatory factor analysis of the scales attested construct validity [74]. Moreover, both defender and cyber-defender participants roles were positively correlated ($r=0.19$; $r=0.23$) with the scale media empathy [75], suggesting convergent validity [74]. Further, assistant and cyber-assistant negatively correlated ($r=-0.30$; $r=-0.17$) with the scale media empathy [75], suggesting discriminant validity [74].

Child and adolescent social support scale: The Child and Adolescent Social Support Scale (CASSS; [76]) was employed to assess perceived social support of adolescents. The CASSS measures frequency and importance of perceived social support from five sources: parents (e.g., "My parents show they are proud of me"), teacher (e.g., "My teacher cares about me"), classmates (e.g., "My classmates treat me nicely"), close friend ("My close friend spends time with me when I feel lonely") and school ("People in my school care about me") [76]. Each source of support is assessed with 12 items and given that there are five sources captured, the CASSS is a 60-item measure [76]. Students have to rate each item on frequency of the perceived social support from that source of support and as well tick how crucial that support is for them [76]. The frequency of support is assessed through a 6-point Likert scale, varying from 1 (never) to 6 (always), and the importance of support through a 3-point Likert scale, varying from 1 (not important) to 3 (very important). Frequency and importance total score are created by adding the frequency, respectively the importance scores of the five sources of social support [76]. Psychometric properties illustrate that the CASSS is a trustful instrument for measuring perceived social support, showing a high reliability ($\alpha=0.92$ to 0.96) for the subscales in the validation samples [77] and good convergent validity ($r=0.70$) between the total scores of the CASSS and the Social Support Scale for Children [78].

Suicidal ideation: Suicidal thoughts were measured with 2 items "Have you ever thought about killing yourself because of bullying involvement?" If they answered with yes, then students had to rate on a 5-point Likert scale, ranging from "never", "seldom", "sometimes", "often" and "very often", the question "How often have you thought about killing yourself in the last year due to bullying involvement?" In order to retain the large sample size and to have 1 dependent variable, the 2 items measuring suicidal ideation were united, in such that those who marked "no" in the first item were added in the "never" group of the second item.

Data analyses

All analyses were performed using the statistical tool SPSS 25. Due to a high participation of both Indian and Luxembourgish adolescents, correlations by nationality among bullying victimization, bullying perpetration, perceived social support, bystander forms and suicidal ideation were conducted. First of all, hierarchical regression analysis was used to test the influence of certain predictors on the dependent variable. Multiple linear regressions were performed to examine moderation [79]. If the interaction term was significant, simple slopes analysis were done [80]. The moderators were plotted at low, mean and high levels (one standard deviation above and one standard deviation below the mean).

Results

Sample characteristics

As shown in Table 1, three-way ANOVA indicated that there was a significant two-way interaction effect, in such that for 12 to 13 year old students, suicidal ideation was higher for Luxembourgish students (M=2.25, SD=0.95) than for Indian adolescents (M=1.00, SD=0.04), $F(1.385)=22.09$, $p<0.001$, partial $\eta^2=0.05$ (Table 1).

With regard to physical perpetration, only a significant main effect on nationality was found, $F(1.378)=5.44$, $p<0.001$, partial $\eta^2=0.01$, in such that Indian students (M=1.41, SD=0.82) were more physical aggressors than Luxembourgish students (M=1.16, SD=0.63).

Table 1. ANOVA Results.

Variables	Indian		Luxembourgish		Df _{Nom}	Df _{Den}	F	partial η^2	p value
	M	SD	M	SD					
Relational perpetration					2	379	4.01	0.02	<0.05
14 to 15 year-old	1.62	0.85	1.15	0.53					
16 to 18 year-old	2.16	1.14	1.27	0.74					
Verbal perpetration	1.5	0.71	1.22	0.67	1	378	4.44	0.01	<0.001
Physical perpetration	1.41	0.82	1.16	0.63	1	378	5.44	0.01	<0.001
Relational victimization					2	378	15.15	0.07	<0.001
12 to 13 year-old	1.46	0.09	3.33	0.45					
14 to 15 year-old	1.77	0.08	1.35	0.07					
16 to 18 year-old	2.19	0.19	1.39	0.08					
Verbal victimization					2	379	11.4	0.06	<0.001
12 to 13 year-old	1.44	0.67	2.44	1.12					
14 to 15 year-old	1.66	0.83	1.23	0.5					
16 to 18 year-old	2.18	0.72	1.24	0.47					
Physical Victimization	1.65	0.98	1.11	0.42	1	376	10.98	0.03	<0.001
Cyber victimization					2	378	19.54	0.09	<0.001
12 to 13 year-old	1.49	0.98	3	1.41					
14 to 15 year-old	1.55	1.03	1.15	0.53					
16 to 18 year-old	2.56	1.31	1.14	0.5					
Bystander-assistant					2	368	5.78	0.03	<0.01
14 to 15 year-old	4.64	2.19	3.58	1.54					
16 to 18 year-old	6.72	2.85	3.81	1.94					
Bystander-outsider					2	374	13.42	0.07	<0.001
12 to 13 year-old	4.63	2.6	8.33	3.46					
14 to 15 year-old	4.87	2.65	3.73	1.83					
16 to 18 year-old	7.63	3.37	3.91	2.15					
Bystander-defender	5.17	2.69	4.83	2.56	1	372	5.43	0.01	<0.05
Cyber-bystander-assistant					2	375	9.42	0.05	<0.001
14 to 15 year-old	4.1	2.09	3.2	1.19					
16 to 18 year-old	6.93	3.08	3.49	1.78					
Cyber-bystander-defender					2	376	4.2	0.02	<0.05
16 to 18 year-old	6.52	2.66	4.01	2.12					
Cyber-bystander-outsider					2	377	4.77	0.03	<0.001
14 to 15 year-old	4.5	2.51	3.35	1.59					
16 to 18 year-old	6.8	2.82	3.8	2.24					
Perceived social support-close friend	3.73	1.01	4.72	1.33	1	386	66.17	0.15	<0.001
Perceived social support-teacher	4.17	0.93	3.53	1.21	1	385	32.53	0.08	<0.001

Note: M: Mean; SD: Standard Deviation; Df_{Nom}: Degree of freedom numerator; Df_{Den}: Degree of freedom denominator; Partial η^2 : Partial eta-squared.

A significant main effect on nationality was found, $F(1, 378)=4.44$, $p<0.001$, partial $\eta^2=0.01$, showing that Indian students ($M=1.50$, $SD=0.71$) were more verbal perpetrators than Luxembourgish adolescents ($M=1.22$, $SD=0.67$).

Concerning the bystander-defender behaviour, a main effect was found on nationality, $F(1, 372)=5.43$, $p<0.05$, partial $\eta^2=0.01$, and age, $F(2, 372)=4.29$, $p<0.01$, partial $\eta^2=0.02$. Results revealed that Indians ($M=5.17$; $SD=2.69$) were more involved in defending others against bullying than Luxembourgish students ($M=4.83$; $SD=2.56$).

Interestingly a two-way interaction was found on the cyber bystander-defender, $F(2, 376)=4.20$, $p<0.05$, partial $\eta^2=0.02$, in such that 16 to 18 year old Indians pupils ($M=6.52$, $SD=2.66$) were more involved in defending others against cyber-bullying than Luxembourgish students in this age ($M=4.01$, $SD=2.12$). However concerning the outsider behaviour in the cyber-world, a two-way interaction (age x nationality) was found, $F(2, 377)=4.77$, $p<0.01$, partial $\eta^2=0.03$. Bonferroni post hoc tests revealed that 14 to 15 year old and 16 to 18 year old Indian adolescents ($M=4.50$, $SD=2.51$; $M=6.80$, $SD=2.82$) were more involved in ignoring cyber-bullying than Luxembourgish students in this age range ($M=3.45$, $SD=1.59$; $M=3.80$, $SD=2.24$).

With regard to perceived social support from a close friend, only a main effect was found on nationality, $F(1, 386)=66.17$, $p<0.001$, partial $\eta^2=0.15$, in such that Indian adolescents ($M=3.73$, $SD=1.01$) report lower perceived social support from a close friend than Luxembourgish students ($M=4.72$, $SD=1.33$). Also with regard to perceived social support from teachers a main effect was found on nationality, $F(1, 385)=32.53$, $p<0.001$, partial $\eta^2=0.08$, in such that Indian students ($M=4.17$, $SD=0.93$) reported more perceived social support from teachers than Luxembourgish pupils ($M=3.53$, $SD=1.21$).

Predicting suicidal ideation

Correlations among the different forms of bullying victimization and bullying perpetration (physical, verbal, relational and cyber), perceived social support (parents, close friend and teacher), bystanders (defender, assistant and outsider) and suicidal ideation by nationality, Luxembourgish and Indian students, were calculated. In the Indian sample, only relational victimization was associated with suicidal ideation ($r=0.24$), whereas in the Luxembourgish sample all forms of bullying involvement were related with suicidal thoughts ($r=0.25-0.57$). With regard to perceived social support there was a negative significant relationship between perceived social support from teachers and suicidal thoughts ($r=-0.20$) in the Luxembourgish sample; however, a significant positive association ($r=0.19$) between perceived social support from a close friend and suicidal ideation in the Indian sample was noticed (Table 2).

To investigate the importance of the added independent variables, namely different forms of bullying involvement and perceived social support

(close friend, parents, teacher), to predict the dependent variable suicidal ideation, a 3-step hierarchical regression analysis was conducted, shown in Table 3. Due to gender, nationality and age differences in many pivotal study variables, gender, age and nationality (Indian and Luxembourg) were controlled in the subsequent analyses (Table 3).

We noted that nationality accounts for 5% of the variance of suicidal thoughts, $F(3, 354)=6.05$, $p<0.001$. Luxembourgish adolescents showed more suicidal ideation than Indian students ($\beta=0.21$, 95% CI [0.10, 0.36], $t(354)=3.21$, $p<0.001$).

The inclusion of variables of bullying involvement increased the value of R-square to 0.28, meaning that bullying involvement variables account for an additional 23% of the variance in suicidal thoughts, $F(17, 340)=7.72$, $p<0.001$. Adding perceived social support from a close friend, teachers and parents did not predict suicidal thoughts, [$t(337)=1.38$, $p>0.05$; $t(337)=1.79$, $p>0.05$; $t(337)=.77$, $p>0.05$], but the predictive model stayed significant, $F(20, 337)=6.80$, $p<0.001$.

The most important predictor in the model was the bystander-outsider in the cyberworld ($\beta=0.57$, 95% CI [0.07, 0.18], $t(337)=4.65$, $p<0.001$), followed by cyberbystander-assistant ($\beta=-0.37$, 95% CI [-0.16, -0.03], $t(337)= -2.92$, $p<0.01$) and relational victimization ($\beta=0.28$, 95% CI [0.08, 0.28], $t(337)=3.46$, $p<0.001$). So, as bystander-outsider behaviour in the cyberworld increases by one standard deviation, suicidal ideation increases by 0.57 standard deviations, when the effects of other predictors are held constant.

Moderator effect of perceived social support

To identify if perceived social support moderated the relationship between the different types of bullying involvement and suicidal ideation, hierarchical regressions were conducted. Table 4 shows that nationality was a significant predictor for suicidal thoughts [$t(383)=3.32$, $p<0.001$] and thus presenting a significant regression model [$R^2=0.05$, $F(3, 383)=6.16$, 0.001]. This demographic variable accounted for 5% of the variations in suicidal ideation. In a second step, cybervictimization was added and predicted suicidal thoughts [$t(382)=4.19$, $p<0.001$] and led to a significant gain in the amount of variance explained [$R^2=0.09$, $F(4, 382)=9.21$, $p<0.001$; $\Delta R^2=0.04$, $p<0.001$]. When perceived social support from a close friend was entered to the model, it showed that this predictor did not predict suicidal thoughts [$t(381)=0.74$, $p>0.05$], and the overall model stayed significant [$R^2=0.09$, $F(5, 381)=7.46$, $p<0.001$; $\Delta R^2=0.00$, $p>0.05$]. With the entry of the interaction term between cybervictimization and perceived social support from a close friend in step 4, R-square increased to a value of 0.20, thus accounting for 11% of the variation of suicidal ideation [$R^2=0.20$, $F(6, 380)=15.66$, $p<0.001$; $\Delta R^2=0.11$, $p<0.001$] (Table 4).

Figure 1 visualizes perceived social support from a close friend as a moderator between cyber victimization and suicidal ideation, while controlling for gender, age and nationality. It was shown, that perceived

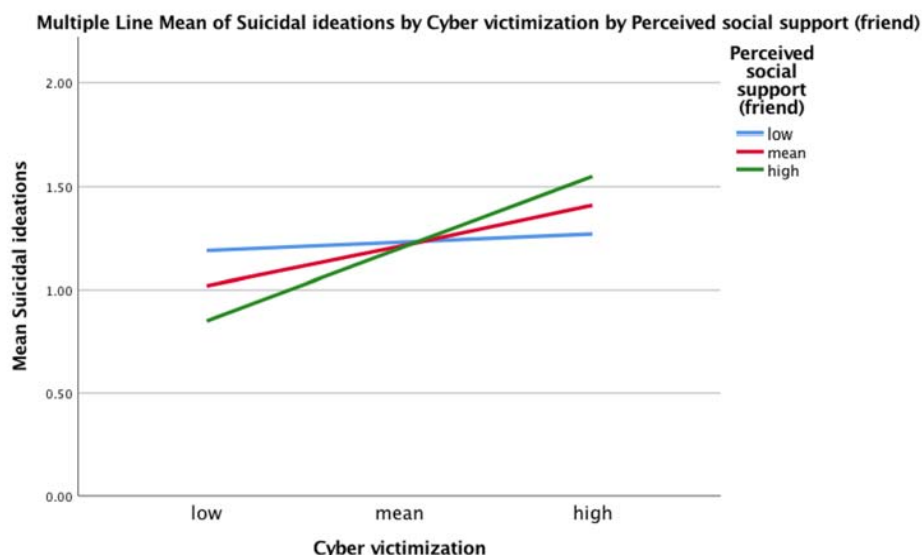


Figure 1. Perceived social support from a close friend as a moderator between cyber victimization and suicidal ideations.

Table 2. Correlations by nationality (India vs. Luxembourg) among bully victimization, bully perpetration, perceived social support, bystander forms and suicidal ideations.

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. Bullying victimization	-	0.51**	0.69**	0.68**	0.58**	0.60**	0.40**	0.52**	0.58**	0.44**	0.55**	0.58**	0.51**	0.41**	0.45**	0.49**	-0.54**	-0.19**	-0.50**	0.03
2. Physical victimization	0.66**	-	0.54**	0.64**	0.57**	0.60**	0.53**	0.55**	0.59**	0.45**	0.45**	0.44**	0.52**	0.37**	0.40**	0.38**	-0.46**	-0.20**	-0.48**	0.12
3. Relational victimization	0.68**	0.52**	-	0.82**	0.65**	0.61**	0.51**	0.67**	0.69**	0.56**	0.66**	0.62**	0.58**	0.59**	0.60**	0.55**	-0.50**	-0.13	-0.60**	0.24**
4. Verbal victimization	0.69**	0.67**	0.72**	-	0.79**	0.71**	0.63**	0.78**	0.79**	0.70**	0.67**	0.75**	0.70**	0.64**	0.71**	0.66**	-0.56**	-0.20**	-0.61**	0.08
5. Cyber victimization	0.61**	0.56**	0.76**	0.64**	-	0.56**	0.58**	0.65**	0.78**	0.74**	0.59**	0.71**	0.67**	0.73**	0.76**	0.81**	-0.56**	-0.30**	-0.63**	-0.02
6. Bullying perpetration	0.30**	0.14 ^a	0.14 ^a	0.14 ^a	0.21**	-	0.51**	0.65**	0.71**	0.48**	0.63**	0.66**	0.74**	0.49**	0.57**	0.51**	-0.53**	-0.23 ^a	-0.47**	-0.05
7. Physical perpetration	0.26**	0.11	0.13	0.13	0.08 ^a	0.56**	-	0.51**	0.71**	0.57**	0.51**	0.54**	0.60**	0.46**	0.51**	0.51**	-0.39**	-0.12	-0.39**	0
8. Relational perpetration	0.28**	0.18**	0.15 ^a	0.12	0.25**	0.65**	0.70**	-	0.73**	0.61**	0.69**	0.73**	0.68**	0.69**	0.73**	0.71**	-0.57**	-0.26**	-0.55**	0
9. Verbal perpetration	0.30**	0.18**	0.18**	0.20**	0.21**	0.69**	0.88**	0.79**	-	0.74**	0.70**	0.73**	0.71**	0.71**	0.74**	0.70**	-0.57**	-0.22**	-0.55**	-0.02
10. Cyber perpetration	0.34**	0.24**	0.25**	0.28**	0.28**	0.61**	0.83**	0.79**	0.93**	-	0.60**	0.71**	0.58**	0.67**	0.74**	0.71**	-0.45**	-0.22**	-0.47**	-0.06
11. Bystander-Defender	0.23**	0.01	0.11	0.12	0.14 ^a	0.24**	0.36**	0.32**	0.35**	0.32**	-	0.80**	0.78**	0.74**	0.72**	0.69**	-0.58**	-0.04	-0.53**	0.07
12. Bystander-Outsider	0.46**	0.21**	0.36**	0.28**	0.44**	0.49**	0.44**	0.67**	0.52**	0.54**	0.50**	-	0.81**	0.80**	0.85**	0.83**	-0.59**	-0.23**	-0.58**	0.03
13. Bystander-Assistant	0.40**	0.26**	0.21**	0.19**	0.25**	0.66**	0.74**	0.77**	0.79**	0.76**	0.39**	0.62**	-	0.69**	0.71**	0.72**	-0.61**	-0.17 ^a	-0.54**	-0.06
14. Cyberbystander-Defender	0.27**	0.06 ^a	0.16 ^a	0.11 ^a	0.17 ^a	0.26**	0.37**	0.43**	0.40**	0.39**	0.68**	0.55**	0.51**	-	0.88**	0.92**	-0.63**	-0.27**	-0.64**	0.09
15. Cyberbystander-Outsider	0.370**	0.25**	0.25**	0.23**	0.35**	0.43**	0.45**	0.69**	0.55**	0.56**	0.46**	0.80**	0.65**	0.67**	-	0.92**	-0.62**	-0.30**	-0.63**	0.05
16. Cyberbystander-Assistant	0.34**	0.14 ^a	0.12 ^a	0.14 ^a	0.20**	0.66**	0.68**	0.76**	0.79**	0.81**	0.41**	0.66**	0.84**	0.57**	0.76**	-	-0.64**	-0.33**	-0.64**	-0.04
17. Perceived social support-Parents	0.01 ^a	-0.02 ^a	-0.04 ^a	-0.08 ^a	-0.07 ^a	0.01 ^a	-0.03 ^a	-0.08 ^a	0	-0.01 ^a	0.07 ^a	-0.061 ^a	-0.05 ^a	-0.02 ^a	-0.09 ^a	-0.03 ^a	-	0.39**	0.73**	0.09
18. Perceived social support-Friend	-0.09	-0.06	0.01	-0.01	-0.06 ^a	-0.052 ^a	-0.07	-0.11	-0.04	-0.06 ^a	0.04	-0.11	-0.08	-0.06 ^a	-0.14 ^a	-0.14 ^a	0.53**	-	0.44**	0.19**
19. Perceived social support-Teacher	-0.13 ^a	-0.08 ^a	-0.04 ^a	-0.09 ^a	-0.08 ^a	-0.23**	-0.14 ^a	-0.18 ^a	-0.17 ^a	-0.19**	0.06 ^a	-0.13 ^a	-0.19**	-0.04 ^a	-0.15 ^a	-0.24**	0.55**	0.55 ^a	-	-0.01
20. Suicidal ideations	0.41**	0.30**	0.40**	0.33**	0.46**	0.31**	0.14**	0.43**	0.25**	0.26**	0.25**	0.54**	0.36**	0.37**	0.57**	0.41**	-0.13	-0.02 ^a	-0.19**	-

Note: N=170-191 for Indian and 191-200 for Luxembourgish students. Correlations among Indians are illustrated above the diagonal and correlations among Luxembourgish illustrated below the diagonal.

* $p < 0.05$; ** $p < 0.01$.

^aCorrelation significantly different by nationality as indicated by fisher's r to z transformations.

social support from a close friend was a significant moderator of the association between cyber victimization and suicidal ideation. By examining the simple slopes, we noticed that when perceived social support from a close friend was high, there was a significant positive relationship between cyber victimization and suicidal thoughts, $\beta = 0.70$, 95% CI [0.41, 0.98], $t = 4.83$, $p < 0.001$. Higher cyber victimization was related with higher suicidal thoughts among pupils who reported high perceived social support from a close friend (Figure 1).

With regard to relational victimization, demographic variables, gender, age and nationality accounted of the variation of suicidal ideation, [$R^2 = 0.19$,

$F(5, 471) = 13.45$, $p < 0.001$; $\Delta R^2 = 0.06$, $p < 0.001$]. By examining the simple slopes, we noticed that when perceived social support from a close friend was high, there was a significant positive relationship between relational victimization and suicidal thoughts ($\beta = 0.43$, 95% CI [0.22, 0.63], $t = 4.02$, $p < 0.001$).

Discussion

The aim of the study was to analyse the relationship between bullying involvement, suicidal ideation and the role of perceived social support in this area.

Table 3. Results of hierarchical regression analyses for suicidal ideation Standardized regression coefficients are shown.

Variable	Suicidal ideation		
	Step 1	Step 2	Step 3
Gender	-0.11*	-0.05	-0.04
Age	-0.07	-0.11	-0.17
Nationality	0.21***	0.30***	0.23**
Physical victimization		0.02	0.02
Relational victimization		0.30***	0.28***
Verbal victimization		-0.2	-0.21*
Cyber victimization		-0.02	0
Physical perpetration		-0.01	-0.01
Relational perpetration		0.06	0.07
Verbal perpetration		0.01	-0.01
Cyber perpetration		-0.15	-0.15
Bystander - Assistant		0.06	0.05
Bystander - Defender		-0.14	-0.14
Bystander - Outsider		0.19	0.19
Cyberbystander - Assistant		-0.34**	-0.37**
Cyberbystander - Defender		0.05	0.06
Cyberbystander - Outsider		0.55***	0.57***
Perceived social support - Close friend			0.09
Perceived social support - Teachers			-0.12
Perceived social support - Parents			0.05
Parents ΔR ²	0.05***	0.23***	0.00

***p<0.001
**p<0.01.

Concerning cultural distinctions between Luxembourgish and Indian students, findings revealed that there were clear cultural differences regarding suicidal ideation, bullying involvement and perceived social support. Luxembourgish students aged 12 to 13 years reported more suicidal ideation than Indian pupils in this age group. Suicidal thoughts, most common in early adolescence [81], may be less pronounced in the Indian sample, because they may have a stronger connection to their religion, which is a protective factor against suicide [82,83]. Another explanation may be that suicidal thoughts are considered as a taboo subject in India and their collectivistic culture expects withholding negative emotions [84,85].

The current study found, that in Luxembourgish adolescents all forms of bullying involvement were correlated with suicidal thoughts, whereas in Indian students only relational victimization was associated with suicidal ideation. It might be that, as India represents a collective society which highlights social inclusion, in contrary to Luxembourg which leans toward individualism, belongingness and connectedness to a social group is paramount to Indian adolescents and may have consequences if this is not met [22].

With regard to perceived social support and bullying involvement, findings indicate that only in the Indian sample there was a negative association between perceived social support from a close friend, parents and teacher and bullying involvement, thereby supporting the “friendship protection hypothesis”, assuming that amity protects against victimization [86]. Further, it highlights the high significance of family support for Indian people [18]. Not only was there a negative significant relationship between perceived social support and victimization, but there was also a significant negative association between perceived social support and bullying perpetration. Maybe that adolescents with low perceived social support want to gain a social status by aggressing other students [87].

Table 4. Hierarchical regression analysis showing the moderation effect of perceived social support from a close friend on the relationship between different forms of bullying victimization and suicidal ideations Standardized regression coefficients are shown.

Variable	Suicidal ideation			
	Step 1	Step 2	Step 3	Step 4
Gender	-0.09	-0.07	-0.06	-0.10*
Age	-0.04	-0.06	-0.06	-0.01
Nationality	0.21***	0.27***	0.27***	0.22***
Cyber victimization		0.21***	0.21***	0.46***
Perceived social support (close friend)			0.04	0.04
Cyber victimization x Perceived social support (close friend)				0.42***
ΔR ²	0.05***	0.04***	0.00	0.11***
Gender	-0.09	-0.05	-0.04	-0.06*
Age	-0.04	-0.08	-0.08	-0.04
Nationality	0.21***	0.28***	0.27***	0.24***
Relational victimization		0.29***	0.29***	0.32***
Perceived social support (close friend)			0.02	0.01
Relational victimization x Perceived social support (close friend)				0.25***
ΔR ²	0.05***	0.08***	0.00	0.06***

***p<0.001
**p<0.01

Note: Regression coefficients of demographic variables differ in Tables 1 and 2, due to SPSS approach to retain only variables manifesting complete data for the considered variables.

We also noticed that Indian students reported less perceived social support from a close friend than Luxembourgish pupils. A possible explanation may lie in their collectivistic culture, where perceived social support from a close friend, meaning falling back on someone, is not that prevalent due to relational concerns, like for example being a burden to their friends [88]. However, Indian students reported more perceived social support from teachers compared to Luxembourgish students. It might be that Indian students, who are living in a power-distance culture where teachers enjoy high respect of their pupils and corporal punishment for disorderly behaviour is tolerated, may believe that social support is guaranteed from these authority figures [89,90]. Further results revealed that in the Luxembourgish sample perceived social support from teachers was negatively associated with suicidal ideation; corroborating the predication that teacher caring is a protective factor from suicidal thinking [91]. With a view to the Indian sample, results showed that perceived social support from a close friend was positively associated with suicidal ideation. This result could be explained by the supposition that Indian pupils, living in a collectivist culture, cannot draw on their close friend due to worries about relational consequences (e.g. being a burden), which may lead to helplessness and thereby increasing the risk for suicidal ideation [88,92].

With regard to bullying behaviour, we acknowledged that Indian students were more engaged in physical and verbal bullying than Luxembourgish adolescents. An explanation may lie in the Indian education system [93]. As the Indian education system is very competitive due to an absence of sufficient proficient universities to house the huge number of school children, an elbow-attitude may be beneficial [93]. An additional explanation may be, as India has high levels of family and domestic violence, children learn that it is acceptable to behave in such a manner, and thereby favouring physical and non-physical bullying [94,95].

In addition, older Indian students were significantly more bystander outsiders, ignoring incidences of bullying as well as cyberbullying, than older Luxembourgish students. This could be due to the fact that India is a high-power-distance culture advocating social inequality, which may make bullying acceptable [26].

The current study identified that relational victimization was a significant predictor of suicidal ideation, when demographic variables, bullying involvement and perceived social support were controlled. These findings highlight the importance of social factors like feelings of exclusion and lack of belongingness in the association with suicidal ideation [64]. The victim of relational victimization may feel that something is wrong with him/her, decreasing his/her self-esteem and increasing emotional problems [96,97]. However, the direction of causality is not clear. On the one hand, it could be argued that victimization may predispose pupils to suicidal thoughts [98]. On the other hand, suicidal thoughts may predispose students to bullying victimization, making them an easy target [99]. Or adolescents with suicidal thoughts, having more cognitive biases, may interpret tame social interactions as bullying [99].

However, among all predictors passively watching bullying in the cyber world had the highest impact on suicidal ideation. Thus, our findings suggest that witnessing and ignoring cyberbullying is the most important risk factor for suicidal thoughts, at least in our study. Most research examining the relationship between bullying and suicidal ideation has only brought into focus bullying victims and perpetrators, however our results suggest that pupils witnessing bullying episodes and without intervening are highly emotionally affected [100]. An explanation, why witnessing cyberbullying episodes is the strongest predictor for suicidal ideation may be that these pupils experience a sort of cognitive dissonance coming from an inconsistency between their behaviour (e.g., ignoring the incidents) and their beliefs (e.g., stand up for bullied people; [101]). As reporting acts of cyberbullying is meanwhile one mouse click away, refraining from anonymously reporting may contribute to feelings of shame and guilt, which are related to suicidal ideation [102]. Furthermore, another explanation why witnessing bullying is linked to suicidal ideation may be that observing bullying episodes provokes some kind of revictimization, meaning reliving previous bullying episodes [103].

Inconsistent with previous study findings [44] and thereby not supporting our hypothesis, cyber victimization was not a significant predictor for suicidal thoughts, when controlling for demographic variables, bullying involvement and perceived social support; however as already mentioned relational victimization was. It seems that an exclusion from social groups in the real world, thus not fulfilling an innate human need to belong, is more painful and has a greater impact on adolescents' mental health [104,105].

Our third hypothesis that perceived social support acted as a buffer between bullying victimization and suicidal ideation was not supported, rather perceived social support from a close friend caused an amplifying effect. Pupils exposed to high cyber-or relational victimization, who perceived high social support from a close friend, reported the highest suicidal thoughts. Paradoxically, our findings suggest that high perceived social support from a close friend in times of high bullying victimization is not at all protective, but instead intensifies suicidal ideation. An explanation may lie in the distinction between perceived social support from a close friend and the actual received social support from this friend [106]. It is important to mention that there is a weak association between perceived social support and received social support [106]. As pupils' social networks are often unstable and close friends are rapidly swapped [107], it could be concluded that the highly victimized adolescent may not receive the social support he/she believed to obtain. The discrepancy of these high expectations of social support and the real support may heavily disappoint strongly victimized students and lead to suicidal thoughts [108].

Friendship homophily [109] may provide a further explanation: bullying victims, being more and more rejected by peers [110], socialize, according to the concept of friendship homophily [109], with adolescents who are similar to themselves, in our case with another victim [111]. The affiliation with another victim may favour co-rumination, meaning constantly talking about and brooding over the same problem with a friend and remaining stuck on the problem [112]. As dwelling on problems may favour negative emotions [112], co-rumination may promote depression, which is seen as a trailblazer for suicidal thoughts [113]. So, contrary to Joiner's interpersonal theory of suicidal behaviour [63] feeling highly affiliated to another person may also increase suicidal thoughts. Furthermore, being in a friendship

environment, where a close friend committed suicide, may instil victims how to handle their problem and thereby, increases the probability of suicidal ideation [114,115]. Interestingly, perceived social support does not per se act as a buffer and protects highly victimized pupils from suicidal ideation, but may also backfire, meaning that it aggravates existing negative emotions [116].

Although the current study offers a valuable contribution to the understanding of the relationship between bullying involvement and suicidal thoughts, as well as shedding light on cultural differences in this domain, it is noteworthy to mention methodological limitations of this study.

First of all, the current research is a cross-sectional study and is based on self-report data. Although the Olweus Bullying Questionnaire [70] is well-grounded, the use of only self-report data seems not to be a solid source of bullying assessment [117], especially as Cornell et al. [118] found a weak consensus between self-report of bullying involvement and teacher and pupil report. Therefore, additional data sources from peers, parents and teachers may be helpful [119]. Further, because of cultural conditioning and/or social consequences adolescents may be reluctant to admit suicidal ideation; therefore reliable outcomes may be doubtful [84,85,120,121]. Another limitation is the less differentiated assessment of cyberbullying, which does not differentiate between sending humiliating pictures of the victim and posting offensive text messages on their wall [122]. Another limitation is that bullying involvement during the last year was associated with suicidal ideation, thus not taking into account other stressful life events that might have had an influence on suicidal thoughts [103]. Furthermore, as our study is a cross-sectional study, it is not possible to ascertain the direction of causality [48]. In order to analyse a causal relation, longitudinal studies are needed to ascertain how different kinds of bullying involvement influence suicidal thoughts [123]. As our models explained only a small amount of the variation of suicidal ideation, we can suggest that there are other factors which contribute to suicidal thoughts in a more important manner [48].

Conclusion

The research results emphasize the importance of addressing the entire bullying environment, as not only bullying victims seem to suffer. The most considerable result of our research study is the finding that perceived social support is not per se protective, but that it can have an intensifying effect on suicidal thoughts. This is to our knowledge the first study examining cultural differences in bullying involvement, suicidal ideation and perceived social support between Luxembourgish and Indian students. The findings highlight that there exist noteworthy cultural disparities in the above-mentioned fields.

Also these findings have implications for practice. Due to the supposition, that high perceived social support from a close friend is not a protective factor, but instead aggravates the bullying victim's negative emotions, perceived social support from students being bullied should be assessed for prevention purpose. Thus in severe bullying cases prevention programs should not focus on increasing social support for victims as they may not bring the expected effect. In addition, cultural differences in the association between bullying and suicidal thoughts highlight that prevention program's need to be tailored to specific cultures.

Future research should investigate how explicit social support, specifically asking for help in stressful situations, and implicit social support, spending time with important others without talking about their issue, two types of social support, which differently affect people from collectivistic and individualistic cultures, might buffer the association between bullying involvement and suicidal ideation.

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