



Cognitive Emotion Regulation Strategies and Cognitive Flexibility Levels in High School Students Subjected to Peer Bullying

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Abstract

Aim: Peer bullying is thought to be negatively affected by high school students in many respects such as cognitive, emotional, psychological and physical. It is aimed to examine the relationship between cognitive flexibility levels and cognitive emotion regulation strategies of high school students who were exposed to peer bullying. Furthermore, it is examined whether these variables differ according to sociodemographic differences.

Methods: The sample of the study consists of 400 high school students reached via the internet from different cities of Turkey in 2020. The data in the study were obtained using "the peer bullying scale", "cognitive flexibility scale", "cognitive emotion regulation scale" and "sociodemographic information form" prepared by the researcher.

Results: It was found statistically significant that boys were subjected to more bullying on the peer bullying scale in the subscales of terror, teasing, and open attack. The rates of bullying students in vocational and technical high schools, who had poor school success and friendship relationships, were also found to be statistically significant ($p < 0.005$). Students with good school achievement and friendship relationships had higher levels of cognitive flexibility, while boy students and those with very good friendship relationships scored highly on the "refocusing on planning" subscale of the cognitive emotion regulation scale ($p < 0.05$).

Conclusion: According to our research, cognitive flexibility decreases as peer bullying levels increase. The use of maladaptive cognitive emotion regulation strategies also appear to increase.

Keywords: Bullying, cognition, flexibility, emotion regulation

Introduction

Peer bullying negatively affects children's cognitive, emotional, psychological, and physical development in many factors. Children's bullying behavior affects not only their developmental processes but also their school and daily life, emotional and behavioral processes. In recent years, it is seen that research on peer bullying, which is common both in our country and in other countries, has increased.

Exposure to peer bullying has an impact on cognitive coping skills and emotional arrangements. Cognitive flexibility is defined as the awareness of alternative

ways and options to adapt to a situation (1). Problem-solving involves the process of finding solutions to problems encountered when heading towards a goal (2). Accordingly, problem-solving skills and cognitive flexibility are parallel in looking for alternative solutions to problems (2-4).

Emotion regulation consists of internal and external processes used to monitor, evaluate and alter a person's emotional responses, which are particularly intense and transient for the person in achieving their goals (4-6). Cognitive emotion regulation is the cognitive way to express the cognitive part of coping skills and manage

emotionally stimulating information intake. Emotional and behavioral responses caused by peer bullying may be associated with children's cognitive flexibility levels and emotion editing methods, thus adversely affecting their cognitive flexibility and cognitive emotion regulation strategies (7).

In this study, we aimed to the level of peer bullying in high school students, the cognitive flexibility levels, and cognitive emotion regulation strategies of peer bullying, based on the assumption that high school freshmen and sophomore students who are trying to adapt to a new environment and school environment may be more affected.

Methods

Study Design

The present study was approved by Istanbul Gelisim University Ethics Committee (date: 12.03.2020, number: 2020-07). In this study, 400 students between the ages of 14 and 16 who attended high school one and high school sophomore education in different cities of Turkey were included. The cases consist of high school students reached via the internet from different cities of Turkey in 2020. "peer bullying scale", "cognitive flexibility scale", "cognitive emotion regulation scale" and "sociodemographic information form" were used. Exclusion criteria were psychiatric diseases and neurological diseases and cases with poor course success. The scales were filled by mutual interviews by the psychologist via the Internet. Informed consent forms of children and families were obtained via e-mail.

Sociodemographic Information Form

It consists of questions prepared by the researcher to obtain the demographic information of the students. At the beginning of the form, there is informed consent that introduces the research and includes approval for voluntary participation.

Peer Bullying Scale

The peer bullying scale (PBS) used in the study was adapted to Turkish by Gültekin and Sayil (8) based on the scale developed by Mynard and Joseph (9) to determine the exposure of school children to peer bullying and was developed as a suitable scale for Turkish children and adolescents (10).

The original scale is of the type of self-notification and can be applied individually or in groups. Students who participate are asked to choose "never", "once" and "more than one" for each item on the scale. The selected options are scored by giving 2 for "more than", 1 for "once" and 0 for "never". There are 16 items on the original scale, and the highest score from the scale in

total is 32 and the lowest score is 0. As scores from the scale rise, the frequency of peer bullying increases, and as scores drop, it is rarely thought that they are bullied or not exposed at all. As a result of the analysis of the basic components applied to the data on the original scale, the substances were collected in 4 factors specified as physical, verbal, social, and psychological bullying. The scale of Gultekin and Sayil (8) consists of 27 items as a result of the development work and analysis for Turkish children and adolescents. As a result of the factor analysis carried out on the scale, 5 factors defined as error, overt victimization, teasing, relational victimization, and attacks on property were obtained.

Cognitive Flexibility Scale

The cognitive flexibility scale (CFS) was developed by the Scholar to measure adolescents' cognitive flexibility (11). This scale allows us to understand how flexible individuals are to themselves, others, and their environment. The scale is a scale of semantic differences and consists of 19 items. Scaled scoring is calculated by giving a score of "5-4-3-2-1" from positive to negative (e.g. I Can't Succeed). As the scores are increasing, the level of cognitive flexibility increases.

Cognitive Emotion Regulation Scale

The cognitive emotion regulation scale (CER) was developed by Garnefski et al. (12) to measure the cognitive emotion regulation strategies people use against stressful and threatening life events and was adapted to Turkish by Ataman (13) and validity and reliability studies were carried out. It consists of 36 items and nine subscales on a scale. Each of the subscales has 4 items. CER is a scale self-declaration type that can be applied to people 12 years and older. The substances are of type 5 lichen and are evaluated between 1 (none) to 5 (always). The score of each of the subscales ranges from 4 to 20 and is evaluated with ratings from the subscales. It is understood that the higher the score from the subscale, the more the strategy indicated by that subscale is used (12,14).

Statistical Analysis

The data obtained were entered into the computer environment as a numerical expression and statistical analysis was carried out using the statistical package program (SPSS 25.0) for social sciences. Before starting the analysis, the data were examined in terms of normal distribution. In small samples ($n < 30$), the Kolmogorov-Smirnov test was used because the Shapiro-Wilk test produced stronger results in detecting normal non-dispersing conditions, and in large samples ($n > 30$) it produced the best results for deciding by avoiding type I errors. A p-value of 0.05 or less was considered statistically significant.

Results

The study consisted of 114 (28.5%) boys and 286 (71.5%) girls attending the first year of high school one and sophomore year (Table 1).

Nine percent of the sample was found to be subjected to peer bullying, 7.5% to terror, 15.3% to tease, 13.3% to overt victimization, 14.5% to relational victimization, and 8.3% to attacks on property (Table 2).

The PBS and relational victimization, attack on property scores on the item do not differ significantly by gender variable ($p > 0.05$). There was a statistically significant difference in the subscale of terror, teasing, open attack compared to girls ($p < 0.05$) (Table 3).

When differences in CFS and subscales were examined by school type, students in Vocational and Technical High Schools scored higher than students in other high schools ($p < 0.005$) (Table 4).

There is a moderate negative correlation between the PBS and CFS score ($r = -0.315$ $p < 0.01$). Terror ($r = -0.122$ $p < 0.01$), tease ($r = -0.098$ $p < 0.01$), open victimization ($r = -0.176$ $p < 0.01$), relational attack ($r = -0.264$ $p < 0.01$), attack on property ($r = -0.122$ $p < 0.01$) and CFS score found to be negatively weak. Refocusing on plan subscale scores differ

significantly by gender variable ($p < 0.05$). There was a positively weak relationship between self-blame ($r = 0.208$, $p < 0.01$), rumination ($r = 0.249$, $p < 0.01$), putting into perspective ($r = 0.114$, $p < 0.01$), catastrophing ($r = 0.164$ $p < 0.01$), and other-blame ($r = 0.215$, $p < 0.01$) and the PBS score (Table 5).

Discussion

In this study, high school students' exposure to peer bullying and their cognitive flexibility levels, cognitive emotion regulation strategies and their relationship were investigated. Olweus also conducted a large sample in Norway, which found that 15% of students (aged 7 to 16) experienced bullying and victimization, 9% were victims of bullying and 7% were those who were bullying others (15). In this study, peer bullying was found to be 9%. Another study in the United States found that the prevalence of being a victim of peer bullying or bullying at school at least once in the last two months was 20.8% physically, 53.6% verbally, 51.4% relationally, and cyberbullying 13.6% (16). A study of high school students in Turkey found that all students were bullied at least once during their student life, of which 33.5% were verbal, 35.5% physical, 28.3% psychological, and 15.6% sexual assault (17).

In our study, it was determined that the most common exposure in terms of bullying was teasing, relational

Table 1. Distribution by sociodemographic variables

		n (%)
Sex	Boy	114 (28.5%)
	Girl	286 (71.5%)
	Total	400 (100%)
Class	9 th grade	223 (55.8%)
	10 th grade	177 (44.2%)
School type	Anatolian	180 (45%)
		101 (25.3%)
	Vocational and Technical	91 (22.8%)
	Science	28 (7%)
Success at school	Poor	27 (6.8%)
	Middle	188 (47%)
	Good	157 (39.3%)
	Very good	28 (7%)
Friendship relations	Poor	15 (3.8%)
	Middle	66 (16.5%)
	Good	164 (41%)
	Very good	155 (38.8%)
Parental marital status	Married	367 (91.8%)
	Divorced	33 (8.3%)
Education status-mother	Elementary school graduate	189 (47.3%)
	Middle school graduate	84 (21%)

Table 2. Distribution of sample group by peer bullying cutting score

	n (%)
Group not subjected to peer bullying	364% (91)
Peer bullying group	36% (9)
Group not subjected to terror	370% (92.5)
Group subjected to terror	30% (7.5)
Group not subjected to teasing	339% (84.8)
Group subjected to teasing	61% (15.3)
Group not exposed to overt victimization	347% (86.8)
Overt victimization group	53% (13.3)
Group not subjected to relational victimization	342% (85.5)
Group subjected to relational victimization	58% (14.5)
Group not attacks on property	367% (91.8)
Group attacks on property	33% (8.3)

9% of the sample was found to be subjected to peer bullying, 7.5% to terror, 15.3% to tease, 13.3% to overt victimization, 14.5% to relational victimization, and 8.3% to attacks on property

Table 3. Comparison of peer bullying scale subscale scores by gender variable of the sample

		N	s.o	K.T	U	Z	p
Peer Bullying	Boy	114	212.35	24207.50	14951.50	-1.311	0.190
Scale	Girl	286	195.78	55992.50	-	-	-
	Total	400	-	-	-	-	-
Terror	Boy	114	221.47	25247.50	13911.50	-3.715	0.000*
	Girl	286	192.14	54952.50	-	-	-
Tease	Boy	114	217.78	24826.50	14332.50	-2.026	0.043*
	Girl	286	193.61	55373.50	-	-	-
Overt Vict.	Boy	114	230.04	26224.00	12935.00	-3.741	0.000*
	Girl	286	188.73	53976.00	-	-	-
Relational Vict.	Boy	114	195.06	22237.00	15682.00	-0.650	0.516
	Girl	286	202.67	57963.00	-	-	-
Attac. on prop	Boy	114	211.09	24064.00	15095.00	-1.390	0.165
	Girl	286	196.28	56136.00	-	-	-

*p<0.05, Mann Whitney-U test
There was a statistically significant difference in the subscale of terror, teasing, open attack compared to girls

Table 4. Comparison of cognitive flexibility scale by school type variable of the sample group

	N	S.O	X ²	SD	p
CFS Anatol. HS	180	216.19	13.608	3	0.226*
Anatol.Imam Hatip HS	101	191.00	-	-	-
Vocational and Technical HS	91	168.82	-	-	-
Science HS	28	236.86	-	-	-

*p<0.05. Kruskal-Wallis H-test. Student's t-test in Vocational and Technical High Schools scored higher than students in other high schools, CFS: Cognitive flexibility scale, Anatol: Anatolian, HS: High school

victimization, open victimization, attacks on property, and terror respectively. A study (18) with high school students also found that the most common form of bullying was "teasing" followed by terror, relational victimization, open victimization, and attacks on property, respectively. In our study boys are bullied more in the subscales of terror, teasing, and overt victimization. Consistently with our findings (19) boys were more likely to be bullied by peers than girls. Consistent with these findings, studies in the literature show that boys are more involved in physical and verbal bullying and girls are more involved in relational bullying and girls exhibit bullying behaviors such as teasing and relational victimization more often than boys rather than physical bullying (16,20).

Students with poor school achievement were found to be more bullied than those with good school achievement (21). It is thought that poor school achievement of students may be a factor in being subjected to peer bullying.

In terms of friendship relations, we found that students with good friendships are less bullied. Poor friendship relations increase the rate of peer bullying, and

good friendship relation is a protective factor in terms of bullying. Consistent with the findings of this research in the literature, victims report that they have failed to relate to their peers in particular and have established fewer social relationships. As a result of these studies, those who are bullied are socially isolated and have poorer social skills. Social isolation of those who are bullied is often both the result and the cause of victimization (20). Bullying has recently been conceptualized as a relationship problem, suggesting that this aggressive behavior occurs in the context of a relationship between peers (22).

There are significant differences in cognitive flexibility according to the type of high school, which may be explained by factors such as the socioeconomic level of students, their academic achievements, the physical and social conditions of schools, and the provision of adequate support in and out of school-related to compliance (23). As school success increases, so does the level of cognitive flexibility (24).

In the subscale of "refocusing on the plan", it was found that boys used the strategy of regulating this feeling against stress and negative situations more often than girls (25). In the literature, boys are more used to the "other-blame" strategy of cognitive emotion regulation than girls (26). Other studies concluded that (27) the biggest differences between boys and girls were in using "putting into perspective", "rumination" and "other-blame" strategies. Girls used the "rumination" and "putting into perspective" strategies more often when faced with a stressful event, while boy concluded that they used the "other-blame" strategy more often.

Table 5. Examining the relationship between peer bullying scale and subscale scores and cognitive emotion regulation scale and subscale scores

	PBS	Terror	Tease	OV	RV	AOP
Self-blame	0.208	0.112*	0.209**	0.167	0.160	0.141
Acceptance	-0.216		-0.195**	0.192	-0.161	-0.121*
Rumination	0.249	0.072	0.229**	0.169"	0.232**	0.125*
Planning	0.033	0.005	0.029	0.078	0.012	0.045
Positive refocus. Positive refocusing	0.056	0.029	0.057	0.078	0.055	0.069
Putting into pers.	0.114*	0.011	0.099*	0.115*	0.105*	0.116*
Catastrophe	0.164	0.085	0.153	0.137	0.140	0.149
Other-blame	0.215	0.065	0.162	0.146	0.232**	0.090

**p<0.01, *p<0.05. There was a positively weak relationship between self-blame, rumination, putting into perspective, catastrophing, and other-blame and the PBS score.
PBS: Peer bullying scale, OV: Overt victimization, RV: Relational victimization, AOP: Attacks on property

Students in Vocational and Technical High Schools use the subscales of "self-blame" and "Catastrophe" more than students in other high schools. It turns out that students in Vocational and Technical High Schools are more inclined to use "Self-blame" and "Catastrophe" strategies from cognitive emotion regulation strategies when faced with negative, threatening events. A study of 9-11-year-olds in the literature (28) found significant differences in the subscales of self-blame, positive reappraisal, rumination, positive refocusing, and planning from cognitive emotion regulation strategies in favor of private school students.

When the relationship between PBS and CFS is examined, it shows that the level of cognitive flexibility decreases as peer bullying exposure increases. As PBS subscales such as "Intimidation/Intimidation", "tease", "overt victimization", "relational victimization" and "attacks on property" increase, exposure to peer bullying appears to reduce cognitive flexibility (29). From this point of view, as the level of cognitive flexibility increases, social abilities develop, and happiness level increases (30).

When the subscales of the CER scale with PBS are examined; As cognitive emotion-regulation strategies such as "self-blame", "putting into perspective", "rumination", "other-blame" and "Catastrophe" increase, so do the types of bullying such as "terror", "tease", "overt victimization", "relational victimization" and "attacks on property". Cognitive maladaptive coping strategies increase as bullying increases. In studies with adolescents found that the choice of cognitive emotion-regulation strategies played a partial agent variable role on cognitive flexibility and emotional autonomy (31,32). It was also observed that the level of use of the "acceptance" cognitive emotion regulation strategy decreased as the exposure to bullying increased. Acceptance and positive

refocusing from cognitive emotion-regulating strategies reduce depression (33); terror and rumination strategies have been shown to explain the increase in anxiety and the acceptance strategy explains the decrease in the level of anxiety (34).

Cognitive flexibility decreases as "self-blame", "rumination", "catastrophe" and "other-blame" strategies are used (35). It can also be interpreted that the more cognitive flexibility increases, the more likely it will be to use the "acceptance" strategy. In a study that investigated the effect of cognitive flexibility on cognitive emotion regulation; As the level of "alternative" subscale, which is expressed on the CFS as "measuring the ability to perceive that there are alternatives to situations encountered in life and one's behavior, and the ability to produce solutions to difficult situations", increases, so does the level of using "other-blame", "catastrophic", "positive refocusing", "refocusing on planning" and "positive reappraisal" strategies from cognitive emotion regulation (36-38).

Study Limitations

One of the limitations of our study is that our research is carried out with scales filled over the internet. Taking the sample from across the country increases diversity but impairs homogeneity. The high number of cases and the filling of scales with the psychologist are the strengths of our study.

Conclusion

It was observed that students' cognitive flexibility levels decreased as peer bullying exposure increased and they preferred to use maladaptive cognitive emotion regulation strategies. With the prevention of peer bullying, it is thought that students can use harmonious cognitive emotion regulation strategies by developing alternative

methods to be more flexible and adaptable in the face of the situations they encounter.

*This study was produced from the first author's master's thesis.

Authorship Contributions

Concept: B.S.B., A.E., Design: B.S.B., A.E., Data Collection or Processing: A.O.S., Analysis or Interpretation: A.O.S., Literature Search: B.S.B., A.E., Writing: B.S.B., A.E.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study received no financial support.

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