



BULLYING SCALE: A PSYCHOMETRIC STUDY FOR BULLYING PERPETRATORS IN JUNIOR HIGH SCHOOL

Pipih Muhopilah,

Fatwa Tentamaⁱ,

Yuzarion

Faculty of Psychology,
Ahmad Dahlan University,
Yogyakarta, Indonesia

Abstract:

The purpose of this study is to test the construct validity and construct reliability on the bullying scale and to examine the forms and indicators that can reflect the bullying construct. Bullying was reflected in four forms, namely physical bullying, verbal bullying, social exclusion, and indirect and relational bullying. The populations in this study were 524 second grade students of X, Y, Z public junior high schools in Yogyakarta. The number of samples in this study was 185 students. The sampling technique adopted cluster random sampling. The data collection method applied the bullying scale. Research data were analyzed with Structural Equation Modeling (SEM) through the SmartPLS 3.2.8 program. Based on the results of data analysis, the forms and indicators that reflected the construct of bullying were declared as valid and reliable. The most dominant form that reflects bullying was indirect and relational bullying, with a loading factor of 0.862. While the weakest form that reflects bullying was physical bullying with a loading factor value of 0.526. These results indicated that all forms and indicators were able to reflect the construct of bullying. Thus, the measurement model was accepted because the theory that describes the construct of bullying fit with empirical data obtained through the subject.

Keywords: bullying, indirect and relational bullying, physical bullying, social exclusion, verbal bullying

1. Introduction

Bullying is a phenomenon that occurs almost in all teenagers in the world (Ellis, Volk, Gonzalez & Embry, 2016) and becomes a serious issue for almost all schools throughout the world (Paez, 2020). The data from UNESCO showed that 246 million children and

ⁱ Correspondence: email fatwa.tentama@psy.uad.ac.id

adolescents experienced violence at school every year. In 2019, 32 percent of students in the world encountered bullying. The data is also relevant to various research, which indicated bullying in students. In Korea, bullying consisted of three forms, namely verbal, social, and physical bullying (Chung, & Lee, 2020). Furthermore, In China, bullying occurred in all ethnicities without significant differences among the various ethnic groups (Ba, Han, Gong, Li, F., Zhang, & Zhang, 2019). Other studies conducted in the United States showed that adolescents' bullying is one of the causes of drug abuse (Baiden, & Tadeo, 2019). Lastly, research in Indonesia showed that bullying was influenced by several factors, including gender and age, in which junior high school level was considered as a critical age for bullying (Limawan, Wiguna, Ismail, & Sekartini, 2016).

There are some roles involved in bullying, including the perpetrators, victims, and bystanders (Evans, Smokowski, Rose, Mercado, & Marshall, 2019). Bullying perpetrators have a perfectionist character (Farrell, & Vaillancourt, 2019), a high level of extraversion (Kokkinos & Antoniadou, 2019), and like to dominate (Volk, Schiralli, Xia, Zhao, & Dane, 2018). Meanwhile, victims of bullying are usually teenagers who have low self-esteem and self-efficacy (e Silva, de Lima, Barreira, & Acioli, 2019; Hutson, Melnyk, Hensley, & Sinnott, 2019), students with low academic performance (Li, Sidibe, Shen, & Hesketh, 2019), and students who have low perceived social support (Shaheen, Hamdan, Albqoor, Othman, Amre, & Hazeem, 2019). Eventually, bystanders are people who become audiences or supporters of bullying behavior by not showing any effort to stop the bullying they saw (Colorosso, 2003). The presence of bystanders who did not help the victims lead the perpetrators to feel as if they gain more support, which could be one of the reasons to increase the intensity of bullying (Halimah, Khumas, & Zainuddin, 2015).

Bullying may create negative effects on both the victims and the perpetrators. Teenagers who are involved in bullying and have negative coping strategies are at risk for depression (Duan et al., 2020). During the initial bullying period, the victims usually feel angry and sad (Hamid, & Daulima, 2019), and also undergo several physical problems (do Nascimento Andrade, & Alves, 2019). Long-term effects can cause drug abuse (Baiden, & Tadeo, 2019), decrease life satisfaction of victims (Nozaki, 2019), as well as being perpetrators (Walters, & Espelage, 2018). In addition, bullying may render the victims into depression, anxiety, and various psychological symptoms (Li, Sidibe, Shen, & Hesketh, 2019; Radoman, Akinbo, Rospenda, & Gorka, 2019). At a certain extent and situation, bullying can induce the victims' desire to commit murder (murder-related psychological behavior) (Zhang, Wang, Han, Xu, Xie, Chen, & Su, 2019). For perpetrators, bullying can lead to the emergence of delinquent behavior (Walters, 2019), drug abuse (Sangalang, Tran, Ayers, & Marsiglia, 2016), decreased empathy (Wilford, Bouton, Bank, Bender, Dieterich & Jenson, 2015), and an increased aggressive behavior (Evans, Smokowski, Rose, Mercado, & Marshal, 2018).

Various factors are believed to influence bullying, including personality factors such as low empathy, manipulative, high extraversion, and low agreeableness (Dåderman, & Ragnestål-Impola, 2019). Environmental factors such as classes with a low level of well-being and low peer support (Shaw, Currie, Smith, Brown, Smith, & Inchley,

2019) and norms in classes generate the occurrence of bullying (Pouwels, van Noorden, & Caravita, 2019). Family factors such as low family support and authoritarian parenting style are also considered (Duggins, Kuperminc, Henrich, Malls-Glover, & Perilla, 2016; Georgiou, Ioannou, & Stavrinides, 2018).

The research on bullying continues to develop, although the initial research on bullying focused on traditional bullying. The domain of research is specific to bullying in schools as well as studies conducted by Farrington (1993) and Olweus (1994). Then the subject and field of research are increasingly developing bullying in the workplace, as conducted by Hoel, Rayner, and Cooper (1999). Along with the development of communication technology and internet networks, research on bullying is also developing in bullying in cyberspace called cyberbullying, as in research conducted by Slonje and Smith (2008), Hinduja and Patchin (2010) and Olweus (2012). The development of current research not only examines bullying perpetrators and victims, but the researchers also examine social aspects of the occurrence of bullying, such as the role of bystanders in strengthening bullying (Troop-Gordon, Frosch, Totura, Bailey, Jackson, & Dvorak, 2019).

Bullying is negative and repetitive behavior and done intentionally against victims who are powerless (Olweus, 1994). Bullying can be in the form of physical or psychological disorders (Randal, 2002), for example, by being humiliated, hurt, or insulted (Chris, 2004). Perpetrators hurt and frighten through threats and aggression to create terror for victims aiming to insult and humiliate (Coloroso, 2003). Another definition of bullying is a repetitive aggressive behavior with one or more victims as their target. In this case, the victims cannot avoid, stop, or protect themselves from such behavior (Dixon & Smith, 2011).

Generally, bullying is divided into several forms:

- 1) Physical bullying is done by hitting, punching, kicking, extorting, damaging the victim's belongings, and locking them in a room.
- 2) Verbal bullying is mocking, threatening, insulting, addressing harsh words, etc.
- 3) Social exclusion is disassociating the victims from the group or isolating them.
- 4) Indirect bullying is spreading bad news and gossip and provoking others to dislike the victims (Dixon & Smith, 2011).

Based on the aforementioned forms, a conceptual framework of bullying can be formalized below in Figure 1.

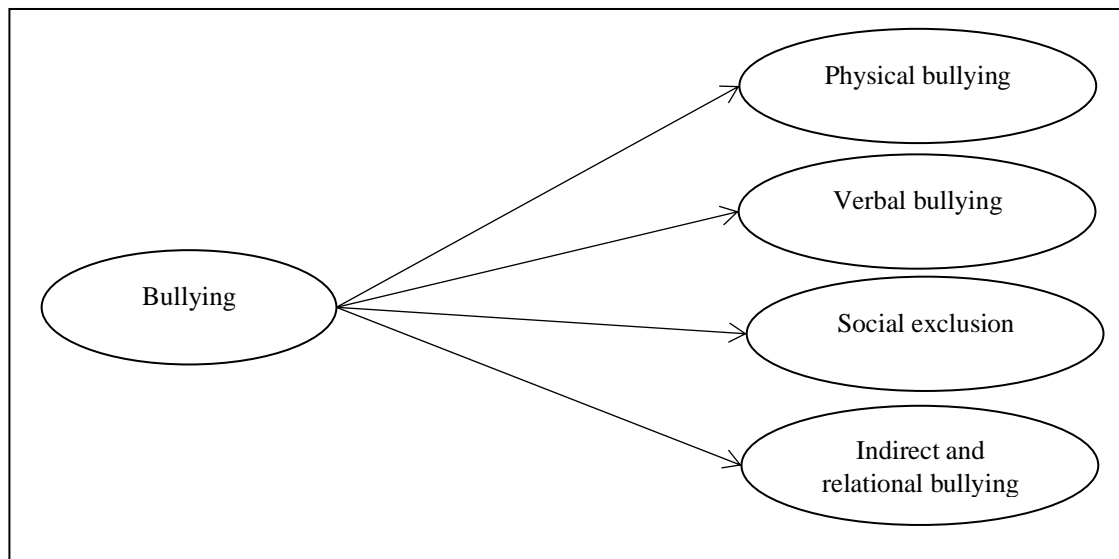


Figure 1: Conceptual Framework for Bullying

Based on Figure 1, the hypothesis in this study is a form of physical bullying, verbal bullying, social exclusion, indirect and relational bullying can reflect the construct of bullying.

One approach that can be used to test the construct of measuring tool is Confirmatory Factor Analysis (CFA), which is one of the main approaches in factor analysis. Confirmatory Factor Analysis (CFA) is applicable to test the form of a construct. This test is also utilized to measure the model so that it can describe the forms and behavioral indicators in reflecting latent variables, namely bullying, by looking at the loading factor of each form that creates the construct. Confirmatory Factor Analysis (CFA) is also useful to test the construct validity and construct reliability of the indicators (items) latent constructor (Ghozali & Latan, 2012). Confirmatory Factor Analysis (CFA) applied in this research is the second-order Confirmatory Factor Analysis (2nd Order CFA), a measurement model that consists of two levels. The first level of analysis is carried out from the forms to the indicators, while the second analysis is undertaken from the latent construct to the forms (Latan, 2012).

Based on the descriptions above, it shows that bullying is a perilous behavior for the victims and perpetrators. Considering the plethora of negative effects of bullying, we need a valid and reliable scale to measure it. Therefore, the problem formulations in this study are: 1) Is the bullying scale valid and reliable? 2) Are physical bullying, verbal bullying, social exclusion, and indirect and relational bullying able to reflect the construct of bullying? The purpose of this research is to analyze the construct validity and the construct reliability of the bullying and to examine the forms and indicators that represent the bullying constructs.

2. Research Method

2.1. Population, sample, and sampling techniques

The population in this research were all students in the second grade at schools X, Y, Z, also as public junior high schools in Yogyakarta under 524 students. The sample in this study were 185 students divided of 98 men and 87 women with an age range of 13-16 years (means = 14 years), and the sampling technique used cluster random sampling.

2.2. Data collection method

Bullying in this study was measured through a bullying scale with a semantic differential scale model. The scale of the study was arranged by the researcher by referring to the forms of bullying from Dixon and Smith (2011) and consisting of physical bullying, verbal bullying, social exclusion, and indirect and relational bullying. Examples of items on a bullying scale can be seen in Table 1.

Table 1: The example of a bullying variable item

When I do not like some friends, I will					
Talk about his/her kindness	1	2	3	4	Gossip him/her
Ignore him/her	1	2	3	4	Stalk their bad behavior
When there are arrogant juniors, I will.....					
Advise him/her	1	2	3	4	Scold him/her
Look after his/her belongings	1	2	3	4	Damage/hide his/her belongings
When I talk to friends, I....					
Pay attention	1	2	3	4	Tease
Appreciate	1	2	3	4	Mock
When I am with my group of friends, I....					
am an ordinary group member	1	2	3	4	Lead the group
Care with the members	1	2	3	4	Ignore the members

Moreover, the blueprint used as a reference in preparing the bullying scale was presented in Table 2.

Table 2: Bullying scale blueprint

No	Form	Item numbers	Σ
1	Physical bullying	1, 2, 3, 4, 5, 6	6
2	Verbal bullying	7, 8, 9, 10, 11, 12	6
3	Social exclusion	13, 14, 15, 16, 17, 18,	6
4	Indirect and relational bullying	19, 20, 21, 22, 23, 24,	6
Total		24	24

2.3. Construct validity and construct reliability

Testing the construct validity and construct reliability in this study used the outer model testing through the smartPLS 3.2.8 program. The construct validity test consisted of the convergent validity test and the discriminant validity test. Convergent validity can be seen from the loading factor value > 0.5 and the Average Variance Extracted (AVE) value

> 0.5 (Jogiyanto, 2011). According to Hair, Black, Babin, and Anderson (2014), the higher the loading factor score, the more important the role of loading will be to interpret the factor matrix. The loading factor value > 0.5 and the value of Average Variance Extracted (AVE) > 0.5 are considered to have fulfilled the requirements (Jogiyanto, 2011). For the discriminant validity, it can be seen from comparing the roots of the Average Variance Extracted (AVE) between forms in which should be higher than the correlation with other forms (Jogiyanto, 2011).

The construct reliability test was undertaken to show the internal consistency of the measuring instrument by looking at the value of composite reliability and Cronbach alpha with a higher value. Hence, it would present the consistency value of each item in measuring latent variables. According to Hair, Black, Babin, and Anderson (2014), the expected composite reliability and Cronbach alpha values are > 0.7, and 0.6 values are still acceptable (Jogiyanto, 2011).

2.4. Data analysis

The data in this study were analyzed using the outer model with the CFA 2nd Order approach through the SmartPLS 3.2.8 program. According to Abdillah and Hartono (2015), Partial Least Square (PLS) is a variance-based Structural Equation Model (SEM) that may simultaneously test measurement models to test the construct validity and the construct reliability.

3. Results and Discussion

Based on the bullying scale outer model testing conducted using the smartPLS 3.2.8 program, the results were revealed in Figure 2 below.

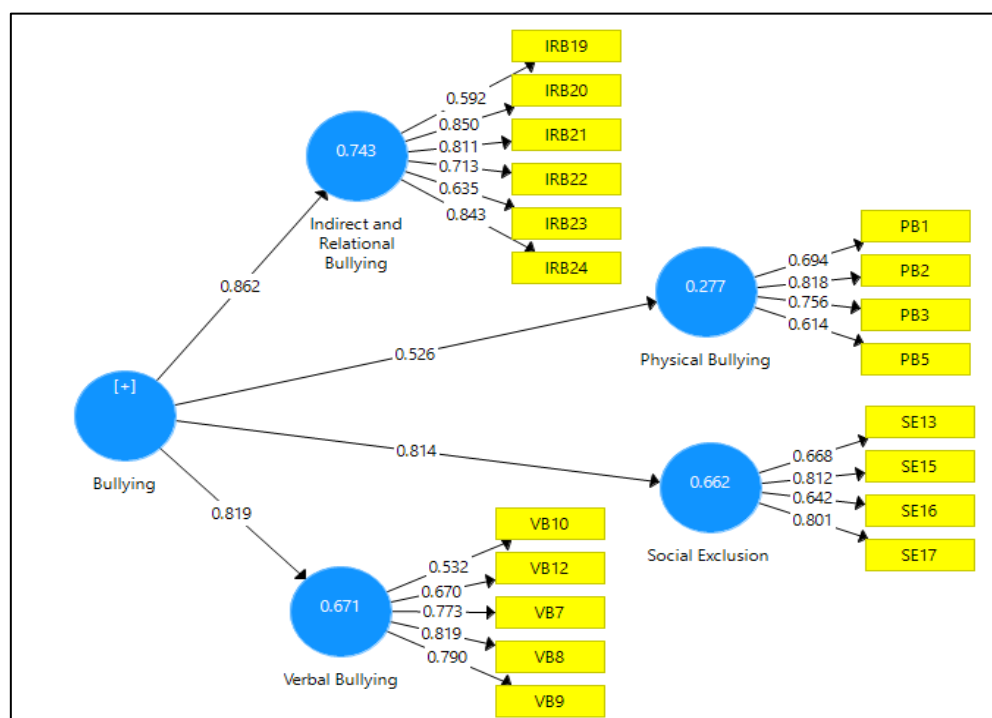


Figure 2: The output of bullying scale outer model

3.1. Test Results of Construct Validity

3.1.1. Convergent Validity

Convergent validity test results were performed by testing the outer that was seen from the loading factor value and the value of the Average Variance Extracted (AVE). This test was done referring to the loading factor value > 0.5 and Average Variance Extracted (AVE) > 0.5 . Based on data analysis, it was found that the loading factor value from variables to forms and the loading factor value of forms to indicators had a value > 0.5 . A loading factor of 0.5 or more is considered to reach validity strong enough to explain latent constructs (Hair, Black, Babin, & Anderson, 2014). The results of convergent validity testing were provided in Table 3 and Table 4.

Table 3: Value of loading factor (variable to form)

Form	Loading factor	Explanation
Indirect and rational bullying	0.862	Valid
Physical bullying	0.526	Valid
Social exclusion	0.814	Valid
Verbal bullying	0.819	Valid

Table 4: Value of loading factor (form to indicator)

Item	Loading factor	Explanation
IRB19	0.592	Valid
IRB20	0.850	Valid
IRB21	0.811	Valid
IRB22	0.713	Valid
IRB23	0.635	Valid
IRB24	0.843	Valid
PB1	0.694	Valid
PB2	0.818	Valid
PB3	0.756	Valid
PB5	0.614	Valid
SE13	0.668	Valid
SE15	0.812	Valid
SE16	0.642	Valid
SE17	0.801	Valid
VB10	0.535	Valid
VB12	0.670	Valid
VB7	0.773	Valid
VB8	0.819	Valid
VB9	0.790	Valid

Furthermore, the results of the convergent validity test showed that the Average Variance Extracted (AVE) value was > 0.5 . The Average Variance Extracted (AVE) value of the bullying variable was 0.513, and the Average Variance Extracted (AVE) value of each bullying form was submitted in Table 5.

Table 5: The value of Average Variance Extracted (AVE)

Form	AVE	Explanation
Indirect and rational bullying	0.559	Valid
Physical bullying	0.525	Valid
Social exclusion	0.539	Valid
Verbal bullying	0.525	Valid

3.1.2. Discriminant Validity

Based on the results of the discriminant validity test, it indicated that the value of the Average Variance Extracted (AVE) root correlation in each form of bullying was higher than the correlation value with the Average Variance Extracted (AVE) root in the other forms of bullying. Thus, the discriminant validity criteria were met. The root value of the Average Variance Extracted (AVE) bullying variable was in Table 6.

Table 6: The root value of Average Variance Extracted (AVE) bullying

	Indirect and rational bullying	Physical bullying	Social exclusion	Verbal bullying
Indirect and rational bullying	0.748			
Physical bullying	0.479	0.725		
Social exclusion	0.549	0.399	0.753	
Verbal bullying	0.581	0.537	0.688	0.724

3.2. Test Results of Construct Reliability Test

Construct reliability test was done by testing the outer model reflecting on the composite reliability and Cronbach alpha values. This test was done by considering the value of composite reliability and Cronbach alpha > 0.7, which meant that the scale in this study was reliable. The value of composite reliability and Cronbach alpha were mentioned in Table 7.

Table 7: The value of composite reliability and Cronbach alpha bullying

Variable	Composite reliability	Cronbach alpha	Explanation
Bullying	0.894	0.864	Reliable

Based on the results of the construct reliability test in table 6, it showed that the bullying scale had expected reliability. This indicated that the form measuring the bullying variable had met the unidimensional criteria (Hair, Hult, Ringle & Sarstedt, 2014). This was shown by the composite reliability value of 0.894 and Cronbach alpha 0.864. The construct validity and reliability test produced valid and reliable items / indicators that we're able to reflect the forms of bullying, namely the items in numbers 1, 2, 3, 5, 7, 8, 9, 10, 12, 13, 14, 16, 17, 19, 20, 21, 22, 23 and 24. Based on the results of the study data analysis

using the outer model test, it demonstrated that the measurement model was accepted because all forms of bullying were able to reflect the bullying variable.

3.3. Discussion

The analysis results of the construct validity and constructs reliability of the bullying scale, revealing that the forms and indicators reflecting the bullying construct were declared as valid and reliable. These results indicated that all forms and indicators reflecting the scale of bullying were able to reflect the construct of bullying. The most dominant form and able to reflect bullying was indirect and relational bullying, with a loading factor value of 0.862. The form of indirect and relational bullying was illustrated by the spread of bad news about victims and inviting others to stay away from victims. Valid and reliable indicators showed that perpetrators like to find out the victim's bad or disgrace, spread slander and gossip about the victim, stay away from the victim and invite others to do so.

The weakest form of bullying and able to reflect bullying was physical bullying, with a loading factor value of 0.526. Physical bullying was shown by the behavior of hitting, kicking, punching, and taking and damaging the victim's belongings. Valid and reliable indicators showed that perpetrators exhibited behavior such as scolding, harassing, and taking, damaging, and hiding victims' belongings.

The results of previous related studies regarding the variables of bullying that were relevant to this study and also explained the validity and reliability of the bullying scale were conducted by Longobardi, Iotti, Jungert, and Settanni (2018). The study measured bullying using the Olweus Bully/Victim Questionnaire (OBVQ) scale with its analysis using SPSS 23 and Mplus 7.3 programs. The results of the study showed that the bullying scale had met the reliability requirements with Cronbach alpha 0.60. Also, Georgiou, Ioannou, and Stavriniades (2018) measured bullying using the Revised Bullying and Victimization Questionnaire (BVQ-R), the results of the study showed that the bullying scale met the reliability requirements with Cronbach alpha 0.863.

Other studies conducted by Stasio, Savage, and Burgos (2016), who performed the measurements of bullying using the Illinois bully scale showed that the bullying scale had met the reliability requirements with Cronbach alpha values ranged from 0.58 to 0.79. Likewise, a study by Wang, Hsiao, Chen, Sung, Hu, and Yen (2018) measured bullying using a self-reported Chinese version of the School Bullying Experience Questionnaire (C-SBEQ). This showed that the bullying scale had met the reliability requirements with the Cronbach alpha value ranged from 0.70 to 0.76. Subsequent research conducted by Young (2020) showed that the bullying scale met the reliability requirements with a Cronbach alpha value of 0.81. The results of this study, when compared with this research, showed that the results of this study could also be used as instruments to measure bullying because the results of the reliability analysis showed that the scale in this study had a higher reliability value with a Cronbach alpha value of 0.864.

The results of this study are expected to provide an overview of the construct validity and construct reliability of bullying scale, especially in uncovering bullying in

the context of junior high school students in Yogyakarta. Therefore, it can be used in collecting research data and becoming a reference in further research related to bullying.

4. Conclusion

Based on the results of the analysis and discussion, it can be concluded that: 1) The bullying scale fulfilled validity and reliability. 2) All forms and indicators can reflect the construct of bullying, namely indirect and relational bullying, physical bullying, social exclusion, and verbal bullying. The form that had the most dominant role in reflecting bullying was indirect and relational bullying, while the form that had the weakest role in reflecting on bullying was physical bullying. In this research, a bullying scale measurement model was formed in accordance with empirical data obtained from the subject.

Acknowledgements

The author would like to thank the Ministry of Research, Technology and Higher Education, Republic of Indonesia, which provides funding and support to finish this research.

About the Author(s)

Pipih Muhopilah was born on January 7, 1996 in Majalengka. She is a student at Master of Psychology, Ahmad Dahlan University, Yogyakarta. At present her concentration of scientific fields is positive psychology and educational psychology.

Fatwa Tentama was born on October 1, 1984 in Yogyakarta. He works as a lecturer at the Faculty of Psychology at Ahmad Dahlan University, Yogyakarta. His scientific focus and research are industrial psychology and educational psychology.

Yuzarion was born in Padang on 1972, He works as a lecturer at the Master of Psychology, Ahmad Dahlan University, Yogyakarta. Yuzarion has been active in scientific research for the last five years focusing on education with variables of self-regulated learning, self-regulation, self-efficacy, and guidance and counselling.

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