Stop bullying: Evidence from an exploratory factor analysis of dominant bullying behaviors among Malaysian adolescent

Abdul Hamid Busthami Nur[1], Nurulwahida Azid[1], Ruzlan Md-Ali[1], Siti Jaizah Nakman[2], Tee Tze Kiong[3], Yee Mei Heong[3]

[1]School of Education, Universiti Utara Malaysia, Sintok, Malaysia
[2]SMK Taman Tun Aminah, Skudai, Malaysia
[3]Faculty of Technical and Vocational Education, Universiti Tun Hussien Onn, Batu Pahat, Malaysia

Article Info	ABSTRACT
	Bullying, a recurring aggressive and substantial antisocial behavior characterized by a power imbalance can be destructive, and persistent and causes harm. Bullying is a negative behavior on individuals or groups of individuals who are considered weak that occurs more frequently among adolescents between the ages of 13–16. Bullying in schools is a violence that can result in students feeling threatened and powerless. This study was conducted to identify constructs that measure physical, verbal, anti-social, and cyberbullying. A total of 677 samples from a total of 23 secondary schools in the northern peninsula of Malaysia were involved in this cross-sectional survey research design that used a questionnaire to collect the data. Exploratory factor analysis was used to analyze the data. The results showed that four factors namely, physical bully, verbal bullying, antisocial bully, and cyberbullying were prevalent among Malaysian adolescents. The reliability value for each factor was high, which ranged from .73 to .89. Out of four bullying constructs in the study, physical bullying has the highest factor loading. In conclusion, this study has proven that Malaysian adolescents also face bullying where the most dominant bullying behavior for Malaysian adolescents is physical bullying. The data imply that school leaders, the Malaysian Ministry of Education, and the community should view this matter seriously and Malaysian youths should be educated on the dangers of bullying behavior that can have a negative impact on the development of society as a whole.

Corresponding Author:

Abdul Hamid Busthami Nur
School of Education, Universiti Utara Malaysia
06010 Sintok, Kedah, Malaysia
Email: busthami@uum.edu.my

1. INTRODUCTION

Today's youth is a national asset that will be the key pillar of economic and political stability. Adolescents in every country in the world are the significant human capital who will sustain and improve the development of important areas within their countries such as leadership, economy, and education. According to Jacobson *et al*. [1], adolescence is a stage in which a person's mind should be exposed to healthy behaviors in situations that are at risk for significant current and future consequences. Therefore, today's adolescents need to be carefully and meaningfully prepared from various aspects, including their academic competence, personality, morals, and behavior, so that they can become talented and effective future leaders.

However, data released by the United Nation Educational, Scientific and Cultural (UNESCO) [2], shows that 246 million adolescents engage in some school violence each year. World Health Organization (WHO) [3] states that school violence is an ongoing phenomenon in schools across the world. WHO [3] defines violence as a violent act that uses physical force or threats that will result in injury, death, psychological harm, disability, or insecurity. It involves physical, sexual, psychological, or carelessness. According to Barret, Lynch, and Stretesky [4], the definition of violence in schools has not yet been categorized as a crime. Nevertheless, criminologists have defined violence in schools with a variety of distinctive meanings. For example, according to Shafie *et al.* [5], school violence is violence occurring around the school. Whereas, according to Barret, Lynch, and Stretesky [4], violence in schools is a threat and use of physical force with the intention of causing physical injury and damage to others.

In the Malaysian context, bully-related research instruments targeting adolescents as respondents are very limited. Currently, there is no comprehensive study that simultaneously focuses on physical, verbal, anti-social, and cyberbullying. Hence, this study is unique in that it provides profiles of physical, verbal, anti-social, and cyberbullying within adolescents' context. Essentially, this study provides school stakeholders with comprehensive information regarding tendencies toward bullying and the consequences of bullying among students.

Bullying in schools is a prevalent problem worldwide, and no community is immune from this problem, despite the implementation of anti-bullying initiatives almost everywhere [6]. Data from the Children's Safety Network [7] show that more than 90,000 children worldwide were hospitalized due to school violence every year. In addition, the results of a study by Educator's School Safety Network [8] found that 51% of all incidents of violence and threats to schools occurred in only 10 states in the United States during the 2017-2018 school year. There is clear evidence that violence in schools has a negative impact on the academic performance, physical and mental health as well as emotional well-being of adolescents who are victims of violence in school. Additionally, this violence can also invite negative effects on perpetrators of violence because it can create an atmosphere or feeling of worry, fear, and restlessness where such an atmosphere or feeling can disrupt the teaching and learning process in schools. In addition, violence in schools can also have a long-term impact on a teenager's life in terms of psychological, physical, learning, career, and community [5]. In addition, the Ministry of Education (MOE) [9] released data in 2012 on the number of school students involved in bullying behavior. A total of 4159 students, representing 3.88% of all students in Malaysia, were involved in bullying behavior. In fact, in 2016, the MOE [9] issued a statement showing that there were more than 14,000 cases of bullying in schools nationwide between 2012 and 2015 and most of them involved physical bullying. In 2021, a study by Sabramani *et al.* [10] on 4,469 Malaysian public school students found that 79.1% of them were involved in bullying.

2. LITERATURE REVIEW

According to Hinduja and Patchin [11], over the years, bullying and peer harassment have been a concern for many educators. Bullying and being bullied in schools is not only a serious problem in Malaysia, but it is also a phenomenon that is affecting students, parents, teachers, and school management in the United States and around the world [12]. It is a form of violence that threatens the social welfare of students. About one in five primary school students and one in 10 high school students in the United States have been bullied [13]. It is estimated that 15% of school students in Sweden are involved in this bullying phenomenon as either a bully or a victim of bullying and a large part are involved as assistants to the bully or defending the victim of bullying [14]. Past studies have reported many symptoms of bullying in the world that lead to depression, anxiety, avoidance of school, as well as low self-esteem among students who are victims of bullying [15].

In Malaysia, a study on bullying behavior and locations of bullying among primary school students, aged between 7-12 years, was conducted by Hassan *et al.* [16]. This study found that 40% of the study sample has the highest tendency to bully and the highest type of bullying was the verbal type. This was followed by physical bullying. Additionally, the study also showed that there was a strong relationship between the locations of bullying and the type of bullying. Recess time was the peak time for bullying to occur. Noteworthy, bullying behavior can occur in both primary and secondary schools, and can also occur in urban or rural schools [17]. Bullying has short- and long-term effects. These effects include physical, emotional, and mental aspects. Examples of long-term effects are the occurrence of disturbed mental health, depression, and emotional disorders that last until adulthood. There were four research questions to measure exploratory factor analysis for the four types of bullies in this study: i) What are the underlying factors of the physical bully construct?; ii) What are the underlying factors of the verbal bully construct?; iii) What are the underlying factors of the anti-social bully construct?; iv) What are the underlying factors of the cyberbully construct?

3.   RESEARCH METHOD

This study used a cross-sectional survey research design whereby questionnaires were distributed to identify the direction and influence of study variables [18]. The population of this study consisted of all Forms 1, 2, and 4 students from 23 secondary schools in one of the Northern States of Peninsular Malaysia. The overall sample of this study was 677 students. The rationale for this sample selection was based on the findings of a study conducted by the National Health and Morbidity Survey (NHMS) by the Institute of Public Health [19], whereby the results of this study found that the statistics of bullying cases in this particular State had increased from 15.3% cases in 2012 to 15.8% cases in 2017. Meanwhile, the rationale for selecting Forms 1, 2, and 4 students between the ages of 13 and 16 were based on the statistics released by the United Nations Children's Fund [20] which conducted studies on adolescents in 106 countries and found that teens between the ages of 13 and 16 were the most often bullied.

The instrument used in this study was a questionnaire to measure the variables. Referring to Table 1, the instrument has two parts, namely part A, which consisted of five items to measure the demographic profile of the respondents. Section B contained 23 items to measure four bullying constructs according to the category of bullying namely physical bullying, verbal bullying, anti-social bullying, and cyberbullying as illustrated in Table 1.

Table 1. The number of items based on the bully constructs

Items number	Total of items	Construct
Part A		
1-5	5	Demographic
Part B		
1-6	6	Physical bully
7-11	5	Verbal bully
12-18	7	Anti-social bully
19-23	5	Cyberbully

To measure each provided item, respondents were required to state the frequency of each item statement that was asked using a five-point Likert-type scale adapted from Vagias [21] that took into account item suitability. The scales placed were scale 1 (never), scale 2 (rarely), scale 3 (sometimes), scale 4 (quite often), and scale 5 (always). For demographic information, the researchers used a nominal scale to obtain the percentages of student profiles. The following are the details of the instruments that were used in the measurements of Part B (bullying measurements by category).

In order to answer the research questions, exploratory factor analysis (EFA) using principal factor analysis with the Varimax rotation method was conducted to identify bullying constructs in this study. Several steps were followed to arrive at the justified result of the study, which included screening the data, fulfilling the statistical assumption, extracting the factor, rotating the factor, and naming the formed factor. According to Hair $et\ al.$ [22], the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy (MSA) value must be equal to or greater than 0.5 (KMO≥0.5), the significance of Bartlett's Test of Sphericity has to be equal to or less than 0.05 (sig≤0.05), and each item must have an MSA value greater than 0.5. If the items have factor-loading values greater than 0.4 and are grouped according to a design that does not include cross or zero loading, then the measurement can be assumed to have good validity.

The content validity according to previous studies [23]–[25] of the questionnaire used in the study was determined to ascertain that the items contained in the questionnaire were relevant to the targeted bullying construct that it was designed to measure. In this study, content validity was done via a validation procedure to determine the appropriateness and suitability of the questionnaire [26] by involving six appointed experts. The bullying items within the questionnaire were thoroughly researched, examined, and discussed with these experts, before distributing them to the samples. The first expert was a medical doctor, with a Ph.D., who was the chairman of the anti-bullying association, the second and third experts were psychiatrists from two government hospitals, and the fourth expert was a professor in psychology who has been conducting bullying-related studies for more than 10 years, the fifth expert was a senior university lecturer in the field of counseling and the sixth expert was a counselor from the State Ministry of Health. Each expert evaluated every item in the questionnaire to identify the content accuracy, its meaning as well as its relevance to the targeted samples. Modifications and corrections to some of the items were made before the actual study was carried out based on the experts' views and suggestions. Evaluation of the items also covered aspects of the suitability of language, the purpose of the item, culture of the targeted samples. The research procedures, including the validation process, were approved by the Centre of Research Management Ethics Committee at Universiti Utara Malaysia. Figure 1 shows the phases of validation process that had been implemented in this study.
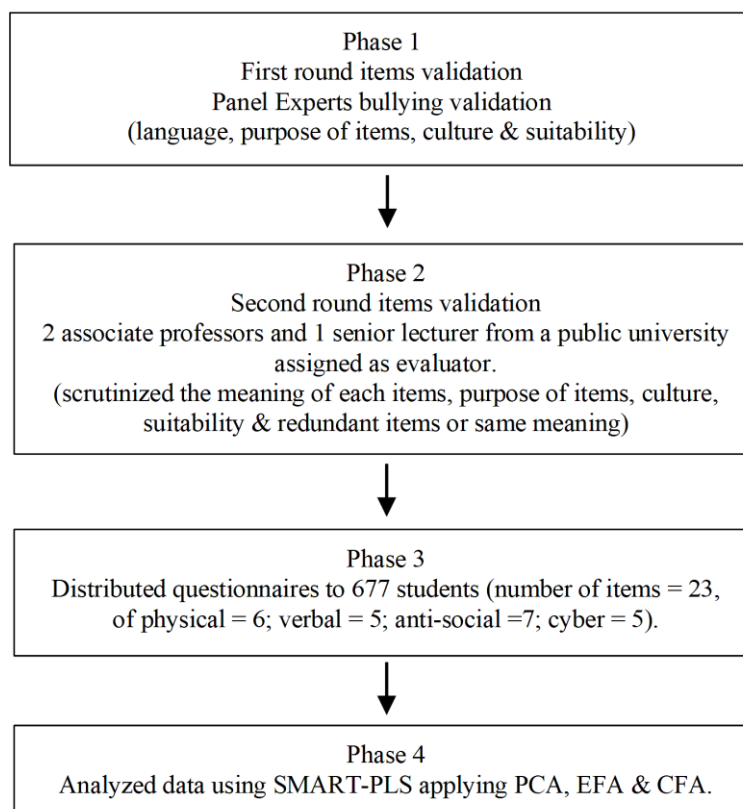

Phase 1
First round items validation
Panel Experts bullying validation
(language, purpose of items, culture & suitability)

↓

Phase 2
Second round items validation
2 associate professors and 1 senior lecturer from a public university assigned as evaluator.
(scrutinized the meaning of each items, purpose of items, culture, suitability & redundant items or same meaning)

↓

Phase 3
Distributed questionnaires to 677 students (number of items = 23, of physical = 6; verbal = 5; anti-social =7; cyber = 5).

↓

Phase 4
Analyzed data using SMART-PLS applying PCA, EFA & CFA.

Figure 1. Phases of the validation process

The data collection began with the researchers' meeting with the principals of the 17 schools involved in the data collection process to explain the purpose of the study and the method of selecting respondents, and to request permission to conduct the study at their schools. After a consultation session with the principals, the researchers held discussions with the school counselors who have been entrusted by the school principals to help the researchers manage and implement the data collection. The setting of the appropriate dates and times to distribute the questionnaire to the respondents had been agreed upon by the schools, researchers, and respondents. The administration of questionnaires was managed by the researchers. A short briefing concerning the sections and number of items to be answered was given to the respondents by the researchers. 30 minutes were given to the respondents to complete the questionnaire administered by the researchers. Respondents were allowed to leave the hall after completing the questionnaire.

4. RESULTS AND DISCUSSION

4.1. The result of the analysis

The result of the analysis indicated that 677 questionnaires were collected and valid for further analysis. Of this number, 49.9% were from male (n=338) students and 50.1% were from female students (n=339). The respondents have almost equal numbers in terms of gender. The data were analyzed using principal component analysis (PCA) with Varimax rotation to identify the underlying factors of the five constructs examined in the study. Only those factors with an Eigen value of 1.0 or greater were retained. Based on Hair *et al*. [22] table of factor loading and sample size, this study has set as a criterion that all items loading below .50 would be deleted, while items with loading values of .50 and greater were considered practically significant. For the reliability test, any factor having a combination of items with a Cronbach's alpha of less than .60 was dropped.

4.2. The final analysis

The initial analysis revealed that some items failed to meet some of the recommended criteria (i.e., item loading with less than .50 and item had cross-loading). Therefore, a few more analyses were conducted to achieve the desired results. After referring to the commonality table and the rotated component matrix table, the following problematic items were deleted: i) Items that scored below .50 in the commonality table;

ii) All items that cross-loaded or had a loading value of below .50; and iii) Factor with a Cronbach's alpha of below .60. The final analysis indicated only 18 items out of the initial total of 22 were retained and used, yielding results that were statistically significant. Specifically, Bartlett's Sphericity test was statistically significant with c² (df=153) = 6975.060 and p-value of .0001. The overall MSA, Kaiser-Meyer-Olkin Measure of Sampling Adequacy of .896 revealed a high degree of inter-correlation among the variables, as indicated in Table 2. The individual MSAs ranged from .79 and .92. Therefore, the good inter-correlation among the items justified the use of Principal Component Analysis. Table 2 shows all items to be higher than .50. The lowest extraction value among the 18 items was .55, while the highest was .82. The analysis revealed that the 18 items were nicely loaded into four factors. These factors accounted for 67% of the total variance, which was above the significant level of 60% set for academic purposes [22]. The Eigen values for the four factors ranged from 7.47 to 1.18 in Table 2. The results also showed that all 18 items were free from cross-loading as all loadings were in the same direction with values greater than .60.

Table 2. Table of commonalities

Variable	Speed (rpm)	Power (kW)
x	10	8.6
y	15	12.4
z	20	15.3

4.3. Internal consistency reliability test

An internal-consistency reliability test was performed to identify how well the items reflected a common underlying construct. Internal consistency reliability is achieved when items used to measure the construct are "capable of independently measuring the same concept so that the respondents attach the same overall meaning to each of the items" [27]. The most frequently used statistic to assess internal consistency reliability is Cronbach's alpha [26], whose measures range from 0 to 1 with values falling between .60 and .70 being indicative of acceptable reliability [22]. However, for social science research, a value of more than .70 is considered desirable [27], and the closer the value is to 1, the higher the internal consistency reliability [27]. In this study, Cronbach's alpha was used to assess the internal consistency reliability of the four factors–physical bully, verbal bully, anti-social and cyberbully– extracted by PCA. The internal consistency details for the four factors are: i) Factor 1 which is labelled as physical bully produced four items/indicators with an alpha level of .88; ii) Factor 2 which is labelled as verbal bully produced five items/indicators with an alpha level of .83; iii) Factor 3 which is labelled as anti-social bully produced six items/indicators with an alpha level of .89; and iv) Factor 4 which is labelled as cyber bully produced three items/indicators with an alpha level of .73. Furthermore, the overall alpha level for all factors was .91 illustrating high reliability of the indicators as shown in Table 3.

4.4. The four factors and their finalized indicators

The results of PCA extracted four factors along with their indicators. Each factor was defined and presented along with its corresponding items in the tables. Factor 1 represented physical bullying (PB), which was defined as a category of bullying involving a person's physical pain or property damage. Examples of physical bullying are stealing, pushing one's body, hitting someone, fighting with someone, and causing damage to one's property. After PCA procedures, four reliable items were finalized to represent this construct. Factor 2 represented verbal bullying (VB), which referred to verbal forms of bullying such as calling out names that are not liked, spreading rumors, threatening someone, and mocking or verbally making fun of someone. There were five items identified for this construct. Furthermore, factor 3 represented anti-social bullying (ASB), which referred to bullying with the intention of damaging one's reputation or social position this bullying can occur in two situations; either by excluding someone and making them feel unwanted or by betraying someone's trust. Six items represented this construct. The last factor represented cyber bully (CB), which referred to bullying occurring on any technology device and it includes e-mail, messaging, and social networking sites which was reflected by three items. Table 4 shows the final four factors and their items.

Table 3. Exploratory factor analysis physical, verbal, anti-social and cyber bully constructs

Items	Factor 1 Physical	Factor 2 Verbal	Factor 3 Anti-social	Factor 4 Cyber	Communality values	Mean	SD	MSA
PB1	.762				.654	1.92	1.05	.895
PB2	.848				.823	1.66	0.99	.888
PB3	.838				.791	1.53	0.88	.883
PB4	.781				.726	1.46	0.84	.873
VB1		.645			.567	2.16	1.09	.920
VB2		.708			.649	1.58	0.96	.912
VB3		.838			.762	1.87	0.98	.878
VB4		.679			.646	1.87	1.10	.923
VB5		.668			.551	1.51	0.88	.909
ASB1			.693		.607	1.52	0.95	.914
ASB2			.710		.662	1.43	0.85	.922
ASB3			.737		.755	1.39	0.86	.925
ASB4			.807		.750	1.48	0.95	.910
ASB5			.719		.585	1.53	0.92	.922
ASB6			.774		.669	1.30	0.83	.879
CB1				.790	.655	1.53	1.00	.795
CB2				.802	.699	1.49	0.84	.834
CB3				.735	.655	1.31	0.80	.817
Eigen values	7.470	1.873	1.677	1.187				
% of variance after rotation	41.498	10.405	9.317	6.596				
Kaiser Meyer Olkin Measure of Sampling Adequacy					.896			
Bartlett's Test of Sphericity			Approx. Chi-Square		6975.060			
			Df.		153			
			Sig.		.000			

Table 4. Finalized items of physical, verbal, anti-social, and cyberbully factors

Item label	Item statement	Factor loading	Cronbach's alpha
PB1	I slapped other students	.762	
PB2	I kicked other students	.848	.88
PB3	I hit other students	.838	
PB4	I punched other students	.781	
VB1	I called other students names that they do not like	.645	
VB2	I threatened to hurt students	.708	
VB3	I teased other students with words that hurt their feelings	.838	.83
VB4	I cursed at other students	.679	
VB5	I started (instigated) conflicts among students	.668	
ASB1	I told lies about a student so that he/she will not be liked	.693	
ASB2	I threatened my friends that I will stop befriending them unless they do what I say	.710	
ASB3	I incited my friends to turn against other students	.737	.89
ASB4	I conspired with my friend to start a rumor about other students	.807	
ASB5	I discouraged other students from being friends with students I do not like	.719	
ASB6	I joined a group of students who slanders other students	.774	
CB1	I uploaded a post about a friend on social media to make others laugh	.790	
CB2	I sent a message directly to someone to make fun of the person or make the person angry	.802	.73
CB3	I made fun of other students by using the social media	.735	

Note. Overall Cronbach's alpha reliability index was .91

4.5. Discussion

The findings of this study found that in total, there were four factors resulting from the EFA performed on 677 samples from 23 schools in Malaysia: i) Physical bullying (reliability=.88); ii) Verbal bullying (reliability=.83); iii) Anti-social bully (reliability=.89); and iv) Cyber bully (reliability .73). All four factors indicated high-reliability values. This was because before the items were given to the sample, screening in terms of content validity was conducted taking into account the views and comments on the improvement of items from six experts from several different fields. Expert comments and views were discussed in depth among researchers to produce convincing and meaningful items that meet the principles of good item characteristics such as clarity, meaning, the message to be conveyed was easily understood and no items were repeated and no overlapped meanings with each other.

For the first factor, physical bully consisted of four items with an r-value between .762 to .848: i) I slapped other students (r=.762); ii) I kicked other students (r=.848); iii) I hit other students (r=.838); iv) I punched other students (r=.781). This finding showed that Malaysian adolescents performed more "I kicked others students" actions with the highest factor loading of four items .848, followed by "I hit other students" with a .838 factor loading compared to the other two items.

Further findings of the second factor, verbal bullying, indicated that there were five items that measured bullying behavior among Malaysian adolescents. The item consisted of: i) I called other students names that they do not like (r=.645); ii) I threatened to hurt students (r=.708); iii) I teased other students with words that hurt their feelings (r=.838); iv) I cursed at other students (r=.679); and v) I started (instigated) conflicts among students (r=.668). This finding showed that verbal bullying behavior most commonly occurred among Malaysian adolescents was "I teased other students with words that hurt their feelings" with a .838 factor loading higher than the other four items.

Meanwhile, the third-factor anti-social bully was made up of six items, which has the most number of items compared to other factors. The dominant item describing bullying behavior among Malaysian adolescents was "I conspired with my friend to start rumors about other students" with a factor loading value of .807. While the other five items were: i) I joined a group of students who slander other students (r=.774); ii) I incited my friends to turn against other students (r=.737); iii) I discouraged other students from being friends with students I do not like (r=.719); iv) I threatened my friends that I would stop befriending them unless they do what I say (r=.710); v) I told lies about a student so that he/she will not be liked (r=.693).

The last factor was the cyber bully factor. There were only three items in this fourth factor. The most common cyberbullying behavior among Malaysian adolescents was "I sent a message directly to someone to make fun of the person or make the person angry" with a factor loading of .802, followed by "I uploaded a post about a friend on social media to make others laugh" with a factor loading value of .790 and "I made fun of other students by using the social media" with a factor loading value of .735.

The findings showed the characteristics of bullying among adolescents in the Malaysian context. This bullying among adolescents in schools is a worldwide phenomenon as it was found in other countries, such as the Middle East [28], North Africa [29], and sub-Saharan Africa [30]. Furthermore, the type of bullying occurred among adolescents in Malaysian schools is very serious considering the items extracted from the analysis. For instance, physical bullying is made of slapping, kicking, hitting, and punching. This type of bullying can severely harm the victim. Therefore, in the Malaysian context, it is frequently reported that the victim of bullying had to be rushed to the hospital because of serious harm that happened in the school. This study illustrated those bullying phenomena in the Malaysian context are quite different and more severe as compared to bullying occurring in other countries. The categorization of bullying types is identical across the countries such as physical, verbal, anti-social, and cyberbullying; however, the characteristics of each type are different as indicated by items extracted from the analysis.

The impact of this study is on the MOE because the study describes bullying behavior according to physical, verbal, anti-social, and cyberbullying categories from the viewpoint of adolescents in Malaysia. The items rated by Malaysian adolescents indicate bullying behaviors representing each category are often perpetrated by bullies among Malaysian teenagers. This information is deemed important for the MOE, school administrators, school counselors, teachers, parents, stakeholders, and also students. By identifying and familiarizing with these bullying behaviors, early intervention and prevention measures can be thought of and appropriately implemented to curb, and feasibly eliminate acts of bullying in schools and the community at large. Malaysian adolescents must be mentally, physically, and emotionally healthy as members of a united, harmonious and respectful society. As previously highlighted, there is no current study within Malaysia that uses a quantitative instrument with items that are based on physical, verbal, anti-social, and cyberbullying behaviors. Therefore, this study provides the present state of bullying behaviors happening among adolescents in Malaysia. Moreover, this study also supports Malaysia's agenda to cultivate a safe school environment and concomitantly sustain equality of education among all children in Malaysia.

5.　CONCLUSION

In conclusion, EFA in this study has indicated that four types of bullying that often occur among 13-16 years old Malaysian adolescents in schools are physical bullying, verbal bully, anti-social bully, and cyberbullying. Notable, physical bully is the highest type of bullying that occurred because it indicated the highest loading values compared to the other three constructs. Predominantly, the two types of bullying behaviors that adolescents often do under physical bullying are "I kicked other students" and "I hit other students." In addition, Malaysian adolescents often showed anti-social bullying behavior by conspiring with their friends to start rumors about other students and showed cyberbullying behavior by sending messages directly to someone to make fun of that person or to make that person angry. The results of the current study would be alarming to school stakeholders as the four different types of bully were actually happening in the schools, and obviously, this sort of violence needs immediate and special attention by all the relevant parties, such as the school stakeholders, since it has been universally reported that bullying, an act of violence, has significant risks that could contribute to health problems, such as depression, anxiety, and other types of negative effects that consequently affect students' learning.

ACKNOWLEDGEMENTS

REFERENCES

[1]   L. da S. V. Jacobson, C. L. T. de Andrade, C. N. do Carmo, D. de S. Mourão, and S. de S. Hacon, "Trend in mortality due to external causes in the State of Espírito Santo, Brazil, from 1994 to 2005," *Revista Brasileira de Epidemiologia*, vol. 12, no. 1, pp. 82–91, 2009, doi: 10.1590/s1415-790x2009000100009.

[2]   United Nations Educational Scientific and Cultural Organization (UNESCO), *School Violence and Bullying: Global Status Report*. International Symposiumon School Violence and Bullying: From Evidence to Action, 2017.

[3]   World Health Organization (WHO), *World report on violence and health*. Geneva: World Health Organization Press, 2002.

[4]   K. L. Barrett, M. J. Lynch, and P. B. Stretesky, "Green Criminology and the Reconceptualization of School Violence: Comparing Green School Violence and Traditional Forms of School Violence for School Children," *Critical Criminology*, vol. 24, no. 1, pp. 19–37, 2016, doi: 10.1007/s10612-015-9280-9.

[5]   A. A. Shafie, A. A. Anuar, N. C. Rozudi, W. A. Z. Kamaruddin, and M. Mohamad, "Bully victims and the effects of bullying," *Journal of Islamic Social Sciences and Humanities*, vol. 11, pp. 109–124, 2017, [Online]. Available: https://oarep.usim.edu.my/jspui/handle/123456789/5278

[6]   N. S. Bauer, P. Lozano, and F. P. Rivara, "The Effectiveness of the Olweus Bullying Prevention Program in Public Middle Schools: A Controlled Trial," *Journal of Adolescent Health*, vol. 40, no. 3, pp. 266–274, 2007, doi: 10.1016/j.jadohealth.2006.10.005.

[7]   Children's Safety Network, *Bullying victimization among U.S. Youth*. U.S.: Education Development Centre, 2018.

[8]   A. Klinger and A. Klinger, "Violent Threats and Incidents in Schools: An Analysis of the 2018-2019 School Year," The Educator's School Safety Network, 2019.

[9]   Kementerian Pendidikan Malaysia, *Info media: Menjana maklumat pendidikan*. 2018.

[10] V. Sabramani, I. B. Idris, H. Ismail, T. Nadarajaw, E. Zakaria, and M. R. Kamaluddin, "Bullying and its associated individual, peer, family and school factors: Evidence from Malaysian national secondary school students," *International Journal of Environmental Research and Public Health*, vol. 18, no. 13, 2021, doi: 10.3390/ijerph18137208.

[11] J. W. Patchin and S. Hinduja, "Cyberbullying and Self-Esteem," *Journal of School Health*, vol. 80, no. 12, pp. 614–621, 2010, doi: 10.1111/j.1746-1561.2010.00548.x.

[12] J. S. Hong and D. L. Espelage, "A review of research on bullying and peer victimization in school: An ecological system analysis," *Aggression and Violent Behavior*, vol. 17, no. 4, pp. 311–322, 2012, doi: 10.1016/j.avb.2012.03.003.

[13] S. L. Brown, D. A. Birch, and V. Kancherla, "Bullying perspectives: Experiences, attitudes, and recommendations of 9- to 13-year-olds attending health education centers in the United States," *Journal of School Health*, vol. 75, no. 10, pp. 384–392, 2005, doi: 10.1111/j.1746-1561.2005.tb06642.x.

[14] A. Frisén, A. K. Jonsson, and C. Persson, "Adolescents' perception of bullying: Who is the victim? Who is the bully? What can be done to stop bullying?" *Adolescence*, vol. 42, no. 168, pp. 749–761, 2007.

[15] N. M. Bowllan, "Implementation and Evaluation of a Comprehensive, School-wide Bullying Prevention Program in an Urban/Suburban Middle School," *Journal of School Health*, vol. 81, no. 4, pp. 167–173, 2011, doi: 10.1111/j.1746-1561.2010.00576.x.

[16] J. Hassan, S. Abd Rashid, S. F. Sufahani, and M. K. Abd Aziz, "Buli di kalangan pelajar sekolah rendah luar bandar: Kajian kes di kawasan FELDA utara Kedah-Perlis, Malaysia," *Jurnal Psikologi Malaysia*, vol. 30, no. 1, pp. 113–125, 2016.

[17] A. Yahaya, Y. Boon, S. Hashim, M. S. Mustaffa, and Z. Muhamad, "Indeks Perlakuan Buli Di Kalangan Pelajar-Pelajar di Sekolah Menengah dan Rendah di Malaysia," *Pusat Pengurusan Penyelidikan UTM*, pp. 1–165, 2008.

[18] J. S. Creswell, *Research Design. Qualitative, Quantitative and Mixed Methods Approaches*, 4th ed. Singapore: Sage Publication, 2014.

[19] Institute for Public Health (IPH), *National Health and Morbidity Survey (NHMS) 2017: Key Findings from the Adolescent Health and Nutrition Surveys*. Institute for Public Health, National Institutes of Health, Ministry of Health Malaysia, 2018.

[20] United Nations Children's Fund, *Hidden in plain sight: A statistical analysis of violence against children*. New York, 2016.

[21] W. M. Vagias, *Likert-type scale response anchors*. Clemson International Institute for Tourism & Research Development, Department of Parks, Recreation and Tourism Management. Clemson University, 2006.

[22] J. F. Hair Jr., G. Thomas, M. Hult, C. M. Ringle, and M. Sarstedt, *A Primer on Partial Least Squares Structural Equation Modelling (PLS-SEM)*. SAGE Publications, 2016.

[23] A. Rubin and E. R. Babbie, *Research methods for social work*, 8th ed. Brooks/Cole Cengage Learning, 2014.

[24] B. J. N. Soriano, S. G. Duarte, A. M. F. Alonso, A. B. Perales, and T. P. Carreño, "Validation of a questionnaire developed to evaluate a pediatric ehealth website for parents," *International Journal of Environmental Research and Public Health*, vol. 17, no. 8, 2020, doi: 10.3390/ijerph17082671.

[25] S. Tsang, C. F. Royse, and A. S. Terkawi, "Guidelines for developing, translating, and validating a questionnaire in perioperative and pain medicine," *Saudi Journal of Anaesthesia*, vol. 11, no. 5, pp. S80–S89, 2017, doi: 10.4103/sja.SJA_203_17.

[26] F. Shaffie, "Strengthening the Organizing of Articles Readings among Graduate Students to Support their Construction of Research Proposals," *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, vol. 12, no. 3, pp. 1294–1304, 2021, doi: 10.17762/turcomat.v12i3.897.

[27] U. Sekaran, *Research Method for Business Textbook: A Skill Building Approach*. New York: John Wiley & Sons, 2003.

[28] S. S. Kazarian and J. Ammar, "School bullying in the Arab world: A review," *The Arab Journal of Psychiatry*, vol. 24, no. 1, pp. 37–45, 2013, doi: 10.12816/0000097.

[29] H. Abdirahman, L. C. Fleming, and K. H. Jacobsen, "Parental involvement and bullying among middleschool students in North Africa," *Eastern Mediterranean Health Journal*, vol. 19, no. 3, pp. 227–233, 2013, doi: 10.26719/2013.19.3.227.

[30] United Nations Educational Scientific and Cultural Organization (UNESCO), *Behind the numbers: Ending school violence and bullying*. Paris, UNESCO, 2019.

BIOGRAPHY OF AUTHORS

Abdul Hamid Busthami Nur 🆔 ⑧ ᴄ ᴄ is a visiting senior lecturer at the School of Education, Universiti Utara Malaysia. His field is on Instructional Technology. His area of research focuses on technological pedagogical content knowledge (TPACK), flipped classroom and other IT related research. He is actively involved in teaching of various instructional technology courses such as fundamentals of instructional technology, IT in education, instructional design and other related courses for under and postgraduate levels. He is currently funded by local and international grants to run his research. He can be contacted at e-mail: busthami@uum.edu.my.

Nurulwahida Hj Azid 🆔 ⑧ ᴄ ᴄ is an associate professor at the School of Education, Universiti Utara Malaysia. Her field of expertise is curriculum and instruction. Her research mainly focuses on the effectiveness of digital curriculum through development of interactive application, enrichment module and interactive module using psychology elements (multiple intelligences, thinking intelligence, higher order thinking skills, decision making skill, problem solving and case-based learning) across curriculum and instruction. Her research interest: digital curriculum towards enhancing teaching and learning, curriculum and instruction, curriculum innovation and assessment of learning in school setting. She can be contacted at e-mail: nurulwahida@uum.edu.my.

Ruzlan Md-Ali 🆔 ⑧ ᴄ ᴄ holds a PhD in Mathematics Education from the University of Warwick, United Kingdom and is an Associate Professor at the School of Education, Universiti Utara Malaysia. His research interest includes the instruction and learning of mathematics as well as the psychology of learning mathematics. He had the experience of teaching mathematics at the secondary school level and as mathematics lecturer at teacher training institutions before joining Universiti Utara Malaysia. He can be contacted at e-mail: ruzlanmdali@gmail.com.

Siti Jaizah Nakman 🆔 ⑧ ᴄ ᴄ is a teacher at SMK Taman Tun Aminah, received Bachelor of Education with Hons. (Moral Education) in 2016 and Master of Education specialization in Curriculum and Instruction in 2018 from Universiti Utara Malaysia, Kedah. She is currently pursuing Ph.D (Education) at Universiti Utara Malaysia. She can be contacted at e-mail: sjaizah92@gmail.com.

Yee Mei Heong 🆔 ⑧ ᴄ ᴄ is the head of program for the Doctor of Philosophy in Education at Department of Professional Education and Postgraduates, Faculty of Technical and Vocational Education, University Tun Hussein Onn Malaysia (UTHM). She received her doctorate degree, the Doctor of Philosophy of Technical and Vocational Education, from UTHM in 2015. Current and previous research interests are problem-solving skills, higher order thinking skills, learning styles, teaching styles, modular approaches to teaching and learning, 21st learning skills and approaches. Ts. Dr. Yee is a TRIZ Level 1 instructor, member of Malaysian Design Council (MRM) and Malaysian Technical and Vocational Education Association. She can be contacted at email: mhyee@uthm.edu.my.

Tee Tze Kiong 🆔 ⑧ ᴄ ᴄ is the head of Department of Global and Cooperation, Malaysia Research Institute for Vocational Education and Training, Batu Pahat, Johor, Malaysia. His highest Academic Degree is on Ph.D. in Technical and Vocational Education, University Tun Hussein Onn Malaysia (UTHM). Current and previous research interests are thinking skills, thinking tools, self-instructional modular approach, learning styles and inventive problem-solving skills. Dr. Tee is a member of Universiti Teknologi Malaysia Alumni, University Tun Hussein Onn Malaysia Alumni, Malaysia Technical and Vocational Education Association and TRIZ level I instructor. He can be contacted at email: tktee@uthm.edu.my.