Psychometric Properties of Revised Malaysian Bullying Questionnaire (R-MBQ)

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Abstract: *Bully is considered as a serious health problem which has high potential to trigger physical and psychosocial dysfunctions among victims including serious depressive symptoms and stress. In general, bullying is defined as a set of aggressive behaviour, systematic abuse of power as well as a form of peer abuse. Currently, the incidence of bullying is widespread in Malaysia and the current research was aimed to revise and validate the Malaysian Bullying Questionnaire (R-MBQ) for the purpose of local use. This study was achieved by employing subjective and objective validation methods. The present study commenced with subjective validation methods namely content and faces validity tests. Later, the objective validity of this measure was achieved by employing a cross sectional study among 170 random sample of Malaysian National Secondary School students. The data was analysed and examined using Exploratory Factor Analyses while the internal consistency was ascertained through Cronbach's Alpha method. The findings showed that R-MBQ has two factors namely perpetrator and victim domains. The perpetrator domain shows the items are within the acceptable factor loading range of 0.46 and 0.57. Meanwhile, the victim domain comprised of items with factor loading from between 0.52 to 0.74. The Cronbach's alpha coefficients were within good range: Perpetrator Domain ($\alpha = 0.81$) and Victim Domain ($\alpha = 0.78$). The results of the validation study suggested that the R-MBQ is reliable and serves as a valid tool for assessing the bullying involvement among Malaysian adolescents. This validated tool is expected to be utilized as a screening instrument for proactive preventive steps for bully among Malaysian students.*

Index Terms: *Adolescents, bully, public health, reliability, validity*

I. INTRODUCTION

In present times bullying is one of a big and everlasting social and health issue in schools and communities that can gives negative and adverse impacts on teenagers' right to live in a secure and safe environment without anything to fear. In general, bully can defined as any intended behaviour that is aggressively performed by an individual a group or people having no relations between each other that may be repeated multiple times involving an observed or perceived power imbalance [10]. In other words, bullying can be denoted as a set of aggressive behaviour [23], a systematic abuse of power [35] and a form of peer abuse [8]. According to Olweus bullying occurs "when an individual is exposed, repeatedly and over time, to negative actions on the part of one or more other persons" he further enunciated that "negative actions occur when a person intentionally inflicts injury or discomfort upon another person, through physical contact, through words or in other ways" [25]. The imbalance of power present between the two individuals causes the stronger individual to repeatedly cause harm to the weaker person [24]. This aggressive behaviour can be directed by person or a group towards a single person or group individuals. According to Olweus [22], one of the important element that differentiate between aggressive and bullying behaviour is the duration of behaviour in which aggressive behaviour tend to be one time action whereas bullying behaviour involves repeated actions over the time. It was noted that bully who managed to obtain power over the victims, he or she tends to sustain his behaviour by repeating the same actions on victim for a longer duration [32]. Over the years, bullying involvement is highly prevalent, affecting up to half of adolescents worldwide [20]. According to Espelage and Swearer [6], bullying behaviour is carried out by individual towards victims for few notable reasons which include gaining prestige, power and also access to the sources such as money and other materials from the victims. Salleh & Zainal [29] believed that bullying is one way of treating people harshly and brutally to show one's strength. Eventually, these bullying activities will make the victim feel more afraid, weak and respect the bullies unwillingly. In sociological and psychological literatures, few types of classification have been frequently used to categorise types of bullying behaviour based on the nature and extent of such behaviour. According to Salleh & Zainal [29], bullying can be categorized as direct and indirect bullying; based on the impact of bullying. Direct bullying is the type of bullying that involves physical contact between the bullies and victim that can cause injuries. Meanwhile, indirect bullying is bullying that can give effects to the victim through psychological and emotional ways such as insulting and teasing someone [29]. In recent years, cyber bullying is another risk that has emerged from the advancement of technology and emergence of social media.

It was well noted that adolescents and young children involved in bullying are having various behavioural, physical as well as mental health problems; Even they are having suicidal ideation [15]. Fekkes, Pijpers, Fredriks, Vogels, & Vanhorick [7] reported that bullied adolescents are having abdominal pain, sleeping problems, unexplainable headaches, stress, enuresis, mental fatigue, and poor appetite. Gini & Pozzoli [9] in their research also investigated that bullied children are having significantly high risks of psychosomatic problems. Research also confirmed that bullied youngsters with depressive symptoms have experienced more emotional stress than bullied youngsters [38].

Bullying can have deep-rooted effects on both bullies and victims. Bullying is a bad and negative attitude for the people especially teenagers as it can make the victims feel uncomfortable to others and also can cause mental illness [37]. These effects include decreased academic achievement, depression, anxiety, substance abuse, and even to the extent of suicide [31]. Besides that, there is also empirical evidence of poor academic performance among those involved in bullying. Adolescents who are bullied were bound to abstain from going to school, have high absent rate [26, 34], loathe school, and receive poorer grades or low test scores as compared to those who are not involved in bully [15]. A study by Salmivalli, Lagerspetz, Bjorkqvist, Osterman & Kaukiainen [30] also unveiled that bully victims scored lower marks in self-concept domain compared to non-bullied students. Significant negative association were also found between bullying involvement & academic achievement [19].

In recent time, the issues on school bullying in Malaysia has developed a sense of concern among the stakeholders and public. A total of fourteen thousands and seventy two "14,072" bullying reports in school has been recorded in just four years [16]. It is also reported that physical bullying cases in schools had dropped from "4,159 in 2012 to 4,120 in 2013". Further "2,825 cases in year 2014" are also dropped but in 2015 the number of cases rose to "2,968" [16].In the West, findings by McEachern, Kenny, Blake & Aluede [17] has noted that at least one out of four students seemed to be the victims of school bullying. It is also revealed that 4% - 5% of children between the age group of 10 to 19 years are bullied; the percentage increases with increasing age and 3% to 25% had been bullied at least once via the internet [38].

Bully is considered as a serious health problem which has high potential to trigger physical and psychosocial dysfunctions among victims including serious depressive symptoms and stress. An immediate, sustainable and comprehensive anti-bullying intervention formula is needed to curb this phenomenon. Prior to development of any modules or interventions, it is always necessary to have a set of valid tools to assess this bullying issue for the purpose of measuring the effectiveness of such interventions and modules. Although a number of tools are available to measure bully among adolescents, for instance, bully survey [36], multidimensional peer victimization scale [18], life in school checklist [37], bullying participant behaviors

questionnaire[4] and the school climate bullying survey[3], the peer relations questionnaire [33], handling bullying questionnaire [2] & pro-victim scale [26]; this study purposely selected to revise and further validate Malaysian bullying questionnaire (MBQ) which was developed by Yaakob [38] as this tool was locally develop to suit the local context.

This MPQ is considered suitable tool to be used at various settings and across culture since it taps two domains perpetrator and victim; compared to other majority tools which focus on one domain only (either perpetrator or victim). Although MBQ is an established scale for a local context, it is necessary to further revise this tool as bullying behaviour is tends to be dynamic over the years especially with the emergence of cyberbullying. With that in mind, it is imperative to revise this tool by adding more related items especially from cyberbullying context and subject it to validation testing. In view of this, this research was conducted to validate the further revised Malaysian bullying questionnaire (R-MBQ) among Malaysian national secondary school students. A psychometrically validated R-MBQ could assist researchers from many disciplines to utilize it for the purpose of researches and also as a tool of measurement for bullying related intervention efforts.

II. METHODS

A. Instrument

The questionnaires were divided into two parts and each was labelled as Section A (*Information related to respondent characteristics*) and Section B (*Revised-Malaysian Bullying Questionnaire*) respectively. Pertinent questions on the socio-demography aspects such as gender, age, and ethnicity; were asked. In Section B, R-MBQ was included. The original version of this scale was developed by Yaakob [38].

The original scale was available in Malay Language and consisted of 21 items with respective 11 items measuring perpetrator domain while the remaining 10 items intended to measure victim domain. Upon dividing further, four items described perpetrator of physical bullying, four items for identifying perpetrator of relational bullying and three items for identifying perpetrator of verbal bullying, and five items on victim of physical bullying and two items for describing victims of verbal bullying. The last remaining three items for victim of relational bullying. The overall internal consistency of this original scale for 21 items was 0.86 [38].

In this study, another four extra items were added to this original scale and henceforth, R-MBQ. The addition of four items was based on the recent literatures related to bully and also agreement by the researchers via focus group discussion among five subject matter experts from local public higher learning institutions. Therefore, R-MPQ is consisted of 25 items. Table 1 indicates list of items (both Malay & English languages) and respective domain and type of bullying in R-MBQ.

B. Validation Protocols

A thorough validity tests and approaches were employed in this study in order to found psychometric prosperities "validity and reliability" of R-MBQ. Two phases were carried out to establish the psychometric properties of R-MPQ. The first phase was revision of MBQ and the second phase was to validate R-MBQ. In second phase, a number of subjective and objective validity tests were carried out. The second phase was ended by testing the overall internal consistency of R-MBQ.

Table 1: *Items in R-MBQ* (*P denotes perpetrator domain while V denotes victim domain)

Item*	Question	Domain	Type of Bullying
P1	I teased other students by their name *Saya memanggil pelajar lain dengan nama ejekan*	"Perpetrator"	Verbal
P2	I deliberately talked about other students so that they will be laughed at *Saya bercakap sesuatu tentang pelajar lain supaya mereka ketawa*	"Perpetrator"	Verbal
P3	I disturbed other students for fun *Saya ganggu pelajar lain untuk berseronok-seronok*	"Perpetrator"	Relational
P4	I purposely don't want to befriend certain students *Saya sengaja tak berkawan dengan sesetengah pelajar*	"Perpetrator"	Relational
P5	I teased other students *Saya mengejek pelajar lain*	"Perpetrator"	Verbal
P6	I spread false news about others *Saya sebar khabar angin atau berita palsu tentang pelajar lain*	"Perpetrator"	Relational
P7	I encouraged other students to fight with each other *Saya menggalak pelajar untuk bergaduh*	"Perpetrator"	Relational
P8	I threatened to harm other students by means of hitting or kicking them *Saya mengancam untuk memukul atau menendang pelajar lain*	"Perpetrator"	Physical
P9	I pushed, slapped or kicked other students *Saya menolak, menampar atau menendang pelajar lain*	"Perpetrator"	Physical
P16	I fought with other students *Saya bertumbuk dengan pelajar lain*	"Perpetrator"	Physical
P18	I fought with other students whom I believe I can defeat them *Saya bergaduh dengan pelajar yang saya boleh kalahkan*	"Perpetrator"	Physical
P24	I humiliated other students by messaging and circulating images via mobile phones or other devices which had internet access *Saya menghina atau menyakitkan hati pelajar lain melalui mesej, panggilan atau gambar, atau dengan cara lain melalui telefon bimbit saya atau melalui internet (komputer)*	"Perpetrator"	Cyber
P25	I humiliated other students by messaging and circulating images via social media platform *Saya menghina atau menyakitkan hati pelajar lain melalui mesej, panggilan atau gambar melalui laman media sosial*	"Perpetrator"	Cyber
V10	Other students addressed me by teasing my name *Pelajar lain memanggil saya dengan nama ejekan*	"Victim"	Verbal
V11	I was teased by other students *Saya diejek pelajar lain*	"Victim"	Verbal
V12	Other students talked about me among themselves and they laughed *Pelajar lain bercakap sesuatu tentang saya supaya ditertawakan*	"Victim"	Relational
V13	I was threatened to be beaten by other students *Saya pernah diancam untuk dipukul atau disakiti pelajar lain*	"Victim"	Physical
V14	I was pushed, slapped and kicked by other students *Saya pernah ditolak, ditampar atau ditendang pelajar lain*	"Victim"	Physical
V15	Other students spread baseless rumours about me *Pelajar lain menyebar khabar angin tentang saya*	"Victim"	Relational
V17	I hit others when I was harmed by them *Saya pukul balik apabila dipukul dahulu*	"Victim"	Physical
V19	Other students demanded money from me by force *Pelajar lain minta wang daripada saya*	"Victim"	Physical
V20	Other students demanded my food by force *Pelajar lain minta gula-gula atau makanan daripada saya*	"Victim"	Physical
V21	There are certain students purposely don't befriend me *Ada pelajar yang sengaja tidak mahu berkawan dengan saya*	"Victim"	Relational
V22	I was disturbed or humiliated by other students via messages, sending images or by other means by using mobile phones or other devices with internet access *Saya telah diganggu atau dihina oleh pelajar lain melalui mesej, panggilan atau gambar atau dengan cara lain pada telefon bimbit saya atau melalui internet (komputer) yang telah menyakitkan hati saya*	"Victim"	Cyber
V23	I was disturbed or humiliated by other students via messages, sending images or by other means by using social media platform *Saya telah diganggu atau dihina oleh pelajar lain melalui mesej, panggilan atau gambar melalui laman media sosial*	"Victim"	Cyber

C. Validation Protocols

A thorough validity tests and approaches were employed in this study in order to found psychometric prosperities "validity and reliability" of R-MBQ. Two phases were carried out to establish the psychometric properties of R-MPQ. The first phase was revision of MBQ and the second phase was to validate R-MBQ. In second phase, a number of subjective and objective validity tests were carried out. The second phase was ended by testing the overall internal consistency of R-MBQ.

D. Development of R-MBQ

In this phase, the original scale was thoroughly screened to identify the lacks. Based on the content screening, it was found that this original MBQ is lacking of few vital components of bullying especially from the context of cyberbullying. With that, a Focus Group Discussion was set up among five experts from the related fields to construct relevant items for the new R-MBQ. In addition, an extensive literature review was also conducted to identify suitable items for new R-MBQ.

E. Subjective Validation protocols

Following the development phase, the R-MBQ was subjected to subjective validation protocols such as content and face validations. In general, content validation or expert validation is an assessment by the experts to identify whether the items in the tool or a scale is valid enough to measure the intended concept or domain.[34] For this purpose, the R-MBQ was examined by two experts from the related fields who have not involved in Focus Group Discussion at phase one. The experts are Adolescent Medicine Specialist in Malaysian Government Hospital and a psychologist from a local Higher Learning Institution. The selection of the experts was based on the educational qualification and also experience in handling studies related to bully issues. The experts were given item rating forms attached with R-MBQ; to evaluate the content of 25 items especially on the aspects of relevance and representativeness of the items in regard to bully. A duration of four weeks were given to the experts to rate the relevancy and representativeness of the items. The items in R-MBQ were amended based on several feedbacks by the panels.

The second part of this subjective validation protocols involved face validation. For this purpose, R-MBQ was distributed among 30 adolescents from secondary schools to test the suitability of items in R-MBQ. At this phase, the language level and understandibility of the items were the concerns of the researchers[20-21].In addition, the general layout of the R-MBQ as well as other technical aspects such as font size were also asked from the respondents at this phase. This is important in making sure incorrect interpretation by the respondents being avoided. Items in R-MBQ were improvised based on comments given by the respondents.

F. Objective Validation protocols

Following subjective validation, R-MBQ was subjected to objective validation tests namely construct validity. For this, the present research employed a cross sectional using survey as a research design. It was conducted after obtaining the ethical approval from "Research and Ethics Committee, Medical Faculty of Universiti Kebangsaan Malaysia [FF-2015-406]" and "Education, Planning, and Research Development Department, Ministry of Education Malaysia [KPMSP.600-3/2/3 Jld 5 (50)]".

A ratio of five Malaysian secondary school students per item was chosen [28].With inclusion of up to 35% of dropout rate, a total of 170 students was recruited using a random sampling technique based on the selection criteria. Prior to commencement of the research, a written consent was taken from the parents/guardians of the respondents and the respondents were assured of anonymity and confidentiality of any given information. The respondents were chosen based on the inclusion and exclusion criteria. Those included were Malaysian citizens and were attending the National Schools in Malaysia. Students with underlying chronic medical illnesses and absent on data collection day were not included in this study. All respondents who fulfilled the criteria in this study were briefed regarding the purpose of the research.

Data was collected via self-administered questionnaire which comprised of R-MPQ and socio-demography variables. Returned questionnaires were checked on site by the researchers to ensure for completeness of these questionnaires and the respective consent forms. The respondents answered the items in class setting and took about 10 to 20 minutes to complete the R-MBQ. Respondents were verbally thanked for their participation. Later, the data was entered and systematically organized into SPSS version 22.0 for the purpose of descriptive, preliminary, factor and reliability analyses. Data were checked for outliers and there were no outliers was traced. Prior to construct validity test using EFA, the preliminary analyses (Kaiser's value & Bartlett's test of sphericity) was checked to ensure the sample adaquecy and suitability of data for factor analysis. Subsequently, the construct validity of R-MBQ was analysed using "Exploratory Factor Analysis" (EFA) by extracting factors via "Principal Component Analysis" (PCA). The items with factor loading of 0.4 were considered salient and were retained for the purpose of reliability analyses. Reliability analysis was interpreted by using a Cronbach Alpha method and the accepted value of 0.65 and above was decided [27].

III. RESULT AND DISCUSSION

In this study, a total of 170 respondents participated. In terms of gender, a balanced sample was recruited in which 52.2% of the sample are females and the rest of 47.8% are males. About 37.0% from the total sample are students from the age group 14 years old and Malay (64.8%) participated the most in this study. This is in accordance to the total population in the Malaysia schools. Table 2 depicts the basic demography of the respondents.

Table 2: *Demography of the respondents (n = 170)*

Demography Factor	Characteristics	N (%)
Age	13	52(30.7)
	14	63 (37.0)
	16	55 (32.3)
Gender	Male	81 (47.8)
	Female	89 (52.2)
Ethnicity	Malay	110 (64.8)
	Chinese	32 (18.7)
	Indian	15 (8.8)
	Others	13 (7.7)

The result of preliminary analysis of R-MBQ indicated a good sign for factor analysis. Kaiser which often conducted to identify sample adequacy and factorability of data indicated a value of 0.79 which was above the value recommended by Kaiser [13]. It was documented that KMO values above 0.60 can be considered a good sign to proceed with factor analysis. Meanwhile, the Bartlett's test of sphericity in this study was found to be highly significant (p < 0.001); indicating the sample is adequate for factor analysis. On top of this, the anti-image correlation among the items within domains was ranged between 0.70 and 0.85, reflecting strong associations within items in R-MBQ. It can be concluded that the findings of preliminary analyses evidenced a good support for construct validation. The output of preliminary analyses is displayed in Table 3.

Table 3: *Output of Preliminary Analyses*

Analysis	Output
Multicollinearity	0.003
Anti-image correlation	$0.77 - 0.85$
KMO	0.79
Bartlett's test of sphericity	$p < 0.001$

As mentioned earlier, the construct validity of R-MBQ was achieved using EFA with rotation technique of Principal Component Analysis (PCA). The Scree plot suggested two sub components (domain) with Eigen value above one. Based on the factor loading output as shown in Table 4, the factor loading of the items in R-MBQ were ranged between 0.40 and 0.76. To be more specific, the factor loading of items in perpetrator domain was ranged between 0.44 and 0.70. The highest factor loading was noted for item P09 (*I pushed, slapped or kicked other students*) and the least factor loading value was observed for item P06 (*I spread false news about others).*

With regard to victim domain, the factor loadings were ranged between 0.40 and 0.76. The highest factor loading value which is 0.76 is noted for item V11 which involves the component of verbal bullying (*I was teased by other students*). Following V11, item V20 also indicated a high factor loading output of 0.75 (*other students demanded my food by force*). Meanwhile, the least factor loading value which is 0.40 is observed for item V22 which involves the victimization in cyberbullying (*I was disturbed or humiliated by other students via messages, sending images or by other means by using mobile phones or other devices with internet access*).

In general, validity is the degree to which an instrument measures the construct it is intended to measure. Specifically, construct validity is described as the procedure to assess the degree to which an instrument or variable(s) accurately measures constructs that were intended to be measured[11].Despite in the differences in values of factor loadings, the overall factor loadings for 25 items in R-MBQ is considered good in measuring the intended construct. Since the factor loadings of R-MBQ exceeded the recommended value of 0.40 as suggested by Hair, Tatham,

Anderson & Black [12], it can be concluded that items in R-MBQ are relevant and accurate in measuring bullying among Malaysian adolescents from the perspective of perpetrator and also victim domains.

In general, reliability can defined as the consistency or the reproducibility of measurement over time [27]. Measuring the internal consistency of a scale is an imperative step in order to produce a reliable scale. In regard to reliability of the scale, the present study ascertains the reliability of R-MBQ by using Cronbach alpha method. This method is widely known to measure the internal consistency of the scale. In this R-MBQ, the internal consistency of the scale was measured according to the domain (perpetrator and victim). Based on the analysis, the Cronbach Alpha value observed for Perpetrator domain was 0.78. Meanwhile the Cronbach's Alpha value obtained for Victim domain was slightly higher-0.81. In addition, the values of all corrected-item total correlation for the items in respective domains indicated values above 0.30.

Table 4: *Factor loading and reliability output of R-MBQ*

Domain	Item	Factor 1[a]	Factor 2[a]	α
Perpetrator	P01	0.57	-	0.1
	P02	0.55	-	
	P03	0.59	-	
	P04	0.50	-	
	P05	0.60	-	
	P06	0.44	-	
	P07	0.66	-	
	P08	0.47	-	
	P09	0.70	-	
	P16	0.52	-	
	P18	0.52	-	
	P24	0.55	-	
	P25	0.46	-	
Victim	V10	-	0.74	0.78
	V11	-	0.76	
	V12	-	0.65	
	V13	-	0.70	
	V14	-	0.53	
	V15	-	0.41	
	V17	-	0.44	
	V19	-	0.64	
	V20	-	0.75	
	V21	-	0.57	
	V22	-	0.40	
	V23	-	0.52	

According to Allen, Bennet & Heritage [1], the correlation values above 0.30 suggest relationship between items within a scale. Based on the findings, the internal consistency values of both perpetrator and victim domains were considered good for research needs and also for the purpose of assessment [21].

Table 4 shows the factor loadings of each items according to domains (perpetrator and victim) and their respective internal consistency values. Overall, it can be concluded R-MBQ has demonstrated good internal consistency and homogeneity of the items. The good psychometric properties of this scale indicate the feasibility and suitability of the measure among the targeted population [5].

IV. CONCLUSION

The Revised-Malaysian Bullying Questionnaire (R-MBQ) used in this study were validated by the researchers to determine the feasibility of assessing the prevalence of bullying among Malaysian adolescents through this self-administered questionnaire. The findings of this study showed that the domains in Revised-Malaysian Bullying Questionnaire were considered reliable and valid. It is reminded that this tool did not subjected to other objective validities and the results of this study should be interpreted within construct validity aspects. As for future recommendations, it would be great if this R-MBQ is subjected to further validity tests such as concurrent and discriminate validity analyses. In addition, test-retest reliability could be another way of testing the reliability of this R-MBQ. Despite of the limitations, the present study had successfully established psychometric properties of R-MBQ among Malaysian school going adolescents. Hence, future researchers and scholars can utilize R-MBQ with significant assurance regarding its degree of reliability. In addition, it is highly anticipated that this R-MBQ can be used as a tool to measure the effectiveness of any intervention efforts regarding bullying behaviour.

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