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Validity and Reliability of Healthy Lifestyle Questionnaire Among Adolescents in Terengganu

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ABSTRACT

Recently, the practices of a healthy lifestyle among adolescents have been decreased and may increase the risk of obesity and other non-communicable diseases. Adolescence is considered a crucial stage in human life that needs the utmost attention from parents and teachers. Therefore, observing the healthy lifestyle prevalence, trends and behavior are significant to support any healthy lifestyle interventions among this population. The intervention to increase a healthy lifestyle should be planned based on valid and reliable data. Although there are a few instruments to measure the level of a healthy lifestyle, they might not be suitable for the target population due to differences in terms of education, culture, environment, and others. This study aims to adapt and translate the instrument to measure healthy lifestyle practices among adolescents in Terengganu. The validity and reliability of the questionnaire were tested using exploratory factor analysis (EFA) and Cronbach's alpha. There are seven components: healthy diet, physical activity, free from substance abuse, sleeping habit, social support, limited screen time, and stress management, with 47 items explained for 52.785 % of the variance in the pattern of relationships among the items. All 7 components had high reliability (α =. 73 – α = .88). Forty-seven items remained in the final questionnaire after deleting 24 items. All the related parties can use this questionnaire to seek the practices of a healthy lifestyle. Furthermore, any plan or intervention related to a healthy lifestyle can be established based on valid and reliable data.

Keywords: Adolescents, healthy lifestyle, validity, reliability

INTRODUCTION

Recently the practices of a healthy lifestyle among adolescents have been very critical. Previous studies have reported a decrease in healthy lifestyle behavior among adolescents (Marques et al., 2019; Marques, Loureiro, Avelar-Rosa, Naia, & Matos, 2020). According to the studies, the prevalence decreases among adolescents between 11 and 15 years; on average, it does not exceed 2%. While (Márquez et al., 2016) also asserted that the decrease in a healthy diet and physical activities among adolescents could increase the risk of obesity. Findings by (Su et al., 2014) showed that less than 2% of adolescents from Malaysia meet the requirement of levels of physical activity. They spend more on sedentary activities such as media-based recreation (Cheah et al., 2011). A survey

from the Malaysian School-Based Nutrition Survey (2012) and Nutrition Survey of Malaysian Children revealed more than 50% of children and adolescents were considered to have low levels of physical activity and a high level of sedentary lifestyle (Baharudin et al., 2014; Lee, Chinna, Lim Abdullah, & Zainal Abidin, 2019; Reilly & Kelly, 2011). Hence, the critical trends regarding healthy lifestyle behavior among adolescents need to be addressed. This is very important to promote a healthy lifestyle among adolescents and prevent chronic conditions in later life (Marques et al., 2020) adolescence is a transition period from childhood to adulthood. Accordingly, adolescence is considered a crucial stage in human life that needs the utmost attention from parents and teachers. Children entering adolescence are going through many physical, intellectual, personality, and social developmental changes. Therefore, observing the healthy lifestyle prevalence, trends (Marconcin et al., 2021), and behavior is significant to support any healthy lifestyle interventions among this population.

However, to implement a healthy lifestyle intervention, it is imperative to identify the essential components of a healthy lifestyle that contribute to the low level of healthy lifestyle practices. Hence, to measure the most significant elements that contribute to the low level of healthy lifestyle behavior, the appropriate measurement of a healthy lifestyle must be established. The relevant measurement is critical to ensure all the data gathered is valuable to draw the conclusion related to a healthy lifestyle. Therefore, intervention to increase a healthy lifestyle can be planned based on valid and reliable data. Besides, a clear understanding of the situation would help to develop effective intervention policies and programs (Ab Rahman, Hashim, Ab Latif, Mohd Noor, & Recreation, 2020), especially in a healthy lifestyle. Hence a valid and reliable instrument should be used in the target population.

Although previous researchers have developed a few instruments to measure the level of a healthy lifestyle, they might not be suitable for the target population. Among the instruments are Adolescent Healthy Lifestyle Questionnaire developed by (Taymoori, Moeini, Lubans, Bharami, & promotion, 2012) among the population in Iran. The instrument combined life appreciation, health responsibility, nutrition, social support, physical activity, stress management, and safety. Whereas Development of a Healthy Lifestyle Assessment Toolkit for the General Public developed by (Reis et al., 2019) among the population in Portugal focused on anthropometric and cardiometabolic parameters, physical activity and exercise, well being, social cohesion, functional independence, nutrition, mental health, smoking, drinking and illicit substance abuse, sleep habits and quality, health and disease. Healthy Life Style Questionnaire for Malaysian Adolescents developed by (Hiew, Chin, Chan, Mohd, & Sciences, 2015) emphasized attitude and practice dimensions related to healthy eating and an active lifestyle. However, there are a few instruments that have been developed.

Nevertheless, a new questionnaire should be developed to ensure the measurement applies to the target population. (Parmenter & Wardle, 2000) asserted that an instrument might not be measuring the aspect that it is supposed to be and might not provide consistent and stable results if no validity and reliability tests were conducted. Moreover, existing instruments are usually developed for target populations in specific fields; therefore, they might not apply to other studies (Parmenter & Wardle, 2000). Other scholars also agreed that instruments developed for particular populations might not be valid and reliable for different populations (Baumgartner, Jackson, Mahar, & Rowe, 2006). Consequently, this present study is trying to establish new validity and reliability evidence of the Healthy Lifestyle Questionnaire among Adolescents aged 13014 in Terengganu. The new validity and reliability evidence are essential to ensure that all the data gathered in this study are meaningful. (Kimberlin & Winterstein, 2008) revealed that evidence of validity and reliability are prerequisites to assure the integrity and quality of an instrument. Reliability and validity are two of the most critical and essential aspects to consider when assessing any measuring procedure for data collection in a good study. Validity and reliability are crucial concepts used in improving the precision and accuracy of the evaluation and assessment of a research project (Kimberlin & Winterstein, 2008; Tavakol & Dennick, 2011). Hence, each researcher should establish new validity and reliability evidence even for the existing measurement due to the different target populations; as suggested by Baumgartner et al., (2006), it is a good idea to determine validity because the populations cannot be exactly like those initially used in the validation study.

MATERIALS AND METHODS

Development Of Healthy Lifestyle Questionnaire

The Healthy Lifestyle Questionnaire was developed by translating to the target population's language, which is the Malay language. The questionnaire was translated into Malay to ensure the respondents clearly understood all the items listed in the questionnaire to improve the quality of response and data. The Malay language is the mother tongue of most citizens in Malaysia, which made it the first language used in the country. However, most Malaysians widely speak and understand English, but secondary schools in Malaysia use Malay as a primary language. Besides, Terengganu students are Malay ethnics and often use the Malay language in their daily life. The questionnaire aims to measure healthy lifestyle practices among adolescents in Terengganu aged 13-14. The researchers used five existing questionnaires, The Perceived Stress Scale used in the study by (Chan & La Greca, 2020), The International Physical Activity Questionnaire (IPAQ-SF) by (Hagströmer, Oja, & Sjöström, 2006), Children's Sleep Habits Questionnaire (CSHQ) by a study from (Owens, Spirito, & McGuinn, 2000), The European School Survey Project on Alcohol and Other Drugs (ESPAD) developed by (Hibell et al., 2000). A self-administered dietary questionnaire was being developed by (Turconi et al., 2003). The process of translation and adaptation are based on the questions.

The experts have proposed several models and processes for questionnaire development, translation, and adaptation. However, researchers decided to apply the suggestion by (DiIorio, 2006), the standardized translation model by World Health Organization (WHO), and (Feren, Torheim, Lillegaard, & research, 2011). According to the processes, the first step is about preparation scope and structure, development of questionnaire items, the use of forward-translations, back-translations, content validity, construct reliability, and final version as in the implementation of the guidelines can be explained as follows:

Preparation Scope and Structure

The literature review process has been done to analyze the information related to healthy lifestyle components among adolescents. Based on the review, seven components were identified such as physical activity, healthy diet, stress level, sleeping pattern, substance abuse-free, social support, and limited screen time (Faridizad et al., 2020; Keane, Kelly, Molcho, & Gabhainn, 2017; Marques, Calmeiro, Loureiro, Frasquilho, & de Matos, 2015; Ravens-Sieberer et al., 2005; Rayner, Wickramasinghe, Williams, Mendis, & McColl, 2017; Remington, Brownson, & Wegner, 2010) were discussed in a literature review. All the components consider factors that contribute to a healthy lifestyle among adolescents. According to the literature review, information on physical activity must include the frequency with which respondents participate in physical activity and the types of activities they are involved in. Dietary behavior and nutrition knowledge of food intake can be linked to information about a healthy diet. Meanwhile, an individual's stress level is frequently linked to their psychological behavior. Similar to establishing an individual's stress level, fundamental information about social support frequently connects to their relationship with loved ones and their psychological health. In addition, behaviors related to alcohol drinking, drug abuse, and smoking can reveal information about respondents' substance usage. An individual's screen time can be analyzed by the time exposure of an individual to screen activities. Lastly, sleeping quality, such as the duration of daily sleep and deprivation problems, can give related information on the sleeping patterns of respondents.

Development of Items

A few things need to be considered for item writing or the process of items pool. The process begins with selecting all the items from the previous questionnaire that reflect the latent variables in the present study. According to (DeVellis, 2017), the content of each item should primarily reflect the construct of interest. Therefore, all the items selected will be based on the seven constructs of a healthy lifestyle: physical activity, healthy diet, stress level, sleeping habits, free from substances abuse, social support, and limited screen time. All the items will be adapted and translated according

to the target population. A few suggestions by (DeVellis, 2017)will be considered to construct the items, such as avoiding exceptionally lengthy items and double-barrelled items and ambiguous pronoun references. Recommendations by (DiIorio, 2006) also taken into consideration for items adaption and translation such as item must be written in a complete sentence with appropriate subject and verb, items should be simple and brief when requesting data information on neutral topics, avoided sensitive issues, items must be specific, and used simple words and sentence that are suitable for the age level. Hence, in this research, 71 items which are physical activity ten items (Q1, Q2, Q3, Q4, Q5, Q6, Q7, Q8, Q9, Q10), healthy diet ten items (Q11, Q12, Q13, Q14, Q15, Q16, Q17, Q18, Q19 Q20) stress management ten items (Q21, Q22, Q23, Q24, Q25, Q26, Q27, Q28, Q29, Q30), sleeping habits ten items (Q31, Q32, Q33, Q34, Q35, Q36, Q37, Q38, Q39, Q40) free from substance abuse 11 items (Q41, Q42, Q43, Q44, Q45, Q46, Q47, Q48, Q49, Q50, Q51), social support ten items (Q52, Q53, Q54, Q55, Q56, Q57, Q58, Q59, Q60, Q61) and limited screen time 10 (Q62, Q63, Q64, Q65, Q66, Q67, Q68, Q69, Q70, Q71) items were identified to be included into the questionnaire. The Likert Scale 5 points (1 strongly disagree, two disagree, three neutral, four agree, five strongly agree) was used for this questionnaire. Likert scaling is widely used in instruments measuring opinions, beliefs, and attitudes. The researchers decided to use a five-point Likert Scale based on previous researchers' suggestions where a five-point Likert Scale will increase the response rate and response quality and reduce respondent frustration level (Sachdev & Verma, 2004).

In order to ensure equivalence between the adapted and original versions of existing questionnaires, the researchers will conduct forward and backward translations. Hagell, Hedin, Meads, Nyberg, & McKenna, (2010) revealed that the two most popular translation methods in health-related quality of life research are the forward-backward. Two language experts (bilingual) assistants should be used to translate items in a questionnaire from the English version into the Malay version for forward translation and backward translation process (Zun et al., 2019). Hence, an associate professor from the Faculty of Education from Universiti Teknologi MARA (UiTM) shall be appointed as an expert panel since she is known for her expertise in language learning and translation with more than ten years of experience teacher is an expert in language from a secondary school in Terengganu also has been referred to obtain the good structure of items in the constructed questionnaire. Meanwhile, for the back translation, Tyupa, (2011) suggested two experts who do not have access to the original questionnaire should conduct the process. In this study, the independent translator should be the one with zero knowledge of the questionnaire and whose an expert in the English language. This study will use two associate professors from the Faculty of Academic Language Study in Universiti Teknologi Mara (UiTM) Shah Alam to perform a backward translation process. A complete, translated version of the questionnaire will be constructed as the result of this process. The questionnaire is then being categorized into two main sections to obtain knowledge about demography information and predictors of a healthy lifestyle: (1) physical activity; (2) healthy diet; (3) stress level; (4) sleeping pattern; (5) free from substances abuse; (6) social support; and (7) limited screen time.

CONTENT VALIDITY

Content validity is the first source of validity evidence that is gathered. The goal of content validity is to confirm that the items adequately represent the construct. The group of experts must be identified to perform the process of content validity. (Davis, 1992) explained that experts refer to those who are involved in a specific field. This is very important to ensure the item is relevant to that field. Hence, for this study, the professionals in the field of health, language, and measurement will be identified to assess the content validity of the questionnaire. In the context of the study, the panels of experts, including five lecturers with experience of ten years above in the fields of health behavior, and measurement, at the Universiti Teknologi MARA and Universiti Pendidikan Sultan Idris (UPSI) and a teacher who is an expert in language from Terengganu. (Waltz, Strickland, & Lenz, 1991) suggest for point rating scale (1= not relevant, somewhat relevant, 3= quite relevant, and 4 = very relevant) to assess the relevancy of the questionnaire. The questionnaire's content validity will be assessed based

on the formula by (Mohd & Ahmad, 2005). The cumulative average of the experts' level of agreement is assigned a numerical value and the proportion of items on an instrument that achieved a relevant rating by the content experts (Polit, Beck, & health, 2006). The content validity can be expressed by using a formula recommended in a study by (Mohd & Ahmad, 2005) as shown below:

$$\frac{Sum\ of\ expert\ score\ (x)}{Maximum\ score} \times 100\% = Overall\ content\ validity$$

According to (Mohd & Ahmad, 2005), the coefficient value of 0.7 and above shows that the constructed instrument has high content validity. The value of content experts and language experts for the questionnaire can be shown respectively as in the table below.

Table 1: Content expert validity for the relationship of healthy lifestyle predictors toward academic achievement among secondary school

Expert/ Score	Item 1	Item 2	Item 3	Item 4	Item 5	Score
Expert 1	4	4	4	3	4	0.95
Expert 2	4	3	4	4	4	0.95
					Coefficient value, r =	0.95

Table 2: Language expert validity for the relationship of healthy lifestyle predictors toward academic achievement among secondary school students

Expert/ Score	Item 1	Item 2	Item 3	Item 4	Item 5	Score
Expert 1	4	4	3	3	4	0.90
Expert 2	3	4	4	4	4	0.95
					Coefficient value, r =	0.93

Table 3: Professional expert validity for the relationship of healthy lifestyle predictors toward academic achievement among secondary school students

Expert/ Score	Item 1	Item 2	Item 3	Item 4	Item 5	Score
Expert 1	4	4	4	3	4	0.95
Expert 2	3	4	4	4	4	0.95
					Coefficient value, r =	0.95

ETHICS

This research was conducted with the approval of related ethical community along with consent of parents of every respondent. The approval was provided by UiTM Research Ethics Committee (REC) No reference: REC/06/2021 (MR/475), Educational Planning and Policy Research Division (EPRD), State Educational Department (JPN), Municipal Education Office (PPD), and principal of the selected

school while signed informed consent was provided to the parents and child agreement was attained prior to inclusion in this research.

INSTRUMENT VALIDATION AND RELIABILITY

In this research, an Exploratory Factor Analysis (EFA) was conducted to evaluate the factor structure of the scale. EFA can be defined as the initial analysis where it is used by researchers to understand the ideas of the factor structure and confirms it. When compared to Confirmatory Factor Analysis (CFA), EFA has a lot of value since it's good at discovering the underlying latent variables or factors of a measure by examining correlations between observable variables (Morgado, Meireles, Neves, Amaral, & Ferreira, 2017). Besides, EFA is used to determine the dimensionality of the instrument. In contrast, it helps most researchers identify items that do not analytically belong to the construct and must be removed from the questionnaire (Knekta, Runyon, & Eddy, 2019). EFA will be performed to provide construct validity evidence for this questionnaire. The construct validity of an instrument refers to how well it assesses the construct being studied. Exploratory or confirmatory factor analysis asses construct validity (Benson & practice, 1998). However, previous researchers suggested EFA is recommended when developing a survey, questionnaire, or scale (Carpenter, 2018), and most researchers use EFA for construct validity (Bastos, Celeste, Faerstein, Barros, & medicine, 2010; Ladhari & services, 2010). Reliability relates to how a measurement is stable or consistent (Carmines & Zeller, 1979). For instance, a scale is reliable if a repeat measurement gives the same result. Furthermore, testing for reliability is crucial as it refers to the consistency across the parts of a measuring instrument (Huck et al., 2007). Typically, the internal consistency measure is the Cronbach Alpha coefficient. It is viewed as the most appropriate measure of reliability when using Likert scales (Taherdoost, 2016).

SAMPLE SIZE

According to the literature review, there are a variety of suggestions pertaining to the appropriate sample size for EFA. Studied also suggested the recommended sample size for factor analyses vary from 50 to more than 1000 samples, while the recommended item-to-response ratio is from 1:3 to 1:20 (Gunawan, Marzilli, & Aungsuroch, 2021). (Tabachnick, Fidell, & Ullman, 2007) recommended at least 300 respondents should be taken into for factor analysis. Some researchers suggested a ratio of participants to the item as an estimate of the required sample size, for an instant, as recommended in research to include ten respondents for every item (Nunnally, 1994; Wilson, Inoue-Murayama, & Weiss, 2018), whereas (Pett, Lackey, & Sullivan, 2003) suggested 10-15 respondent per item. However, most researchers agreed that a sample size of fewer than 100 respondents produces unstable results (DiIorio, 2006). While for reliability, (Bujang, Omar, & Baharum, 2018) proposed 30 respondents. Thus, this study will use 172 respondents to conduct the EFA and 30 respondents for reliability at Sekolah Menengah Kebangsaan Sultan Omar Dungun and Sekolah Menengah Kebangsaan Matang, Hulu Terengganu. Simple random sampling was used to select the respondents.

DATA ANALYSIS

The primary goal of this study was to assess the items' validity and the reliability of the instrument. For these reasons, an exploratory factor analysis was used to determine the scale's factor structure. Second, a reliability test was performed to demonstrate the questionnaire's reliability. The quantitative data collected from the surveys is expected to be analysed using SPSS version 25, (Statistical Package for the Social Sciences).

RESULTS

Findings from EFA showed value of KMO .767 proved that the sampling data should be adequate. Hence, the EFA can be proceed for this study. According to (Kaiser, 1974) the value of KMO which is less than .50 is unacceptable where it measured the adequacy of sampling. (Hair, Black, Babin, Anderson, & Tatham, 2010) stated that it should be acceptable when KMO has a value more than .50 and the values in range between .70 to 80 are good. Table 4 showed the result of KMO and Bartlett's test for this questionnaire.

Table 4: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.767
Bartlett's Test of Sphericity	Approx. Chi-Square	7544.611
	df	2211
	Sig.	.000

The total variance explained (TVE) as in table below, the eigenvalues, percentage of variance and cumulative percentage of variance are used in defining the numbers of component related to the questionnaire. According to Samuels (2017), it is recommended that at least 50% of cumulative percentage of the total variance explained by the retained factors in identifying the component numbers. As shown in Table 5, the total cumulative frequency is 52.785% use to identify the component numbers

Table 5: Total Variance Explained

Component	**Initial Eigenvalues**			**Rotation Sums of Squared Loadings**		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.450	15.597	15.597	8.060	12.030	12.030
2	8.564	12.783	28.379	6.979	10.417	22.447
3	4.951	7.390	35.769	5.335	7.963	30.410
4	3.821	5.702	41.472	4.992	7.451	37.861
5	3.347	4.996	46.467	3.925	5.858	43.719
6	2.303	3.438	49.905	3.405	5.083	48.802
7	1.930	2.880	52.785	2.669	3.984	52.785

Usually in research, a scree plot normally used in identifying the number of factors or components to retain in EFA as it is a line plot of the eigenvalues of factors with component numbers. Based the figure below, the slope of the curve indicates the number of factors that should be generated by the factor analysis as the value of 7 components were generated by using data from SPSS.

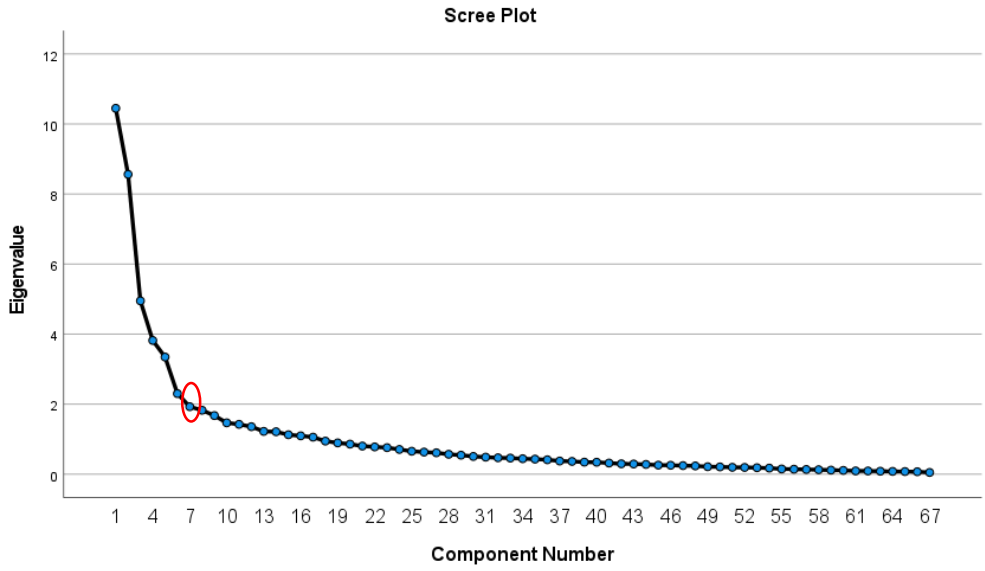

Figure 1 Scree plot diagram

The factor loading or commonly known as rotated component matrix in SPSS is used to determine what the components represent in the research. In previous research, it was suggested that the acceptable factor loading values should be higher than 0.40 to determine the items of the questionnaire. Table below shows the list items along with the factor loading values used to determine the related components for this research. Initially, there were 71 items were determined for the instrument but only 47 items indicate the factor loading values which higher than 0.40. There are 24 items which is item 11, item 12, item 13, item 14, item 15, item 20, item 24, item 26, item 28, item 30, item 38 item 39,item 40, item 41,item 42, item 51, item 52, item 53,item 59, item 64, item 65, item 68,item 69, item 71 were removed from the construct due to the irrelevant of data between the items and components as their loading values are less than 0.4 and consists of redundant factors.

Table 6: Rotated Component Matrix

Items	Component						
	1	**2**	**3**	**4**	**5**	**6**	**7**
10.Saya sering melakukan aktiviti fizikal pada waktu terluang. *I often do physical activities in my free time.*	.791						
9.Saya sering melakukan aktiviti fizikal pada waktu cuti sekolah. *I often do physical activities during school holidays.*	.750						
7.Aktiviti fizikal merupakan sebahagian daripada gaya hidup saya. *Physical activity is part of my lifestyle.*	.744						
1.Saya sering melakukan aktiviti fizikal di rumah. *I often do physical activity at*	.739						

home.			
5.Saya sering melakukan aktiviti fizikal pada hujung minggu. *I often do physical activity on the weekends.*	.664		
3.Saya sering melakukan aktiviti fizikal pada waktu rehat ketika di sekolah. *I often do physical activities during breaks while at school.*	.656		
4.Saya sering melakukan aktiviti fizikal di luar waktu persekolahan. *I often do physical activities outside of school hours*.	.639		
34.Saya kerap tertidur sewaktu membuat kerja rumah. *I often fall asleep while doing homework.*		.796	
33.Saya kerap mengantuk sewaktu membuat kerja rumah. *I often get sleepy while doing homework.*		.734	
35.Saya sentiasa berjaga sepanjang malam. *I always awake all night.*		.725	
32.Saya kerap tertidur sewaktu belajar di dalam kelas. *I often fall asleep while studying in class.*		.712	
70.Saya sentiasa tidak cukup tidur akibat penggunaan gajet secara berlebihan. *I always don't get enough sleep due to excessive use of gadgets.*		.706	
31.Saya kerap mengantuk sewaktu belajar di dalam kelas. *I often get sleepy while studying in class.*		.664	
67.Saya berasa tidak bersemangat jika tidak dapat melayari sosial media. *I feel unmotivated if I can't surf social media.*			.403
36.Saya sering berasa letih sepanjang hari. *I often feel tired all day.*		.614	

37.Saya sentiasa menghadapi masalah bangun tidur pada waktu pagi. *I always have trouble waking up in the morning.*	.601		
58.Saya sentiasa mendapat perhatian dari ibu bapa saya. *I always get attention from my parents.*		.841	
55.Saya sentiasa mendapat sokongan emosi dari ibu bapa saya. *I always get emotional support from my parents.*		.830	
54.Saya sentiasa mendapat kasih sayang dari ibu bapa saya. *I always get love from my parents.*		.802	
60.Saya sentiasa mendapat perhatian dari guru saya. *I always get attention from my teachers.*		.734	
57.Saya sentiasa mendapat sokongan emosi dari guru saya. *I always get emotional support from my teachers.*		.714	
61.Saya mendapat penghargaan dari ibu bapa di atas setiap kejayaan. *I get appreciation from my parents for every success.*		.703	
56.Saya sentiasa mendapat sokongan emosi dari kawan saya. *I always get emotional support from my friends.*		.515	
59.Saya sentiasa mendapat perhatian dari kawan saya. *I always get attention from my friends.*		.511	
47.Minum minuman memabukkan mendatangkan kesan buruk kepada saya. *Drinking intoxicating drinks has a bad effect on me.*			.787
42.Merokok mendatangkan kesan buruk kepada saya. *Smoking has a bad effect on me.*			.758

48.Saya tidak minum minuman memabukkan kerana ia merupakan salah satu punca masalah sosial. *I don't drink intoxicating drinks because it is one of the causes of social problems.*	.734	
45.Saya tidak merokok kerana ia merupakan salah satu punca masalah sosial. *I don't smoke because it is one of the causes of social problems.*	.649	
43.Saya tidak terpengaruh dengan kenalan saya yang menghisap rokok. *I was not influenced by my acquaintances who smoked cigarettes.*	.609	
49.Saya tidak pernah terlibat dengan penggunaan dadah. *I have never been involved with drug use.*	.600	
46.Saya tidak pernah minum minuman memabukkan. *I have never drunk intoxicating liquor.*	.585	
50.Penggunaan dadah mendatangkan kesan buruk kepada saya. *Drug use had a detrimental effect on me.*	.570	
44.Saya tidak suka bergaul dengan kenalan yang menghisap rokok. *I don't like hanging out with acquaintances who smoke cigarettes.*	.560	
41.Saya tidak pernah merokok. *I never smoke.*	.560	
23.Saya sentiasa berasa gugup ketika menghadapi peperiksaan. *I always feel nervous during examination.*		.707
27.Saya sering tertekan dengan jadual pembelajaran yang padat. *I often stressed with a busy study schedule.*		.661
25.Saya sering tertekan dengan kerja sekolah yang banyak. *I am often stressed with a lot*		.640

of school work.

21.Saya sering kecewa jika tidak mendapat keputusan akademik yang cemerlang. *I am often frustrated if I don't get excellent academic results.*	.621		
29.Saya sentiasa marah jika tidak dapat mengawal emosi diri sendiri. *I am always angry if i cannot control my own emotions.*	.562		
22.Saya sering tertekan pada waktu belajar. *I often get stressed when studying.*	.539		
17.Saya sering mengambil makanan manis seperti kek/biskut coklat/coklat. *I often take sweet foods such as cake/chocolate biscuit.*		.807	
16.Saya sering minum minuman manis seperti teh ais /milo ais/nescafe ais. *I often drink sugary drinks such as iced milo/iced tea.*		.760	
18.Saya sering makan makanan segera seperti ayam goreng/sosej/burger. *I often eat fast food such as KFC/McDonalds.*		.752	
19.Saya selalu minum minuman berkarbonat. *I always drink carbonated drinks.*		.743	
62.Saya menghabiskan masa terluang dengan melayari media sosial di internet. *I spend my free time surfing social media on the internet.*			.709
63.Saya menghabiskan masa lebih 2 jam sehari dengan bermain permainan dalam talian. *I spent over 2 hours a day playing online games.*			.652
66.Saya menghabiskan masa yang lama dengan melayari media sosial. *I spend a lot of time surfing social media.*			.586

The value of Alpha Cronbach for this instrument is higher than .70, which indicates this instrument is in the acceptable range for reliability. The test reliability was conducted to evaluate whether the items fit the constructed instrument. (Straub, Boudreau, & Gefen, 2004) suggested that acceptable reliability should be equal to or above 0.60. Meanwhile, (Hinton, Brownlow, McMurray, & Cozens, 2004) have suggested four cut-off points for reliability, which include excellent reliability (0.90 and above), high reliability (0.70-0.90), and moderate reliability (0.50-0.70), and low reliability (0.50 and below). In addition, it is very recommended to use the value of .70 or higher for Alpha Cronbach, which indicates a satisfactory reliability analysis (Nunnally, 1994).

Table 7: Cronbach's alpha value for each component

Components	Cronbach's Alpha	Internal Consistency
Physical activity	.88	Good
Healthy diet	.75	Acceptable
Stress management	.73	Acceptable
Sleeping habits	.78	Acceptable
Free from substance abuse	.82	Good
Social support	.86	Good
Limited screen time	.85	Good

Table 8 shows the total items include into the questionnaire according to their constructs after EFA. There are 7 items (physical activity), 8 items (sleeping habit), 8 items (social support), 10 items (free from substance abuse), 6 items (stress management), 4 items (healthy diet), and 4 items (limited screen time).

Table 8: Overall items according to their constructs

Construct	Items
1. Physical activities	Q1, Q2, Q3, Q4, Q5, Q6, Q7
2. Sleeping habits	Q8, Q9, Q10, Q11, Q12, Q13, Q15, Q16
3. Social support	Q17, Q18, Q19, Q20, Q21, Q22, Q23, Q24
4. Free from substance abuse	Q25, Q26, Q27, Q28, Q29, Q30, Q31, Q32, Q33, Q34
5. Stress management	Q35, Q36, Q37, Q38, Q39, Q40
6. Healthy diet	Q41, Q42, Q43, Q44
7. Limited screen time	Q14, Q45, Q46, Q47

DISCUSSION

All the requirements for the analysis, either EFA or Alpha Cronbach, have been met the requirement for each analysis. Therefore, the questionnaire can be considered a valid and reliable questionnaire for the target population. The Healthy Lifestyle Questionnaire for Adolescents in Terengganu is a useful tool for measuring healthy lifestyles among the target population. Additionally, the questionnaire adapts and translates to meet the needs and behaviors of adolescents in regard to a healthy lifestyle in their daily lives. It has also been validated for content and constructs validity, as well as internal

consistency for reliability. As a result, the questionnaire found the seven constructs with 47 items to be valid and reliable. The implication for this instrument, it will increase the quality instrument due to language use in the questionnaire. The use of the Malay language will increase the response rate among respondents, in addition to increasing respondents' comprehension to respond to each item. Survey responding can be considered as psychology process where a cognitive model suggested by (Schwarz & Cognition, 2007) needs respondents to interpret the question, retrieve relevant information from memory, form a tentative judgment, convert the tentative judgment into one of the response options provided and finally edit their response as necessary. Therefore, the process suggested by Cognitive Model will be workable better when respondents clearly understand each item. Thus, the questionnaire that uses the primary language of the target population can minimize the difficulties of understanding the items if the questionnaire is in the others language. In addition, the valid and reliable questionnaire will ensure data gathered was meaningful and can provide a clear interpretation related to the issues. This instrument can be used by all other interested parties to learn about the current situation in regard to a healthy lifestyle among adolescents. Besides, the phenomenon concerning the issues is very important for related parties to plan any action or intervention in order to enhance the quality of life among adolescents.

CONCLUSION

Evidence of validity and reliability of the new healthy lifestyle questionnaire is essential to use as a measurement tool to evaluate the healthy lifestyle among the adolescents aged 13-14 in Terengganu. The process followed by researchers will enhance the precision of the questionnaire. Since validity and reliability are an ongoing process, it is very good for all the researchers to provide evidence for validity and reliability related to the study population. Since this questionnaire was validated among adolescents in Terengganu, and may not be suitable to assess different populations due to dissimilar culture, education, environment, and exposure of the target group. Hence, the researchers recommended validating and modifying the questionnaire according to the target population.

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