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RESEARCH ARTICLE OPEN ACCESS

The Development of a Cultural-based Questionnaire for Drug Use Prevention Programs for Adolescents: A Delphi Study

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Abstract:

Objective: This study aimed to identify a valid and cultural-based questionnaire for drug use prevention programs for adolescents.

Methods: The study used a three-round Delphi technique. A total of 21 participants with knowledge and experiences in community nursing (11 nurses) and education for junior high school students (11 teachers) in Aceh Province, Indonesia, were included. For the first round, focus group discussions were conducted. For the second round, participants were asked to indicate their levels of agreement and provide their comments on the proposed questionnaire. For the third round, participants were instructed to indicate their level of agreement with the final version of the developed questionnaire. The consensus was defined based on the percent agreement.

Results: Initially, 64 questions for four domains (knowledge = 14 items, attitude = 29 items, intention = 9 items, behaviors = 12 items) were developed based on the FGDs and literature review. Finally, the four domains and 43 questions (knowledge = 14 items, attitude = 12 items, intention = 9 items, behaviours = 8 items) were supported by the group panels as the final instrument for the evaluation of drug use prevention programs for adolescents in schools.

Conclusion: Expert panels validated the content of the questionnaire for the drug use prevention programs in Indonesia. Nonetheless, further analysis and implementation of the instrument are required to identify the accuracy of the instrument.

Keywords: Questionnaire development, Drug abuse, Prevention program, Adolescent, Cultural sensitivity, Delphi study.

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1. INTRODUCTION

Drug use and its adverse effects cause various serious consequences on health and socio-economic aspects of many societies and challenge health professionals, including nurses, in reducing it. Worldwide, 292 million people, or 5.6% of the world population aged between 15 and 64 years, used a drug in the past year in 2022, with cannabis as the most used (228 million), followed by opioids (60 million), amphetamine-type stimulants (30 million), cocaine (23 million) and "ecstasy (20 million) [1]. Around 70-90% of injection drug users started their behaviors before 25 years old [2]. Drug users can be classified as experimental users (triers), regular users, non-injected drug addicts, and injected drug addicts [3].

In Indonesia, 1.8% of the population aged between 10-59 years were drug users; the majority of them were experimental users (59.5%) and few regular users (27.3%) [3]. About 2.65% of junior and senior high school students had used drugs in their lifetime; 1.06% started using drugs at seven years old or younger; 1.66% had consumed one to over twenty times [4]. Most of the drug users (99.5%) were found in the community, such as in families, schools, workplaces, and other communities [5]. About 68 types of drugs and substances are widely circulated in Indonesia [6], with marijuana, methamphetamine, and ecstasy being the most commonly found types [3]. In Aceh province, the number of drug users tends to increase from year to year. The use was 566 cases in 2010, which increased to 866 in 2012 [7] and 63,000 cases in 2017 [3].

Drug use contributes to the high global and national mortality and morbidity rates. In 2022, about 64 million people suffered from drug use disorders, and millions of others were infected with HIV, Hepatitis C, and other infectious diseases [1]. In Indonesia, drug use kills 30 people each day [3] and increases mental disorders [7]. Also, drug use increases crime, unemployment, health, economic, and other social problems [5]. The economic cost of drug use in Indonesia was estimated at around IDR 84.7 trillion [3].

Prevention programs have been a global drug control strategy [8]. Various drug use prevention programs have been developed and tested, including in school settings. School-based programs can provide a positive impact on drug prevention endeavors [9]. Some studies have shown a positive impact of school-based programs in drug use prevention/cessation for school-age children [10-12]; however, results of systematic review suggest the impact was small [13]. Although an International Standard for drug use prevention intervention programs has been developed [14], discussion about program effectiveness remains scarce. More studies are required to identify effective and culturally appropriate drug use prevention/ cessation programs, including program measurement and evaluation.

Results of a previous review suggest that most of the studies regarding drug use prevention programs in school settings were conducted in the USA [13]. Most effective programs were found in the United States, Europe, and Australia, while the effectiveness of programs from low and middle-income countries in Africa, Asia, and Latin America is still questionable [14]. Care needs to be taken when adapting and implementing existing programs [14].

We found little evidence regarding drug use prevention programs in school settings that originated in Indonesia. There is an indication that school-based programs can be feasible, acceptable, and effective for adolescents in Indonesia [15-17]. School-based programs have been reported as one of the appropriate [18] and effective [19, 20] approaches for tobacco smoking prevention programs for adolescents in Indonesia.

There is no evidence to suggest the availability of a standardized instrument (outcome measures) for assessing the effectiveness of school-based drug use prevention programs that match adolescents in Indonesia as special and other adolescents with similar characteristics in general. The results of the existing review show that health practitioners use a number of different outcome measures to assess the effectiveness of school-based drug prevention programs [13]. Further research is needed to examine the effectiveness of school-based prevention programs and their evaluation instrument. Therefore, the current study aimed at assessing the validity of a cultural-based questionnaire for drug abuse prevention programs for Indonesian adolescents.

2. MATERIALS AND METHODS

2.1. Study Design

The study involves a qualitative and quantitative design, using a three-round Delphi technique, including two focus group discussions (FGDs) in the first round and a questionnaire on a 5-point Likert scale in the second and third rounds.

2.2. Study Participants

The study participants comprised 21 participants (11 community nurses and 10 junior school teachers). The Nurses and school teachers comprised people with (1) high knowledge and experience regarding drug prevention in their respective fields, (2) interest in the research topics, and (3) career/work experiences in their field for at least five years. All participants were conveniently selected and involved in the study.

2.3. Data Collection and Analysis

Initially, we conducted two Focus Group Discussions (FGDs) involving community nurses and junior high school teachers separately. Potential participants who could serve as panel members were identified and invited to participate in the FGDs. In this round, the participants were asked to discuss and provide recommendations for future program intervention and evaluation components of school-based drug use prevention for Indonesian adolescents.

A literature review of drug use prevention program measures or instruments was conducted based on the FGDs results. A final organized questions list from the reviewed literature was established and used in the second and third processes of the study. Section one of the questionnaire consisted of 14 multiple-choice questions with four possible answers that evaluate three main dimensions of drug use knowledge: definition, types, and effects. Section two consisted of 29 five-point Likert scale questions about attitudes toward drug use. Section three consisted of 9 five-

point Likert scale questions about drug use intention. Section four consisted of 10 multiple-choice questions about drug use behaviors.

For the second round, participants were asked to indicate their level of agreement toward the developed questionnaire using a five-point Likert Scale answers, ranging from 5=very important, to 4=important, 3=less important, 2=not important, and 1=very not important for inclusion. Participants were also allowed to commend or suggest any changes to the questionnaire if needed. Any suggestions were accepted and incorporated into the questionnaire.

For the third round, participants were instructed to re-indicate their level of agreement with the final version of the developed questionnaires using the same five-point Likert Scale answers and percent agreement for inclusion criteria. The consensus was pre-defined based on the percent agreement of 70% or greater [21].

3. RESULTS

3.1. Characteristics of Participants

Twenty-one panel members (10 junior school teachers and 11 community nurses) participated in the study. Almost all of the participants were female (teachers 43%, nurses 52%) and working as civil servants (teachers 38%, nurses 52%), almost half aged between 41 to 50 years (teachers 15%, nurses 33%), the majority had a bachelor's degree (teachers 48%, nurses 38%), and worked between 10 to 20 years (teachers 24%, nurses 29%). Details of the background characteristics of the participants are described in Table **1**.

3.2. Delphi Round 1

Four primary domain outcome measures were identified from the FGDs: (1) knowledge about drug use and its adverse effects; (2) attitude toward drug use; (3) intention to use the drug illegally in the future; and (4) drug use behaviors. Following a literature review of relevant studies (*e.g.*, [4, 15, 17, 19, 20]), 64 questions were developed and tested in the second round, including 14 questions about drug use knowledge, 29 questions for drug use attitude, 9 questions for drug use intention, and 12 questions for drug use behaviors.

3.3. Delphi Round 2

Results of the second round were as follows: all questions about knowledge and drug use intentions were recommended; 17 questions of attitudes (agreement between 52-66%) and 4 questions about drug use behaviors (agreement between 52-62%) were no longer included because the level of agreement was low (below 70%). After the second round, the questionnaire consisted of 43 items: 14 items about knowledge (agreement between 90-100%), 12 items for attitude (agreement between 71-95%), 9 items for intentions (agreement between 71-90%), and 8 items for drug use behaviors (agreement between 76-90%). All of these items were then tested in the third round.

3.4. Delphi Round 3

Results of the third round show that the panel members recommended all items. The final accepted measurements for evaluating the effectiveness of a drug use prevention program for Indonesian adolescents included questions for assessing the program participants' knowledge of drug use (14 items, agreement between 85-100%), attitude toward drug use (12 items, agreement between 70-100%), intentions to use drugs (9 items, agreement 75-90%), and drug use behaviors (8 items, agreement 90-95%). All of the recommended questions are described in Table **2** as follows.

Table 1. Characteristics of the study participants.

Characteristic	Teacher		Nurses		Total	
	Freq.	%	Freq.	%	Freq.	%
Sex						
Male	1	4.76	0	0	1	4.76
Female	9	42.86	11	52.38	20	95.24
Age						
> 50 years old	1	4.76	1	4.76	2	9.52
41 – 50 years old	3	14.29	7	33.33	10	47.62
30 - 40	4	19.05	2	9.52	6	28.57
< 30	2	9.52	1	4.76	3	14.29
Number of years of working experience						
> 30	-	-	1	4.76	1	4.76
21-30	1	4.76	1	4.76	2	9.52
10-20	5	23.81	6	28.57	11	52.38
5-9	4	19.05	3	14.29	7	33.33
Working Status						
Civil servants	8	38.10	11	52.38	19	90.48
Non-Civil servants	2	9.52	0	0	2	9.52
Education level						
Diploma	0	0	3	14.29	3	14.29
Bachelor	10	47.62	8	38.10	18	85.71

Table 2. List of the recommended questions for assessing the effectiveness of drug use prevention programs for adolescents in schools in Indonesia.

Measurement	Questions	Level of Agreement (%)	
		Round 2	Round 3
Knowledge about drug use and its adverse effects	Q.1. Definition of narcotic	100	95
	Q.2. Definition of psychotropic substance	100	95
	Q.3. Example of the type of narcotic	95	85
	Q.4. Example of the type of psychotropic	90	86
	Q.5. Nicotine as a form of Narcotic	90	95
	Q.6. Health effects caused by Morphine use	95	95
	Q.7. Health consequences caused by Marijuana use	95	100
	Q.8. Health effects caused by Amphetamine use	95	90
	Q.9. Diseases or health problems caused by the use of nicotine	95	90
	Q.10. Signs and symptoms due to narcotics addictions	95	90
	Q.11. Effects of drug addiction on digestive function or system	100	90
	Q.12. Effects of drug use/addiction on mental health	95	85
	Q.13. Effects of drug use/addiction on the brain	90	75
	Q.14. Effects of drug use/addiction on kidney	90	95
Attitude toward drug use	Q.1. Drug use due to curiosity	71	70
	Q.2. Drug use to seek pleasure	71	70
	Q.3. Drug use leads to physical illnesses (somatic diseases)	95	95
	Q.4. Drug use leads to mental disorders (psychiatric disorders)	95	100
	Q.5. Drug use due to lack of awareness about its complications	95	65
	Q.6. Drug use due to lack of self-confidence	76	90
	Q.7. Drug use due to parental divorce	71	90
	Q.8. Drug use due to inability to solve daily problems	71	90
	Q.9. Drug use due to the presence of a drug-addicted family member	76	85
	Q.10. Drug use due to being offered by friends	80	85
	Q.11. Drug use due to the easy accessibility of drugs	71	85
	Q.12. Drug use boosts self-confidence	71	90
Intention to use drugs	Q.1. Would you use narcotics (such as Morfin, *etc*) in the next 12 months?	85	90
	Q.2. Would you use psychotropic substances (such as marijuana, *etc*) in the next 12 months?	85	90
	Q.3. Would you use addictive substances (such as Tobacco/nicotine, *etc*) in the next 12 months?	71	90
	Q.4. Would you use narcotics (such as Morfin, *etc*) during senior high school or vocational high school?	71	85
	Q.5. Would you use psychotropic substances (such as marijuana, *etc*.) during senior high school or vocational high school?	71	85
	Q.6. Would you use addictive substances (such as Tobacco/nicotine, *etc*) during senior high school or vocational high school?	76	90
	Q.7. Would you use narcotics (such as Morfin, *etc*) when you are older (over 50 years old)?	90	75
	Q.8. Would you use psychotropic substances (such as marijuana, *etc*) when you are older (over 50 years old)?	76	75
	Q.9. Would you use addictive substances (such as Tobacco/nicotine, *etc*) when you are older (over 50 years old)?	75	80
Drug use behaviors	Q.1. To your knowledge, when was the last time you used marijuana (whether leaves, stems, seeds, or other forms)?	80	90
	Q.2. To your knowledge, when was the last time you used Ecstasy?	76	90
	Q.3. To your knowledge, when was the last time you used Methamphetamine?	80	95
	Q.4. To your knowledge, when was the last time you used an inhalant (such as glue, *etc*.)?	85	95
	Q.5. To your knowledge, when was the last time you used nicotine (cigarette/kretek cigarette)?	90	95
	Q.6. To your knowledge, when was the last time you used Caffeine?	90	95
	Q.7. When using one of the types of narcotics or other substances above, with whom do you use it?	90	90
	Q.8. At school or around your place of residence, do you have any friends or other people who use any of the types of narcotics or other substances?	90	95

4. DISCUSSION

The Delphi process has been widely used in the healthcare field, including in nursing [22], in gaining a consensus on certain issues from a group of people with expertise in a particular area. The current study was intended to identify a valid and cultural-based questionnaire for drug use prevention programs for Indonesian adolescents, especially other adolescents with the same characteristics in general, using a three-round Delphi method involving panel members of teachers and community nurses. It has been reported that evaluation of the effectiveness of drug education prevention programs is required [23]. The findings of this study suggest that a questionnaire for evaluating drug use prevention programs for adolescents in schools should include measurement of drug use knowledge, attitude, intention, and behaviors.

Knowledge has been regarded as one of the important focuses in drug use prevention intervention programs [23]. Providing information about drugs to program participants is important for the main characteristic of the knowledge-focused curricula of a school-based drug prevention program [13]. There is a correlation between the level of current use and the future intention to use cannabis with knowledge and perception of risk improvement amongst adolescents [24]. In Indonesia, the lack of knowledge about drug and substance use during adolescence has been regarded as one of the reasons for the use by ex-drug users [25].

Worldwide, knowledge has been included in many previous drug prevention programs, such as in the United States [26] and European countries [27]. Similarly, the panel groups of the current study also consider the importance of including the knowledge aspect as one of the program measures in evaluating the effectiveness of the drug use prevention program for Indonesian adolescents. The recommended knowledge items should include the definition of drugs, types of drugs, and adverse effects of drug use, mainly both physical and psychological effects.

The panel members of the study also recommended the inclusion of questions about attitudes toward drug use; specifically, they recommended two main subscales: reasons for the use and effects of the use. Attitude can be defined as an individual evaluation of the consequences of drug use and is regarded as a predictor of behavior intention and an important mediator of the program effect [28]. The importance of including attitudes toward drug use in the evaluation of drug use prevention programs has been reported by researchers in previous studies [27]. There is a direct association between attitude and drug use behavior among school students [28].

Another recommendation from the panel groups is the need to include items of drug use intention, such as intention to use drugs next month, during senior high school, and when older, as a program measure for the evaluation of adolescents' drug use prevention intervention. The drug use behavior of adolescents is significantly and persistently associated with their drug use intention. School-based programs have been reported to have a positive effect on the drug use intention of the youths [27].

A systematic review of alcohol and other drug prevention programs reported the evaluation of program effectiveness on program behaviors [9]. The current study findings show that behaviors are another recommendation from the panel members. Selected substances and drugs were recommended for the evaluation, including marijuana, ecstasy, shabu (methamphetamine), inhalants, and caffeine. The three drugs or substances (*i.e.*, Marijuana, methamphetamine, and ecstasy) had been reported as being the most commonly found types of drugs in Indonesia [3].

5. LIMITATIONS

The study limitation includes sample selection. The sample was selected using a non-probability sampling technique. Although the sample criteria had been established, the differences among the participants might exist. Also, the group panels involved in the study were selected from a city in Aceh Province, Indonesia. Their view may not be representative of the broader population, which could limit the generability of the study findings. While the findings are useful for drug prevention programs for Indonesian adolescents, the findings may not reflect the needs of adolescents from other countries with different background characteristics.

CONCLUSION

In this study, expert panels validated the content of the questionnaire for the drug abuse prevention programs in Indonesia. Nevertheless, implementation and further analysis of the instrument are required to identify the accuracy of the instrument.

AUTHORS' CONTRIBUTION

T.T.: Contributed to the conceptualization of the study, data interpretation, final draft of the manuscript, and revision; N.H.: Contributed to the study design and data collection; M.M.: Contributed to the data analysis and participated in the first draft preparation. All authors approved the final version of the manuscript.

ABBREVIATION

FGDs = Focus Group Discussions

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The Research Ethics Committee of the Nursing Faculty of Universitas Syiah Kuala, Indonesia approved the study with approval Number: 113001010824, dated August 15th, 2024.

HUMAN AND ANIMAL RIGHTS

All human research procedures followed were in accordance with the ethical standards of the committee responsible for human experimentation (institutional and national), and with the Helsinki Declaration of 1975, as revised in 2013.

CONSENT FOR PUBLICATION

All participants voluntarily provided written consent for participation.

STANDARDS OF REPORTING

STROBE guidelines were followed.

AVAILABILITY OF DATA AND MATERIALS

The datasets used and/or analysed during the current study are available from the corresponding author [T.T.] on reasonable request.

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CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

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