

# Development of a Hookah Smoking Obscenity Measurement Scale for Adolescents

Khadijeh Keshavarzian<sup>1</sup>, Haidar Nadrian<sup>2</sup>, Hamid Allahverdipour<sup>3</sup>,  
Asghar Mohammadpoorasl<sup>4</sup>

## Original Article

### Abstract

**Background:** The worldwide trend of hookah use among adolescents is increasing, and literature shows a relationship between obscenity and adolescents' tendency toward hookah smoking. As there is a lack of appropriate instruments to measure the obscenity of hookah smoking, in the present study, we aimed to develop an instrument to measure hookah smoking obscenity among adolescents.

**Methods:** In this methodological study, a sequential exploratory design was used to conduct the study from February 2017 to July 2018 on adolescents in Tabriz, Iran. In the qualitative phase, we conducted semi-structured individual interviews (with 18 students) and a focus group discussion (FGD) (with 13 students) to explain the concept of obscenity and develop the items of hookah smoking obscenity scale (HSOS). We then examined the psychometric properties of the HSOS based on face, content, construct and predictive validities as well as internal consistency and repeatability.

**Findings:** The HSOS was developed with 21 items based on the results of qualitative data analysis. Applying confirmatory factor analysis (CFA), the  $\chi^2$ /degree of freedom (df) ratio was found to be 3.792 for the four-factor structure of the questionnaire and the fit indices of this structural model were satisfactory. The values of Cronbach's alpha and the intraclass correlation coefficient (ICC) for the constructs in the HSOS ranged 0.81-0.93 and 0.79-0.92, respectively.

**Conclusion:** We found the HSOS with a good level of fit indices, validity, and reliability. The HSOS may be applied by school healthcare providers and health practitioners to find valid and reliable data on the obscenity of hookah smoking when developing hookah smoking prevention/cessation interventions among adolescents.

**Keyword:** Methadone; Opium dependence; Intensive care units

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1- Department of Statistics and Epidemiology, School of Health, Tabriz University of Medical Sciences, Tabriz, Iran  
2- Department of Health Education and Promotion, School of Health AND Social Determinants of Health Research Center, Tabriz University of Medical Sciences, Tabriz, Iran  
3- Department of Health Education and Promotion, School of Health AND Research Center of Psychiatry and Behavioral Sciences, Tabriz University of Medical Sciences, Tabriz, Iran  
4- Department of Statistics and Epidemiology, School of Health AND Research Center of Psychiatry and Behavioral Sciences, Tabriz University of Medical Sciences, Tabriz, Iran  
Correspondence to: Asghar Mohammadpoorasl; Department of Statistics and Epidemiology, School of Health AND Research Center of Psychiatry and Behavioral Sciences, Tabriz University of Medical Sciences, Tabriz, Iran; Email: ampoorasl@gmail.com

## Introduction

Tobacco smoking is an important and preventable risk factor for the expansion of diseases and increase in morbidity and mortality, leading to early mortality.<sup>1</sup> Using this substance is increasing among children and adolescents due to its popularity.<sup>2</sup> According to the results of a meta-analysis, the prevalence of hookah use is 23.1 percent among Iranian adolescents.<sup>3</sup> Another study on Iranian adolescents aged 14 to 18 years reported the prevalence of hookah use to be 10.4 percent.<sup>4</sup>

In 2014, 22.5 percent of high school students in Florida, United States (US), reported hookah use, while this value was 18.2 percent in 2011. Moreover, 11.6 percent reported the current use of hookah, while this value was about 8 percent in 2011.<sup>5</sup> In a cohort study by Fielder et al., in 2009-2010, the prevalence of hookah use among students increased from 29 to 45 percent (over the year from pre-university to university).<sup>6</sup> In Iran, studies have focused on the prevalence of hookah use among adolescents.<sup>3,7,8</sup> For instance, one study in Tabriz showed that 44.9 percent of students experienced hookah and 6 percent were current users.<sup>7</sup> In another study, the prevalence of self-report hookah smoking in the lifespan among students was 21.6 percent, within which 9.7 percent were the current users of hookah.<sup>8</sup>

Jahanpour et al. reported the most frequent reasons for the desire of adolescents and youth toward hookah smoking as its prevalence among family members and close friends. The prevalence of hookah users decreases the obscenity of this behavior and has rendered it a normal and acceptable activity.<sup>9</sup> In a study by Afifi et al., hookah use was viewed as a regular and prevalent (customary and fashionable) activity and an inseparable part of gatherings (weddings and funerals). It was a form of hospitality and welcoming the guests. Moreover, the positive attitude toward hookah use is a factor contributing to the increased use of hookah. Generally, hookah had higher social acceptability among women, especially married women.<sup>10</sup> There is also a global increase in the popularity of hookah smoking<sup>11,12</sup> among adolescents,<sup>13</sup> particularly in the African and Eastern Mediterranean Region (EMR) countries.<sup>14,15</sup> With such an increasing popularity, hookah smoking may be considered as a new mode of tobacco smoking with a lower level of 'qabahat' (obscurity), compared to other modes of

tobacco use in the 21<sup>st</sup> century.<sup>9,16</sup> As an originally Arabic term, 'qabahat' (qa(e)bāhat) is rooted from the term 'qobh', which means obscene, aberrant, and deviant.<sup>17</sup> 'Qabahat' is also defined as "ugliness in word, act, or shape"<sup>18</sup> and not in accordance with accepted norms, rules, or standards.<sup>17</sup> There are many Iranian peer-reviewed articles<sup>9,19-21</sup> within which 'obscurity' was used as an English equivalent of the term 'qabahat' towards hookah smoking.

Originated from the Latin term 'obscenus', the term 'obscene' means 'foul, repulsive, and detestable',<sup>22</sup> which is defined as "offending against moral principles".<sup>23</sup> The term also means a form of deviation from "contemporary community moral standards".<sup>22</sup> The word obscenity means immorality and impropriety. When an action is considered obscene, doing it would be considered improper at a personal level and can be a factor affecting people's tendency towards tobacco (hookah). No globally-accepted definition of obscenity exists because its definition is abstract and highly culture-dependent.<sup>22</sup> In a study by Mohammadpoorasl et al.,<sup>24</sup> the obscenity and social acceptability of hookah use were factors reducing the progression through stages of hookah use. Furthermore, the results of a study in the US<sup>12</sup> revealed that a positive correlation existed between the social acceptability and use of hookah among students.

Conducting an extensive literature search, no instrument was found in the literature for measuring the obscenity of hookah use. Thus, considering the increasing trend of hookah use among adolescents, the effect of obscenity on adolescents' tendency toward hookah use, and lack of appropriate instruments for the measurement of obscenity from the perspective of adolescents, the present study aimed to develop a questionnaire for measuring hookah use obscenity among adolescents.

## Methods

This methodological research was conducted with a sequential exploratory design in 2017-2018 on adolescents to develop a hookah obscenity measurement questionnaire for adolescents in Tabriz, Iran (Ethical approval code: IR.TBZMED.REC.1396.1067). We conducted the study in phases of qualitative and quantitative. In the qualitative phase, we assumed that the hookah smoking obscenity was not still completely understood, and thus, we set this

phase to be qualitative applying content analysis approach. Such issues should be identified without any presumption in their social, cultural and environmental context. Collecting and analyzing qualitative data, we explored the students' experiences on hookah smoking obscenity. In the qualitative phase, a comprehensive list of dimensions for hookah smoking obscenity was explored and identified, which was then used to develop the first draft of the instrument and to evaluate its psychometric properties in the quantitative phase. Our research question that we addressed in the qualitative phase was: "How the high school students in Tabriz explain hookah smoking obscenity?"

In the quantitative phase, validity and reliability of the instruments for measuring hookah smoking obscenity were assessed. Answering the research question in the first phase provided us with a collection of items for use in putting into operation hookah smoking obscenity. The research population comprised high school female and male students in Tabriz. The researchers then visited the schools and clarified the objectives of the study. Signing informed consent, the students were included in the final sample.

#### A) Qualitative part

We conducted this part in two phases. In the first phase, through a qualitative study with the conventional content analysis method, students were interviewed [semi-structured individual interviews as well as focus group discussions (FGDs)] on hookah use obscenity. The initial question asked from the participants was "How would you explain hookah smoking?" which was followed by probing questions (Table 1). Having the participants' permission, a digital voice recorder was used to tape-record the interviews.

To select the students, we applied purposive sampling. The number of participants was determined based on the adequacy of produced data and data analysis and sampling was continued until data saturation. In this study, semi-structured interviews were conducted with 18 students and FGD was performed with 13 students in three groups of 4 to 5. Semi-structured interviews lasted 35 to 55 minutes and group interviews lasted 35 to 40 minutes.

Data analysis was performed using conventional content analysis. The recorded files were transcribed verbatim after each interview session and then entered into MAXQDA-10 and

immediately analyzed. We read and reread the interviews several times and started data analysis with identifying the units of meaning extracted from the statements of participants. In an inductive manner, the codes were generated and were then identified as categories, based on the similarities and the differences. More information on this qualitative study is published elsewhere.<sup>25</sup>

**Table 1.** The main hookah smoking obscenity question and its probing questions that were asked from the participants

Questions
How would you explain hookah smoking? Please describe.
How do you describe a boy or a girl who is smoking hookah?
How do you see the family of a person who uses hookah?
What does bear in your mind when you see that your friend is smoking hookah?
What are the characteristics of a hookah user in your society? Based on your viewpoint, why does he/she smoke hookah? What may be the reasons?
How would you describe a ring of friends in a coffee shop who are smoking hookah?
Based on your opinion, how do you explain hookah smoking among women?
In your idea, what are the outcomes/consequences of hookah smoking? Are they favorable?
How would you explain hookah smoking? Please describe.

As no similar study and/or instrument was found on hookah smoking obscenity, we tried to achieve some other codes as a complement for the codes identified in the qualitative phase. In other words, we aimed to enrich the items we extracted from the qualitative phase. Therefore, as the second stage of the qualitative phase, the researchers visited three all-male and all-female classes (148 adolescents) and wrote the sentence "For me, hookah is ..." on the board. Willing to participate, the students completed this sentence with at least five words. After summarizing and analyzing their answers (i.e., sentences written on the hookah use) (148 sentences) and also extracting the codes (713 codes) identified in the interviews, the preliminary items of the questionnaire were designed (891 codes). The items were examined by the research team in several sessions and were finally reduced to 51 items. The remaining items were reviewed and tried to be diminished in terms of number by the team of research in a final session. So, after considerations on appropriateness, relevancy, and

redundancy in the items, the number of items was reduced to 25 items, which constituted the items for the preliminary version of hookah smoking obscenity scale (HSOS). A five-point Likert-type scale was designed as the response format ("completely agree", "agree", "no idea", "disagree", and "completely disagree").

#### **B) Quantitative part**

In this part, the psychometric properties of the HSOS were assessed based on face validity, content validity, construct validity, predictive validity, and reliability. Adopting a qualitative method, a team of experts examined the face and content validities of the HSOS. The hookah obscenity questionnaire was given to 22 experts on health education and promotion, psychiatry, psychology, and epidemiology who had worked on tobacco use by adolescents. They were asked to check the questionnaire in terms of the use of appropriate words, correct placement of items, grammar, and the relevance of the appearance to the concept being measured (face validity). 13 out of 22 experts did not respond to our request.

Exploratory factor analysis (EFA) was performed to assess construct validity. To examine suitability, the Kaiser-Meyer-Olkin (KMO) test and the results of Bartlett's test were used. The values higher than 0.7 to 0.8 demonstrate a good state of factor analysis model for the data.<sup>26</sup> If the P-value for Bartlett's test is less than 0.05, this clarity is confirmed. To determine the factors being examined, the cut-off point of 0.3 was set. Moreover, in this method, four factors were considered for the questionnaire. In the EFA, the scree plot was also considered during the analysis. Principal component analysis (PCA) was performed with varimax rotation in SPSS software (version 23, IBM Corporation, Armonk, NY, USA) using the data of 450 questionnaires. To evaluate the structure of the factors resulting from the EFA, the confirmatory factor analysis (CFA) model must be fit. Therefore, to investigate the four-factor structure of the questionnaire, we conducted CFA with the maximum likelihood method in Amos 24 on the data of 563 individuals and evaluated the model fit calculating the following indices: Goodness of fit index (GFI), root mean square error of approximation (RMSEA), relative fit index (RFI), normed fit index (NFI), and incremental fit index (IFI).

To evaluate test-retest reliability, 60 students were asked to recomplete the HSOS after two weeks. Two methods of repeatability and internal

consistency were used to measure the reliability of the HSOS. Internal consistency was measured by assessing Cronbach's alpha on the data of 60 students. The Cronbach's alpha values equal to or greater than 0.70 to 0.80 were considered to be satisfactory.<sup>27</sup> Repeatability was measured through test-retest method. For this purpose, the HSOS was completed after a 14-day interval. Intraclass correlation coefficient (ICC) test was used to compare the data of the two stages. Finally, the predictive validity of scale (i.e., measuring obscenity in addition to hookah use behavior and checking the relationship between them) was examined on 1000 students. In order to select these participants, a multi-stage cluster sampling was conducted. At first, with considerations on the type of schools and the gender of students, we randomly selected eight high schools from among all high schools in the city. Then, taking into account the population of each school and the students' fields of study, we selected 28 classes as the clusters. Eventually, we included all students of the selected classes into the study. To determine predictive validity, variables of the tendency to hookah use, age, sex, having a close friend who uses hookah, having a relative who smokes, and socioeconomic status were assumed to be confounding variables.

## **Results**

The mean age of students was  $16.32 \pm 0.90$  years (range: 14-18). Of the total student sample, 486 (48.0%) were boys and 527 (52.0%) were girls.

Content analysis of the data resulting from interviews explained the concept of hookah use from the viewpoint of students in three themes: the negative value of hookah use and hookah users in society, negative attitude toward hookah users and their families, and outcomes of hookah use. Based on qualitative analysis, 713 hookah obscenity codes and 148 hookah obscenity sentences were obtained.

In terms of face and content validity, experts offered some modifications that were applied to the 51-item questionnaire. These included the removal of repetitive items (7 items), irrelevant items (not exactly assessing hookah smoking obscenity) (22 items), and changing the expression (appearance) (3 items) of some items. Finally, after confirming face and content validity, the HSOS was finalized with 22 items. In the qualitative examination of the HSOS, certain modifications were applied to the scale based on the feedback of the students.

**Table 2.** Items and the four-factor structure of the hookah obscenity questionnaire

Items	Factor 1 (negative attitude and value)	Factor 2 (consequences)	Factor 3 (starting narcotic use)	Factor 4 (befriending delinquents)
1. Hookah users do not adhere to ethics.	0.686			
2. Hookah use makes the user deviant.	0.519			
3. Hookah users are not trustworthy.	0.751			
4. Hookah use disrupts the users' neatness.	0.556			
5. Hookah users look like bullies.	0.506			
6. Hookah users become notorious.	0.607			
7. Hookah use is shameful.	0.574			
8. Hookah users are bad role models for others.	0.471			
9. Hookah users are intolerant.	0.675			
10. Hookah use shows the closeness of minds among the users.	0.537			
11. Hookah users behave badly with their families.	0.766			
12. Hookah users are distanced from their families.	0.738			
13. Hookah users do not consider themselves and others valuable.	0.632			
14. Hookah use is against social values.	0.370			
15. Hookah use damages one's health.		0.791		
16. Hookah use harms one's progress through life.		0.558		
17. Hookah use damages one's appearance and beauty.		0.635		
18. Hookah use is not addictive.			0.825	
19. Hookah use is not a beginning for narcotic use.			0.818	
20. Hookah users have delinquent friends.				0.461
21. Hookah users do not befriend delinquents.				0.886
The percentage of variance expressed by the extracted factors	45.20	51.54	56.33	60.45

In the EFA conducted on 450 students, the KMO of the questionnaire, which represents the suitability of sampling index, was 0.95 and the significance of Bartlett's test of sphericity ( $P < 0.001$ ) demonstrated that the data were appropriate for factor analysis. Four factors in this questionnaire were: Negative value and attitude toward hookah and hookah users (14 items), consequences of hookah use (3 items), starting substance use (2 items), and hookah users' befriending delinquents (2 items). One item (Hookah use does not make the user's family look less noble) was eliminated because of its low variance percentage. The total variance percentage for the questionnaire was 60.45 (Table 2). In the next step, to confirm the structure resulting from the EFA, CFA was performed on 563 other students. Based on the obtained indices for each construct (Table 3), the chi-square to degree of freedom (df) ratio ( $\chi^2/df$ ) was less than

5, thus confirming the fit of the models.

**Table 3.** Fitness indices for confirming the suitability of the studied pattern

Index	Value
CFI	0.910
IFI	0.910
RFI	0.870
NFI	0.880
RMSEA (95% CI)	0.070 (0.065-0.076)
AGFI	0.850
GFI	0.880
$\chi^2/df$	3.792
P	< 0.001
df	183
$\chi^2$	695.080

CFI: Confirmatory fit index; IFI: Incremental fit index; RFI: Relative fit index; NFI: Normed fit index; RMSEA: Root mean square error of approximation; CI: Confidence interval; AGFI: Adjusted goodness of fit index; GFI: Goodness of fit index; df: Degree of freedom

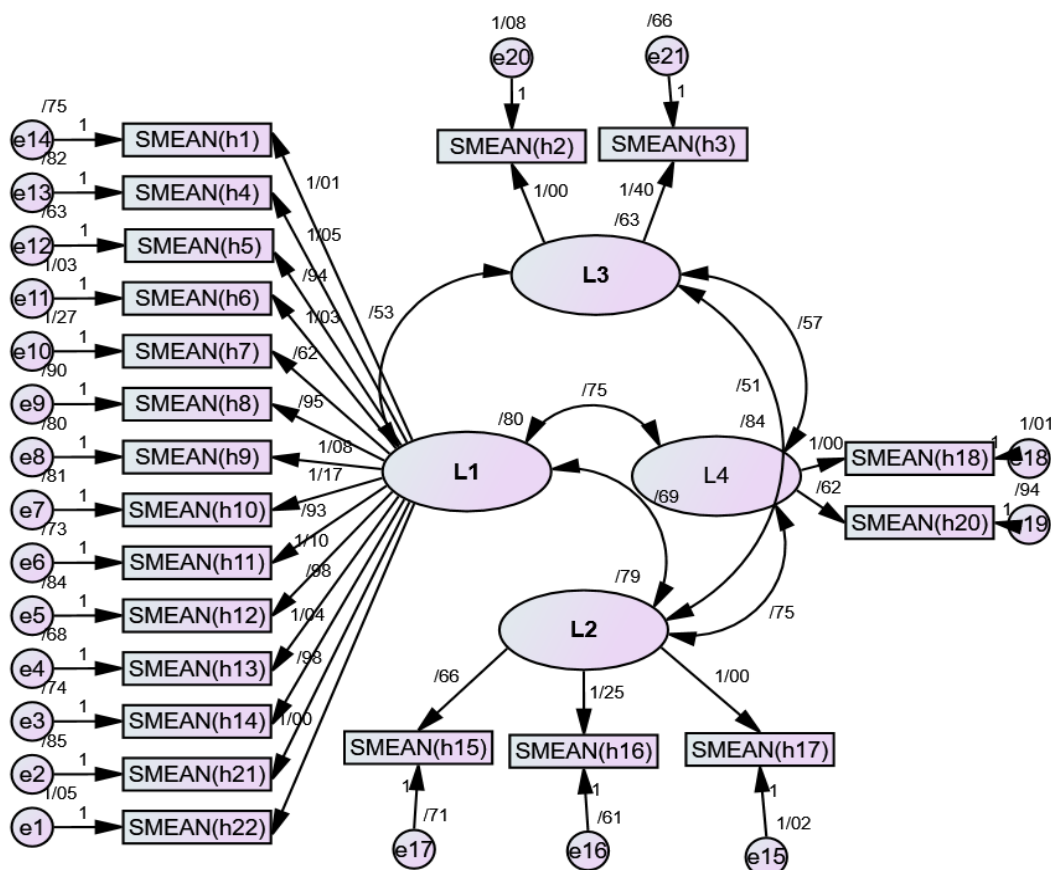


Figure 1. Four-factor structural model of the hookah obscenity questionnaire

Moreover, confirmatory fit index (CFI), NFI, IFI, adjusted GFI (AGFI), GFI, and RMSEA indices of the scale confirmed the model fit. As a result, this model has achieved an acceptable level of fit and, accordingly, the factors contributing to hookah obscenity can be confirmed (Figure 1). It is of note that all the CFA coefficients for all constructs of hookah obscenity (four factors) were significant.

Therefore, the questionnaire with 21 items was selected for the final examination step using Cronbach’s alpha and ICC. The value of Cronbach’s alpha for the constructs varied from 0.81 to 0.93. To examine the repeatability of the questionnaire, the test-retest method was employed. In this method,

the ICC between scores of two sessions of implementing the questionnaire over the two-week interval was compared (Table 4).

Moreover, the results of predictive validity (i.e., measuring obscenity in addition to hookah use behavior and checking the relationship between them) on 1000 students are presented in table 5. Based on the results of hookah measurement and hookah use behavior among students, a significant association was extracted between obscenity of hookah use and hookah use behavior ( $P < 0.001$ ). The higher the scores of the questionnaire, the higher the obscenity of hookah smoking.

Table 4. The results of the reliability of the hookah obscenity questionnaire

	Number of questions	Range	Mean ± SD	Skewness	Kurtosis	Cronbach' alpha	ICC
Negative attitude and value	14	56	37.96 ± 12.94	0.148	-0.670	0.93	0.92
Consequences	3	12	11.24 ± 3.02	-0.670	-0.95	0.84	0.79
Starting narcotic use	2	8	6.38 ± 2.37	-0.160	-0.860	0.81	0.87
Befriending delinquents	2	8	6.54 ± 2.04	-0.217	-0.520	0.88	0.85

SD: Standard deviation; ICC: Intraclass correlation coefficient

**Table 5.** Hookah smoking status and its relationship with score of hookah obscenity

Hookah smoking status	n (%)	Score of hookah obscenity	P
Never used	572 (57.2)	69.71 ± 15.73	< 0.001
Only tried	190 (19.0)	56.61 ± 15.77	
Occasionally used	148 (14.8)	49.61 ± 14.25	
At least once a month	39 (3.9)	46.20 ± 17.48	
At least once a week	51 (5.1)	44.82 ± 13.81	

## Discussion

In this mixed-method study, we applied a sequential exploratory design to develop the HSOS for adolescents. The sequential exploratory design is highly useful for studies with a qualitative nature to develop and examine any instrument in order to identify an unknown variable.<sup>28</sup> In this study, from the perspective of students, hookah use obscenity was divided into three themes: the negative value of hookah use and hookah users in society, negative attitude toward hookah users and their families, and outcomes of hookah use. Using these items, the 21-item hookah obscenity questionnaire was qualitatively developed based on a sample of 31 students.

We examined face and content validities of the HSOS qualitatively and applied the opinions of experts. For instance, seven and twenty-two items were deleted due to repetition and irrelevancy (not exactly assessing hookah smoking obscenity), respectively. Also, three items were altered in terms of expression (appearance).

The qualitative face and content validity results were confirmed. In the qualitative examination of the validity of the questionnaire according to students, certain modifications were applied to the questionnaire based on the feedback. The construct validity of the questionnaire was investigated using EFA. Based on the results, the items were divided into four dimensions: negative value and attitude toward hookah and hookah users, consequences of hookah use, starting substance use, and hookah users' befriending delinquents. The total variance percentage for the questionnaire was 60.45.

Results of KMO measurement (0.95) and Bartlett's test ( $P < 0.001$ ) confirmed the model we extracted in the factor analysis. Similar findings were reported by Ghasemi et al.<sup>29</sup> (KMO = 0.91, Bartlett's test:  $P < 0.001$ ) and Shahbazi et al.<sup>30</sup> (KMO = 0.81, Bartlett's test:  $P < 0.001$ ) who announced model confirmation for their factor analysis studies. We also considered the cut-off point of 0.3 as the least factor loading value

required for each statement to remain in the questionnaire. As the factor loading of one item (Hookah use does not make the user's family look less noble) was less than 0.3, this item was eliminated. Based on the results of CFA, it was found that the developed questionnaire had a desirable fit for Iranian society. Similar findings were reported by Shahbazi et al.<sup>30</sup> who developed a questionnaire with a desirable fit.

To measure the reliability of the questionnaire, two methods of internal consistency and repeatability were used. Internal consistency was measured using Cronbach's alpha. Based on the findings, the developed questionnaire had acceptable consistency. Cronbach's alpha varied from 0.81 to 0.93 for the constructs, thus showing their acceptability and demonstrating the reliability of the scale. Similar findings were reported by Ghasemi et al.,<sup>29</sup> who reported 0.77 to 0.95 as the values of Cronbach's alpha for their instrument.

Moreover, repeatability was measured through test-retest method. Based on the ICC results (0.79-0.92) for the construct of the questionnaire, the HSOS had acceptable repeatability,<sup>31</sup> which needs to be investigated in future studies on this scale. We also evaluated the predictive validity of the HSOS. Based on the results of obscenity measurement and hookah use behavior among students, a correlation exists between these two measurements: the higher the obscenity score, the less the tendency to use hookah (hookah user behavior). Therefore, the predictive validity of the questionnaire was confirmed. In the study by Mohammadpoorasl et al.,<sup>24</sup> obscenity was a factor affecting adolescents' tendency to hookah use, and a low obscenity of hookah created a positive attitude and finally increased hookah use. Based on the findings of the present study, the developed questionnaire was designed based on the concept of hookah obscenity according to adolescents. Developed on the basis of adolescents' viewpoints through in-depth and qualitative research, the HSOS is assumed to be a practical tool with a desirable

level of validity and reliability, easiness in application and understanding, and a maximum of 10 to 15-minute completion time. Thus, as far as standard instruments for measuring hookah obscenity are not available, this study can serve the mentioned purpose.

### Conclusion

We found the HSOS with a good level of fit indices, validity, and reliability, which may be used to investigate the hookah smoking obscenity among adolescents. The HSOS may be applied by school healthcare providers and health practitioners to find valid and reliable data on the obscenity of hookah smoking when developing hookah smoking prevention/cessation interventions among adolescents.

### Conflict of Interests

The authors have no conflict of interest.

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### Authors' Contribution

Study design: All authors. Study conduct: HN, KK, and AM. Data collection: KK and AM. Data analysis: AM, KK, and HN. Data interpretation: All authors. Drafting manuscript: AM and KK. Revising manuscript and content: HN, HA, and AM. Approving final version of manuscript: All authors. AM takes responsibility for the integrity of the data analysis.

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## طراحی پرسش‌نامه اندازه‌گیری قباحث قلیان در نوجوانان

خدیدجه کشاورزبان<sup>۱</sup>، حیدر ندریان<sup>۲</sup>، حمید الهوردی پور<sup>۳</sup>، اصغر محمدپوراصل<sup>۴</sup>

### مقاله پژوهشی

### چکیده

**مقدمه:** با توجه به روند افزایشی مصرف قلیان در نوجوانان ایرانی و از طرف دیگر، شواهد موجود در زمینه ارتباط قباحث با گرایش نوجوانان به مصرف قلیان و همچنین، نبود ابزار مناسب برای اندازه‌گیری آن، هدف از انجام پژوهش حاضر، طراحی پرسش‌نامه مناسبی به منظور اندازه‌گیری قباحث قلیان در بین نوجوانان بود.

**روش‌ها:** این مطالعه از نوع ترکیبی با طرح اکتشافی متوالی (Mixed-method with sequential) Exploratory design بود که از اسفند سال ۱۳۹۶ تا تیر سال ۱۳۹۷ در نوجوانان شهر تبریز انجام گرفت. در بخش کیفی، برای تبیین مفهوم قباحث و طراحی گویه‌های پرسش‌نامه قباحث قلیان، مصاحبه نیمه ساختار یافته با ۱۸ دانش‌آموز و مصاحبه به روش بحث گروهی (Focus group discussion یا FGD) با ۱۳ دانش‌آموز (گروه‌های ۴-۵ نفره) انجام گرفت و سپس ویژگی‌های روان‌سنجی پرسش‌نامه با بهره‌گیری از روایی صوری، روایی محتوا، روایی سازه، اعتبار پیش‌بین، همسانی درونی و ثبات مورد بررسی قرار گرفت.

**یافته‌ها:** پرسش‌نامه قباحث قلیان بر اساس یافته‌های حاصل از تحلیل داده‌های کیفی با ۲۱ سؤال طراحی گردید. بر اساس تحلیل عاملی تأییدی، نسبت Degree of freedom  $\chi^2/(df)$  برای ساختار چهار عاملی پرسش‌نامه قباحث قلیان، ۳/۷۹۲ به دست آمد و شاخص‌های برازندگی برای این مدل ساختاری رضایت‌بخش بود. مقادیر Cronbach's alpha و شاخص همبستگی درون خوشه‌ای (Intraclass correlation coefficient یا ICC) برای سازه‌های پرسش‌نامه قباحث قلیان به ترتیب بین ۰/۸۱-۰/۹۳ و ۰/۷۹-۰/۹۲ گزارش گردید.

**نتیجه‌گیری:** شاخص‌های مناسب مدل و نتایج قابل اطمینان گزارش شده در تحقیق حاضر، می‌تواند به عنوان شواهدی برای روایی و پایایی پرسش‌نامه قباحث قلیان در نظر گرفته شود. متخصصان بهداشت مدارس و ارایه دهندگان مراقبت‌های بهداشتی ممکن است از این پرسش‌نامه در جهت یافتن داده‌های معتبر و قابل اطمینان در خصوص قباحث قلیان به منظور طراحی برنامه‌های پیشگیری یا قطع مصرف قلیان در بین نوجوانان استفاده کنند.

**واژگان کلیدی:** ابزار دقیق؛ نوجوان؛ قلیان کشیدن؛ پژوهش کیفی؛ استمال دخانیات

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۱- گروه آمار و اپیدمیولوژی، دانشکده بهداشت، دانشگاه علوم پزشکی تبریز، تبریز، ایران

۲- گروه آموزش و ارتقای سلامت، دانشکده بهداشت و مرکز تحقیقات عوامل اجتماعی تعیین‌کننده سلامت، دانشگاه علوم پزشکی تبریز، تبریز، ایران

۳- گروه آموزش و ارتقای سلامت، دانشکده بهداشت و مرکز تحقیقات روان‌پزشکی و علوم رفتاری، دانشگاه علوم پزشکی تبریز، تبریز، ایران

۴- گروه آمار و اپیدمیولوژی، دانشکده بهداشت و مرکز تحقیقات روان‌پزشکی و علوم رفتاری، دانشگاه علوم پزشکی تبریز، تبریز، ایران

**نویسنده مسؤول:** اصغر محمدپوراصل؛ گروه آمار و اپیدمیولوژی، دانشکده بهداشت و مرکز تحقیقات روان‌پزشکی و علوم رفتاری، دانشگاه علوم پزشکی تبریز، تبریز، ایران

Email: [ampoorasl@gmail.com](mailto:ampoorasl@gmail.com)