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ABSTRACT

Background: Given the importance of adolescents’ health in establishing health in the newly thriving generation of every society, the first step for adolescents’ health promotion is health needs assessment. The present study was, therefore, conducted to design a valid and reliable scale for health needs assessment of male adolescents.

Methods: This is an exploratory sequential mixed method study (2014-2015). The qualitative part was performed using content analysis approach and aimed to generate items pool. Data collection was performed by 7 focus group discussions with 51 male adolescents, and 10 semi-structured in-depth interviews with 10 other adolescents. Nine further in-depth interviews were also performed with 9 key informants. Purposive sampling was used and continued until data saturation. In the quantitative part, the designed scale was psychometrically assessed through the examination of the face and content validities using qualitative and quantitative methods and also the construct validity using the exploratory factor analysis along with the tool’s internal consistency and stability.

Results: The content analysis of the data from the qualitative part led to the extraction of 4 main themes and 103 items, which moved to the quantitative stage. The mean content validity index of the scale was estimated 0.91 and content validity ratio was 0.89. The exploratory factor analysis showed 4 factors for the designed scale (49 items), including physical, psychological, social and sexual health needs. The internal consistency and the stability assessment of the scale showed 0.79 and 0.89, respectively. (P<0.001)

Conclusion: According to the psychometric assessment, MAHNAS is a valid and reliable scale compatible with the Iranian culture that can be used in the health needs assessment of male adolescents.

Keywords: Health; Needs assessment; Adolescents; Scale

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**INTRODUCTION**

Adolescence is considered a key stage in human development. Rapid biological and psychological changes occurring during this period turn adolescence into a unique period in life; in fact, health during adolescence ensures health in adulthood, and ultimately health in the future generation of every society. World Health Organization introduces adolescents as 10-19 year old individuals whose population has reached to 1.8 billion in the world, and 90% of them are living in developing countries. Ensuring that countries pay sufficient attention to the adequacy of adolescents’ health services has therefore been on the agenda of the WHO since 2015.\(^1\)

Given the importance of health during this critical period, promoting every aspect of the adolescents’ health is subjected to understanding their needs. Understanding the adolescents’ health needs is important in improving the care services provided to them and ultimately leads to a healthy state among the adolescents and across the society. Investing on adolescents’ health will prevent 1.4 million deaths each year.\(^2\) The first step in the promotion of the communities’ health is needs assessment of the target group.\(^3\) Needs assessment entails the realistic identification of the current health status of the target group and their needs and problems using their own contributions, identification and prioritization of the main risk factors threatening that population, and finally identification of the essential measures for eliminating those risk factors and maintaining health in the group.\(^4\) At the global level, adolescents’ health needs have become the center of attention more than ever before at the International Conference on Population and Development as a turning point in reproductive health services. The declaration of the conference emphasizes the unique needs of adolescents compared to adults and request its member countries to identify and meet these needs.\(^5\)

Although the physical and health problems of male adolescents might have been less emphasized compared to female adolescents, the fact remains that male adolescents also face several physical, psychological, behavioral, and social problems during this period of transition. High-risk health and sexual behaviors, accidents and drug and alcohol abuse are but a few examples of the problems commonly faced by male adolescents.\(^6\) According to 2014 WHO statistics, mortality rates are higher in boys than in girls. Assessing and meeting the health needs of boys for a safe transition from this period is therefore highly crucial.\(^1\) A quarter of our population are adolescents,\(^6\) and considering the importance of health in this group, there are few studies in various countries on the concept of health needs in male adolescents and there is no specialized and standard scale for assessing the health needs in this group. Most studies on health needs assessment in our country are descriptive and there is no comprehensive assessment scale to measure all aspects of adolescents’ health needs. Besides, health needs assessment scales should be culture sensitive, valid and reliable. Health needs assessment is the first step in promoting health status; however, there is not any valid scale which assesses the male adolescents’ health. There is just one study on the Iranian female adolescent health needs, which is not rationally appropriate for boys, considering sex differences. Therefore, this study aimed to design and evaluate the psychometric properties of a tool to assess the health needs of male adolescents in Iran.

The present study was, therefore, conducted to design a valid scale for the health needs assessment of male adolescents based on the dominant socio-cultural context and the mentalities of the target group so that it may be of use in the assessment of the current status, the planning of health measures interventions, and the promotion of adolescents’ health.

**MATERIALS AND METHODS**

This exploratory sequential mixed method study was conducted in two stages. In the first stage,
A qualitative content analysis was performed to determine the concept and the dimensions of the health needs. Data collection was performed by 7 focus group discussions with 51 male adolescents, and 10 semi-structured in-depth interviews with 10 other adolescents. Moreover, to obtain a wider range of information about male adolescents' health needs, individual in-depth interviews were conducted with key informants, including the parents of 13-18 year old boys, teachers, psychologists, reproductive health specialists, and pediatricians.

The inclusion criteria in this study for the adolescents were being a male adolescent aged 13 to 18, being single and residing in Tehran. The inclusion criteria for the key informants included: for parents having at least one male adolescent in this age; and for teachers, psychologists, reproductive health specialists and pediatricians having at least two years of job experience in adolescent health field. The key informants included two mothers, two fathers, a teacher, two psychologists, a reproductive health specialist, and a pediatrician. Anyone who was not willing to continue cooperation was excluded.

The sampling was purposive and continued until data saturation, which means more sampling adds no additional codes. The focus group discussions and in-depth interviews were conducted from February 2014 to June 2015 after obtaining informed consent form.

In accordance with qualitative studies, the study setting was a real context and the accessibility for the adolescents (school, mosques, parks, and culture houses and sports clubs in different geographical areas of Tehran) was taken into account. The interviews with the key informants were held in places such as the schools, counseling clinics, doctor's offices and the Ministry of Health and Medical Education.

Based on the guidelines for exploratory interviews, the focus group discussions and interviews with male adolescents and key informants began with a general question about health, such as “What does health mean to you (male adolescents)?”, and “What exactly do you (male adolescents) need to be a healthy person?”. Each interview lasted between 30 and 45 minutes.

Qualitative data were analyzed using the conventional content analysis according to Graneheim and Laundman’s method, for which all the interviews were recorded first and promptly transcribed, including non-verbal gestures, as well. The transcribed text was broken down into meaning units and then into the smallest meaningful units possible (i.e. codes). These codes were then categorized and subcategorized according to their centrality and semantic similarity. The researcher and participants finally reached a consensus about the meaning of the data, the content and the category names. For ensuring the accuracy of qualitative data, based on Lincoln and Guba's criteria, we considered the credibility, transferability, conformability, and dependability.
or higher were kept for further analysis. 1.5 was chosen as the criterion based on the mean score of 3 and the mean frequency of 50%. At this stage, to improve the face validity of the scale, 10 experts stated their comments on the scale, including faculty members of Shahid Beheshti University of Medical Sciences, experts in scale design, reproductive health, sociology, public health, psychology, and psychiatry. The researcher paid particular attention to choosing the correct writing style and making logical sentences in writing the scale items.

In determining the content validity of the scale, the necessity of an item is addressed from the experts’ points of view. The content validity ratio was, therefore, assessed by 15 experts and scored based on a 3-point Likert scale. According to Lawshe’s table, content validity ratio scores higher than 0.49 for 15 individuals indicate the relevance of the item at a statistically significant level (P=0.05) and demonstrate its necessity for the scale. These items entered the next stage of the content validity index measurement. The views of 15 faculty members and experts in scale design, reproductive health, health education, nursing, public health and psychiatry were used in order to determine the relevance, clarity and simplicity of each item on a 4-point Likert scale based on Waltz & Bausell’s content validity index. The scores obtained for all the items were assessed against this index, and the item was accepted if the index value was 0.79 or higher.

To determine the construct validity of the scale, the exploratory factor analysis was used to assess the internal relationship between the variables. A sample size of 100-200 is normally sufficient for factor analysis due to its dependence on correlation. Data collection was conducted by multi-stage randomized sampling. Due to the geographical map of Tehran, four parts were determined as North, South, East and West. In each geographic part, an area was selected for sampling by using table of random numbers. After that, schools in each area were randomly selected, so simple and available sampling was done in randomly selected classes. It is obvious that the number of sampling in each area was a proportion of the total samples required. A total of 200 eligible male adolescents aged 13-18 were, therefore, randomly selected; they completed the health needs-assessment questionnaire and were given scores based on a 5-point Likert scale. Data were analyzed using SPSS-22.

The internal consistency and the test-retest methods were used to determine the reliability of the scale. The internal consistency was assessed before and after construct validity assessment. Cronbach’s alpha was calculated for each factor and also for the scale as a whole in a sample of 25 male adolescents. Cronbach’s alpha values between 0.7 and 0.8 denote an adequate internal consistency. The stability of the scale is ensured when the same scores are obtained by a group of individuals on two distinct occasions. To determine its stability, the scale was completed by a sample of 25 male adolescents on two different occasions within an interval of two weeks, and the scores for the two tests were compared against each other using an Intra-class Correlation Coefficient (ICC) test. The stability of the test is confirmed when the ICC is higher than 80%.

**RESULTS**

The first part of the study aimed to determine the concept and the dimensions of adolescents’ health needs using content analysis. Demographic characteristics of Adolescents and key informants who participated in this part are shown in Tables 1 and 2. It resulted in the emergence of 4 main themes including physical, psychological, social and sexual health needs. Each main theme has some sub-themes as follows: physical health needs (proper medical and health services and self-care), psychological health need (self-esteem, being in peace and comfort), social health need (healthy family, healthy society, educational needs and relationship with peers), and sexual health needs.
Male adolescent health needs-assessment scale

In this part of the study, the results showed that the concept of “health needs of male adolescents” is multi-dimensional and includes needs for proper medical and health services and self-care in physical health dimension; needs for self-esteem and being in a state of peace and comfort in psychological dimension; needs for healthy family, healthy society, the educational needs and relationship with peers in social dimension; and needs for sexual education, sexual health care in sexual health dimension.

According to the concepts explained, review of the literature and available sources on the health needs of male adolescents, a series of items were then arranged based on the themes derived from the interviews. The items selected were assessed by a research team, and some were combined if applicable and the initial scale was designed with 103 items scored based on a 5-point Likert scale (totally agree, agree, no comments, disagree and totally disagree).

For assessing the face validity of the scale, the male adolescents were interviewed and modifications were then made accordingly; then, calculation of the impact scores revealed that 21 items did not have the score 1.5 or higher; therefore, the items were reduced from 103 to 82.

In assessment of the content validity of the scale, the Content Validity Ratio (CVR) was calculated, and items scoring 0.49 or higher were kept (69 items) and moved along to the content validity index assessment stage. At this stage, items with a content validity ratio

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**Table 1: Demographic characteristics of the adolescents in qualitative part**

| Demographic Characteristics | Number(%) |
|-----------------------------|-----------|
| Mean age                    | 15.5±1.2  |
| Grade                       | First high school 24 (39.4) |
|                             | Second high school 31 (50.8) |
|                             | Technical school 6 (9.8)     |
| Father’s education          | Illiterate/high school diploma 20 (32.9) |
|                             | Diploma 31 (50.8) |
|                             | Academic education 10 (16.3) |
| Mother’s education          | Illiterate/high school diploma 17 (27.8) |
|                             | Diploma 31 (50.8) |
|                             | Academic education 13 (21.4) |
| Father’s job                | Jobless 11 (18.0) |
|                             | Self-employment 21 (34.2) |
|                             | Worker 15 (24.9) |
|                             | Employee 14 (22.9) |
| Mother’s job                | House wife 39 (63.9) |
|                             | Self-employment 11 (18.0) |
|                             | Employee 11 (18.1) |

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**Table 2: Demographic characteristics of key informant in the qualitative part**

| Key informant           | Age | Educational degree                  |
|-------------------------|-----|-------------------------------------|
| Mother                  | 45  | Bachelor in art                     |
| Mother                  | 39  | Diploma                             |
| Father                  | 51  | High school diploma                 |
| Father                  | 47  | Diploma                             |
| Teacher                 | 53  | Bachelor in biology                 |
| Psychologist            | 49  | Bachelor in psychology              |
| Psychologist            | 37  | Master in psychology                |
| Reproductive health specialist | 54  | PhD in reproductive health         |
| Pediatrician            | 58  | M.D, Specialist                     |
of 0.79 or higher were kept (based on Waltz and Bausell’s Content Validity Index). It is worth noting that no items were eliminated at this stage, and the scale entered the construct validity assessment stage with 69 items. Demographic characteristics of adolescents who participated in construct validity are shown in Table 3. The mean content validity index (S-CVI) was 0.91, which fell in the acceptable range of 0.9 or higher. Data reduction process in development and psychometric assessment process is shown in Figure 1.

Kaiser-Myer-Olkin’s test was calculated to assess the sample adequacy for construct validity of the scale (Table 4); Kaiser-Myer-Olkin’s values varied from 0 to 1, and values above 0.8 were considered appropriate. Bartlett’s Sphericity test was used to show whether the correlation matrix obtained departs significantly from 0, based on which performing an exploratory factor analysis could be justified, producing a value of 6172 (P<0.001).

The factors’ contribution to explaining the variance of each item was then determined through an analysis of the main components using a varimax rotation. The variance of each item ranged from 0 to 1. Values less than 50% indicate the item’s inappropriateness for factor analysis, and show that it should be excluded. A total of 11 items were excluded at this stage and the rest entered the factor analysis stage. The factors were extracted after the correlation

| Demographic characteristics | Number (%) |
|-----------------------------|------------|
| Grade                        | First high school 74 (37) |
|                             | Second high school 83 (41.5) |
|                             | Technical school 43 (21.5) |
| Father’s education           | Illiterate/high school diploma 42 (21) |
|                             | Diploma 63 (31.5) |
|                             | Associate 27 (13.5) |
|                             | Bachelor 59 (29.5) |
|                             | Master/ doctor 9 (4.5) |
| Father’s job                 | Jobless 12 (6) |
|                             | Self-employment 81 (40.5) |
|                             | Worker 41 (20.5) |
|                             | Employee 59 (29.5) |
|                             | Retired 7 (3.5) |
|                             | Illiterate/high school diploma 36 (18) |
| Mother’s education degree    | Diploma 79 (39.5) |
|                             | Associate 33 (16.5) |
|                             | Bachelor 49 (24.5) |
|                             | Master/ doctor 3 (1.5) |
| Mother’s job                 | House wife 95 (47.5) |
|                             | Self employment 31 (15.5) |
|                             | Worker 30 (15) |
|                             | Employee 44 (22) |

Figure 1: Data reduction process in development and psychometric assessment process.
matrix of the variables was calculated. There are various rules for determining the number of factors in exploratory factor analysis. The inflection point of 0.4 was taken as the minimum factor loading required for keeping the item in the factors extracted from the factor analysis. 12 factors with an Eigenvalue higher than 1 were initially identified, which expressed 67.84% of the variance collectively. For the simplification and interpretability of the factor constructs of the designed scale, and given the low explanatory power of the terminal factors and also considering the agreement of the extracted factors with the concept and the dimensions of the health needs of male adolescents explained in this study, the exploratory factor analysis was repeated by limiting the extraction of the factors to 4 using the varimax rotation. 4 factors eventually expressed 43.22% of the variance. 9 items were unable to obtain the right factor loading at this stage and were therefore eliminated. The remaining 49 items were placed in 4 constructs and given specific names (Table 5). According to the results, items common in more than one factor were placed in the relevant factor according to their distinct nature and based on consultations with the research team. With the agreement of the research team, these constructs were given their old names back; that is, social health needs (13 items), psychological health needs (20 items), sexual health needs (4 items) and physical health needs (12 items), which accounted for 15.22%, 11.26%, 9.83% and 6.9% of the variance, respectively. The scale was scored based on a 5-point Likert scale, from the “totally disagree” option given a

| Item                                                                 | Factor Loading |
|----------------------------------------------------------------------|----------------|
| To be healthy, I need…                                              |                |
| Families to receive health education                               | 0.834          |
| Families able to support my financial needs                        | 0.812          |
| Teachers feeling responsible for providing education to the adolescents | 0.797          |
| Standard equipment and facilities at schools                        | 0.751          |
| My parents to receive child raising education                       | 0.745          |
| To choose decent friends for myself                                 | 0.737          |
| The mass media to offer health education through its programs       | 0.717          |
| Parents to control and oversee my behaviors                         | 0.665          |
| Schools to have youth advisors                                     | 0.612          |
| Parents to give me conditional freedom                             | 0.591          |
| Others to respect my rights in the society                          | 0.586          |
| To include the 5 main food groups in my daily diet                  | 0.572          |
| To shower twice per week                                            | 0.560          |
| Parents to have a good relationship with each other                 | 0.538          |
| To use the free services of my health insurance                     | 0.536          |
| To get 7 to 8 hours of sleep per day                                | 0.531          |

Table 5: Factor loading of each item in four components based on matrix rotation
**Table 5:** Factor loading of each item in four components based on matrix rotation

| Item                                                                 | Social Health Need | Psychological Health Need | Sexual Health Need | Physical Health Need |
|----------------------------------------------------------------------|--------------------|----------------------------|--------------------|----------------------|
| To be healthy, I need…                                               |                    |                            |                    |                      |
| Parents to treat me properly given that I’m going through puberty   | 0.791              |                            |                    |                      |
| Not to be bullied by the other boys                                 | 0.783              |                            |                    |                      |
| Not to be a victim of verbal abuse from the family                  | 0.754              |                            |                    |                      |
| Not to be a victim of physical violence at home                     | 0.747              |                            |                    |                      |
| Family to be affectionate toward me                                  | 0.741              |                            |                    |                      |
| To believe in my own abilities                                      | 0.706              |                            |                    |                      |
| Not being subject to discrimination between the children at home    | 0.694              |                            |                    |                      |
| To have a goal in life                                              | 0.694              |                            |                    |                      |
| To respect and value myself                                         | 0.624              |                            |                    |                      |
| The family to respect me                                            | 0.623              |                            |                    |                      |
| To be given responsibility for things I can handle                  | 0.601              |                            |                    |                      |
| Not to worry about my job prospects                                 | 0.577              |                            |                    |                      |
| To have hope in the future                                          | 0.520              |                            |                    |                      |
| To have faith in God                                                | 0.501              |                            |                    |                      |
| To spend my weekly leisure time as I wish                            | 0.489              |                            |                    |                      |
| To have access to facilities that allow me to have a productive leisure time | 0.461          |                            |                    |                      |
| To have access to affordable facilities enabling me to have a productive leisure time | 0.441          |                            |                    |                      |
| To receive life skill training                                       | 0.420              |                            |                    |                      |
| Parents to treat me properly given our generation gap               | 0.412              |                            |                    |                      |
| To be able to connect with my God                                   | 0.402              |                            |                    |                      |
| Parents to be able to teach me about sexual health                  | 0.463              |                            |                    |                      |
| To receive training about the prevention of HIV and STDs            | 0.407              |                            |                    |                      |
| To be able to control my sexual instincts                           | 0.402              |                            |                    |                      |
| The society to provide me with easy access to sexual and reproductive services | 0.401          |                            |                    |                      |
| To receive education about tobacco, drug, alcohol and psychoactive substance abuse | 0.499          |                            |                    |                      |
| To get dental check-ups twice every year                            | 0.487              |                            |                    |                      |
| To take three meals per day                                         | 0.465              |                            |                    |                      |
| To have easy access to health and medical services                  | 0.461              |                            |                    |                      |
| The school to provide me with sports facilities                     | 0.441              |                            |                    |                      |
| To keep my environment clean                                        | 0.432              |                            |                    |                      |
| To take health precautions when the air is too polluted             | 0.411              |                            |                    |                      |
| To eat out as little as possible                                    | 0.407              |                            |                    |                      |
| To brush my teeth and floss at least once a day                     | 0.405              |                            |                    |                      |
score of 1 to the “totally agree” option given a score of 5. The score of each construct was computed by calculating the mean score of its items, and the overall score of the scale was measured by calculating the mean score of the entire items. The percentage of the total score and factor scores under or equal to 33 was considered as poor health status, between 34 and under or equal to 66 was moderate health status, and finally scores higher than 66 were considered as proper health status.

The reliability assessment of the scale is shown in Table 6. The Cronbach’s alpha before construct validity was 0.73 and 0.77 after construct validation. The scale stability was calculated as 0.89 through the test-retest method and the intra-class correlation index.

| Table 6: Scale Reliability |
|-----------------------------|
| Factors                     | Cronbach’s alpha |
| Social Health Need          | 0.79             |
| Psychological Health Need   | 0.73             |
| Sexual Health Need          | 0.88             |
| Physical Health Need        | 0.77             |
| Whole Questionnaire         | 0.79             |

**DISCUSSION**

The ultimate goal of the health system in every country is promoting the public health and establishing health equity among its community. Conducting a health needs assessment is considered the first step toward the development of health in a country. Studies on health can, therefore, play a substantial role by providing information and guidelines about the planning of strategies for the identification of the needs and implementation of health policies and programs intending to meet these needs. The present study was designed and conducted to realize these goals.

In addition to meeting part of the research needs in the area of male adolescents’ health, which is considered a unique point of strength for the country, the present study was conducted in accordance with the real needs of adolescents and the views of key informants on this subject, and neglecting this crucial issue in needs assessment reduces the reliability of the results. The results of the present study suggest favorable psychometric features, including favorable face, content and construct validities as well as a favorable reliability for the scale. The scale can, therefore, be considered a valid and reliable one for the health needs assessment of Iranian male adolescents.

The face and content validities of the scale were assessed based on the views of male adolescents and experts. Content validity based on the experts’ views is one of the best ways for collecting evidence to support the content of a scale. There are several studies in line with the present one that have used the views of a group of experts to assess the content validity of their proposed scales. In a study entitled “the psychometric features of adolescents’ health concerns’ assessment scale”, the views of adolescents were used to assess their scale’s face validity and the views of experts for the CVI and the CVR to assess its content validity. In their study, more than half of the items had proper impact scores. In the assessment of the content validity ratio, more than half of the items scored above acceptable score (score for the items assessed based on Lawshe’s table), and in the assessment of the content validity index, most of the items scored appropriate and one third of the items underwent the necessary modifications. The mean content validity index for the scale as a whole was calculated and acceptable. In another study entitled “the design and application of a scale to determine the predicting factors of breakfast consumption in adolescents based on the health promotion model”, the views of experts on nutrition, psychology, health, sociology and psychiatry were used to assess their scale’s content validity. This scale was ultimately reported to be a valid and reliable one for finding the factors affecting breakfast consumption in school-aged adolescents.

The construct validity of the MAHNAS measured using the factor analysis method summarized the adolescents’ needs within four factors, including physical, psychological,
sexual and social health needs. A similar study was conducted to design a valid and reliable scale for the health needs assessment of female adolescents. This methodological study used content analysis of qualitative data to extract five main themes, including psychological-emotional, social, physical, educational and beliefs needs. The factor analysis conducted showed the same factors for the scale. As in the present study, the internal consistency method (calculating Cronbach’s alpha) was used to assess the scale’s reliability and ICC index to assess its stability. The results obtained showed a favorable validity and reliability for the female adolescents’ health needs assessment scale. To compare the two studies, both were similar in design, but had different target groups (and the importance of gender differences is self-evident). Although similarities were found in the health needs of male and female adolescents, the differences emerging were related to their structural gender differences. In expressing the mentalities shaping their lifestyle, male adolescents highlighted sexual issues, which is due to the personality features manifested boldly in puberty. The exclusivity of each study based on the specific needs of each gender (male or female) led to results with a high level of accuracy and specificity which supports the wide application of the studies among all adolescents.

Similar to the present study, a study conducted to develop a valid and reliable instrument to assess reproductive health behavior in people living with HIV based on Health Belief Model. For validating this instrument after face and content validity, researchers used exploratory factor analysis. After varimax rotation, five factors were extracted, which expressed forty two percent of the total variance. Also, in a study entitled “Development and psychometrics of institutionalized adolescent spiritual coping scale, exploratory factor analysis was used for assessing the construct validity of the instrument. The results showed that three factors could explain fifty five percent of the variance.

A favorable reliability is a criterion for showing the quality of a scale. The MAHNAS had an acceptable internal consistency and stability. Other studies conducted for the design and psychometric assessment of scales have also used reliability assessment methods to determine the quality of their scale and its acceptability. A study was conducted on the psychometric features of adolescents’ power and problems’ assessment scale in Spain and examined Spanish adolescents using a five-point Likert scale. The factor analysis showed three factors, including adolescents’ behavioral problems, emotional problems and capabilities. The reliability of the scale was confirmed using the internal consistency method of measuring Cronbach’s alpha, which was acceptable for the scale as a whole.

Another study was conducted for the design and psychometric assessment of a scale for examining pre-marital sexual behaviors in young women. Four main themes emerged at the first stage of the study. After determining the validity of the scale, its reliability was determined using the internal consistency method of measuring Cronbach’s alpha, which was acceptable for the scale as a whole and for its different areas. The stability of the scale was measured by calculating ICC, which was proper.

Another study aimed to provide an assessment scale to evaluate Iranian youth reproductive health. This multistage study was conducted to design a valid questionnaire in the domain of knowledge, attitude, and behavior of the youth in order to evaluate behavior change program. A questionnaire was prepared after qualitative research and literature review. Face and content validity was assessed by students and professionals. The result showed that the correlation coefficient and Cronbach’s alfa of the questionnaire were acceptable; compared with our result, the reliability of MAHNAS was evaluated higher, which makes it a more reliable scale than similar scales in health domains.

Other points of strength for this scale
included having addressed the sexual needs of male adolescents based on their distinctive definitions of health, which is considered a peculiar need, given the dominant culture of the country. In Iran, one third of the young Iranian men have experienced pre-marital sex.26 Given the importance of securing sexual health in male adolescents, policymakers are encouraged to prioritize this vital issue as a goal of the national health system and to also focus on securing the health needs of adolescents.

The limitation of this study was using samples as students just in schools, and also not using confirmatory factor analysis in construct validity. It is suggested that another study should be conducted to use male adolescents in public environment, not just schools and confirmatory factor analysis should be applied for the scale in future studies.

CONCLUSION

The results of the present study propose MAHNAS as a valid and reliable scale compatible with the dominant culture of the Iranian society to conduct the needs-assessment of the current status and to help with the planning and implementing of health measures aiming to promote health in adolescents and to further assist public health across the society.

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