DEVELOPING AND PSYCHOMETRIC OF AN INSTRUMENT FOR REPRODUCTIVE HEALTH NEED ASSESSMENT RELATED TO HIV/AIDS IN IRANIAN ADULT MEN

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ABSTRACT

Background: Due to the socio-cultural characteristics of Iranian adult men and lack of standardized questionnaires to assess their reproductive health associated with sexually transmitted diseases and HIV / AIDS, this study is done with the goal of development and psychometrics of a valid relevant instrument.

Method: A mixed method was used in this study. The reproductive health needs of men were investigated using qualitative content analysis according to the views of 40 people who participated in the study and were chosen via purposive sampling. Accordingly, a psychometric questionnaire was designed and features of the questionnaire were determined using formal, content, and construct validity as well as internal consistency reliability and stability.

Findings: The validity index (0.92) and construct validity was analyzed by exploratory factor analysis, which resulted in five factors. Its reliability was estimated using internal consistency, ndCronbach's alpha was 0.88. The analysis ofthe instrument consistency revealed that intraclass correlation index in two phases within two weeks was 0.98.

Finally, a questionnaire with 43 items and 5 factors (required) consisting of "gender-based education and services", "overcoming the challenges of educational services", "adequate support", "correction of cultural beliefs" and "empowerment of women" was prepared.

Conclusion: The designed instrument is valid and reliable. It is culturally appropriate. It is suggested to be used to assess reproductive health needs of adult men in relation to HIV / AIDS and sexually transmitted diseases.

Keywords: men, needs assessments, psychometric tools, AIDS, sexually transmitted diseases

1. INTRODUCTION

Men make up half the population of active members of society and are a key element of family and play an important role in health and development of society [1, 2]. Men's health is of particular concern for cultural and social reasons since a significant portion of the Iranian occupations are run by men, and hence increase the economic productivity depends on physical and mental health of men. Therefore, the health of men has significant impacts on long-term development plans in any country, and should be recognized as one of the most important tenets of family health. The discussion of men's health is expanding and different countries are trying to put forth plants for improving it. Iran is in need of precise planning and attention to the health needs of men [1, 3].

In the International Conference on Population and Development in 1994 in Cairo, it was agreed that meeting needs for education and health, including reproductive health conditions are among the conditions of improving sustainable development. The reduction of the proportion of the risk of HIV / AIDS was also one of the goals [4].

In summary, men make up the whole strata of society and hold majority of power [1] and many cases of STD, HIV/AIDS transfer happen in men [5]. Such diseases are a taboo in Iranian society due to a number of cultural and social reasons, and men are less interested in receiving health care services given their occupation and busy schedule. Therefore, there is a necessity to devise a plan to improve the health of this group. As we all know, need determination is the first step in any kind of planning. Assessment tools proposed to provide evidence in the target population are for designing a health care service system. On the other hand, human health needs are derived from their economic, cultural and social conditions and context of the country they live in, and fulfilling such needs are one way to obtain the approval of individuals [6]. Since the size and nature of needs of our participants are not clear and there is no extensive research and findings regarding the needs of Iranian men regarding

STD disease, HIV and AIDS, little has been known in this regard. Until now, most studies and activities in the field of reproductive health in Iran have focused on women in reproductive age and the importance of men's role has been neglected. Research in the field of sexually transmitted diseases and the needs of men in HIV / AIDS has been based on quantitative studies, mainly focusing on educational needs of these people. Such studies have analyzed the needs of those suffering from such diseases, and no study has yet reported the health needs of fertility health and STD. Many things are unknown about the above topic, and there is no valid and reliable native instrument in Iran to assess and identify the needs in quantitative scale. Therefore, sequential exploratory mixed methods designwas chosen with the goal of determining and exploring the needs of the participants (Men) regarding STD and AIDS. The findings will be finally used to construct a need assessment tool specifically for men. By using qualitative analysis and its findings, first the fertility health needs of men regarding STD, HIV and AIDS will be deeply recognized, and then an instrument will be designed to quantitatively assess the needs of men regarding STD, AIDS and HIV. Using the quantitative instrument derived from section one, analysis possibility of the discovered outcomes of the qualitative part will be provided on a large scale, and known needs will be examined in order to generalize the findings to the broader population.Therefore, extending, approving and disapproving the results of the qualitative phase will be made possible. In addition to qualitative research, stronger scientific evidence will be provided for the authorities because the results in the form of numbers make it easier for people to understand and accept.Furthermore, a scale will be provided to measure and assess the needs of men with such diseases.

2. METHOD

Sequential exploratory mixed-methods design (instrument-development) carried out in two phases. In the first phase, in-depth qualitative study addressed the main needs using content analysis and the main items of the instruments were determined.

Participants in the research were men, officials and specialists and policy makers, hospital and clinics staff, and specialists in infectious diseases, gynecology, urology, dermatology and sexual and reproductive health specialists, many of whom were also among the authorities.They had experience in the field of assessment, counseling and treatment of HIV / AIDS and STD in men, who were willing to work and had enough time to participate in interviews. To resolve the ambiguity in interviews and to match the needs expressed by

ordinary menwith those diagnosed, 4 men diagnosed with HIV and STD were interviewed. Another interview was done with their wives to better assess their statements. The participant selection was purposive and maximum diversity was employed terms of age, marital status, occupation, educational and social - economic-cultural condition in the cities Tehran and Mashhad.After explaining the purpose of the study and obtaining a written informed consent, the participants participate in deep and semi-structured interviews in a different time and place as agreed by the researcher and participant. All interviews were conducted with prior coordination with participants, recording their personal characteristics.Each interview lasted approximately between 30 minutes to an hour.After interviewing 40 participants, due to repetition of the codes and lack of class organization under new class at the time of analysis, data saturation was observed.

After the interviews were finished, verbal and nonverbal interactions were written down and the interviews were transcribed verbatim.Then a couple of times, the manuscripts were carefully analyzed. They formed the unit of analysis, and the authors attempted to get an overall sense from them.The interviews were organized via open coding. Management of extracted codes was done by textual data software MAXQDA10.Repeated study of the extracted codes helped us to identify the similarities and differences between them and to categorize them.Finally, with the progress of the analysis, the relationship between classes and hidden themes in the interviews were extracted.

After termination of qualitative phase and given the findings, a questionnaire was designed to determine the reproductive health needs of men in connection with HIVAIDS and STDs. The intended areas and variables were determined from the classes and codes respectively. In the present study, no similar tool was found, but some items ofquantitative studies in the field of sexually transmitted diseases and HIV / AIDS were used in the item bank, although their objective was not same as ours [7, 8]. Due to the fact that many items of these tools in were present in the study item bank, limited items (6 items) were added to the designed tool.

In the next phase, the questionnaire validity and reliability was analyzed. To determine the face validity of the question was qualitatively studied by interviewing 15 specialists and 15 males in order to correct the content of the questionnaire with respect to writing, logical sentence structure, fluency and naturalness of language.

To assess the content validity of the questionnaire quantitatively, 15 faculty members with specialty in instrument design and gynecology, reproductive health, health education, nursing, public health, psychiatry and infectious disease were used. The experts' agreement with the

necessity of the were evaluated using content validity ratio (CVR) [10]. The next step was to determine that the questionnaire was the best tool is to measure the phenomenon. For this purpose the content validity index (CVI) was used. "An item's content validity index" indicates the ratio of specialists that confirm an item of content as valid [11]. Thus, the experts were asked to determine relevance, clarity and simplicity of each items in the questionnaire in Likert 5 point by Waltz and Basel content validity index of determine. Content validity index for each phrase was estimated by dividing the number of the experts who agreed with that phrase with Likert 3 and 4 by the total number of the experts. If the index was higher than 0.79, that phrase was adopted [12].

To determine the construct validity, after using the internal consistency of the questionnaire phrases, we used exploratory factor analysis that examined the interconnectedness of variables, in order to discover the class of variables that had the greatest relationship with each other. In factor analysis, parallel variables are summarized in the form of new variables called factors. The number of necessary samples in factor analysis varies from 3 to 10 for each item [13]. In this step, 300 samples of the male members of society entered the study. The reliability is the stability and consistency in estimation of the traits or structures in a given instrument. To calculate the correlation in instruments that contain items with Likert scale, Cronbach's alpha coefficient is used [14].

In the present study, Cronbach's alpha coefficient was used to assess the internal consistency. Cronbach's alpha represents the proportion of a group of phrases that make up a structure. To have good and adequate internal consistency, Cronbach's alpha should be between 0.7-0.8 [15]. This test was done in SPSS 16 and 0.7 coefficient was used as the lower limit, in order to achieve the final goal of the instrument and maintain its validity.The internal consistency analysis was conducted in two stages. Cronbach's alpha coefficient was calculated for each factor as well as for the entire questionnaire.

Furthermore, to determine the reliability of the first part of the questionnaire whose items were not on Likertscale,external consistency check was employed together with test-retest method.Therefore, the questionnaires were completed by the target group (adult males) in two stages with an interval of two weeks. [16].Nominal variables were examined both with the help of correlation coefficient.

3. FINDINGS

Data analysis of the content of the interviews led to the explanation of fertility health needs in men regarding STDs and HIV/AIDS in 4 themes including the necessity of effective education based on the need to inform and empower men" and "socio-cultural infrastructure in the light of achieving full support" and "sexual needs based on sexual ethics organized by the Islamic teachings and the empowerment of women" and "optimization of prevention, care and prosperity services. Based on the explanation of concepts and review of the literature in the field of reproductive health needs of men, HIV / AIDS and STDs, a set of items were adjusted in accordance with the themes of the quality section. In this stage, item bank contained 140 item as follows: The first part contained 19 questions about awareness among men, and the second part was the scale of the needs assessment including 121 items and 46 questions about the classes of lack of knowledge, understanding little threat of HIV / STD, the importance of the desirable features of 22 items about culture in accordance with the teachings of Islamic and Iranian culture, attracting the full support, and also 11 questions about Islamic guided productivity sexual instinct, the need for effective management and control over sexuality skills training, strong support for women and 42 questions in the area of socio-cultural and welfare needs on five-point Likert scale (strongly agree, agree, disagree, strongly disagree neither agree nor disagree). After an initial review of items by the team in three meetings and integration of overlapping items and removing inappropriate items, the number of items of awareness assessment questionnaire and the number of items in need assessment scale were respectively reduced to 17 and 80.

In quantitative content validity section (CVR), from the 17 items of awareness survey, one was removed and 16 remained. From 80 items of need assessment, 31 were removed and after separating STDs from AIDS, 12 items were added, and finally 61 remained. The total number of items in this stage was 78.

In the quantitative content validity ratio (CVI) phase, from 61 items, 12 items with CVI <0.7 were excluded, 10 items with 0.7 <CVI <0.79 were reconsidered. As a result 6 items were removed and 4 were modified. The number of items of the need assessment questionnaire decreased to 43 items and no item was excluded from the awareness survey scale (the number of remaining items = 59) and content validity index was 0.92, which demonstrates the acceptability of the instrument according to Politburo and Beck [17].

In this study, after determining the reliability of the instrument, to determine the factors related to the need assessment scale associated with AIDS and STDs in men, exploratory

factor analysis was employed, and need assessment was analyzed in the form of 43 items (N1-N43) in a Likert scale of 5 points.

In order to conduct exploratory factor analysis, principal component analysis (PCA) with varimax rotation was used. In the first phase, commonalities associated with each item was analyzed in order to identify and remove items with shared variances of less than 0.4 . As shown in Table 1, at this stage, no item was found with shared variance below 0.4, so all the items were subjected to factor analysis (Table 1 Location).

Then, the adequacy of the sample size was evaluated by 6KMO test. Williams et al. (2012) believe that when the value of this test is 0.5 and more, factor analysis can be done (18). Bartlett's sphericity test with chi-square test evaluated the suitability of correlation matrix to do the factor analysis. In this test, if the P-value within the significance level, the null hypothesis which is based on the lack of correlation between the variables, will be rejected, and thus the use of factor analysis is appropriate.KMO and Bartlett's test results are shown in Table 2. In this study, adequacy result of Kaiser- Myer- Olkin test was 0.913. (Table 2 Location).

As shown in the above table, KMO test value is above0.5, which shows that the data of 300 samples are sufficient for factor analysis.The significant results of Bartlett's test of sphericity (P = 0.000) also shows the presence of detectable relationships between the items and suggest the adequacy of the items evaluated for factor analysis. Finally, with regard to the special value, 16 factors were extracted for assessment tools, which explains 71.16 % of variance after the varimax rotation. The total variance of needs assessment questionnaire based on a factor analysis is specified in Table 3 (Table 3 Location).

For a better interpretation of the factors, kitty litter chart was used. This chart is employed to determine the number of factors, which draws on special values. In this chart, a straight line is drawn along the special values from right to left until a deviation is caused in the line. Figure 1 shows the number of factors related to needs assessment. (Fig 1 location).

Given the special value, the value of variance determined by the factors, the percentage of the total variance and kitty litter chart, logical interpretation, backing assumption of the qualitative part and redoing of factor analysis to determine the number of agents, the final decision was made. From the 16 factors of need assessment instrument, 8 factors were selected. Items 9-16 of need assessment instrumentwere merged and modified based on the listed criteria, and in terms of the number of items and logic of distribution. Finally, 8 factorsremained in the needs assessment instrument with 43 items and cumulative variance

percentage of 50.7%. After the final determination of the factors, factor analysis was run again with a certain number of factors and varimax rotation. Three words that could not earn at least 0.4 of factor loadings or had repeated concepts were removed. The remaining 40 were classified in eight constructs (the scale). With the approval of the research team, these constructs were respectively called by the name of "the need for gender-based services and education" (8 items), "the need to overcome the challenges of educational services" (5 items), "the need for enough support and facilities" (7 items), "the need to correct cultural beliefs" (5 items), the need for the empowerment of women "(5 items), "sexual needs" (3 items), "educational needs" (4 items), need to destigmatization" (3 items). Items that were common in more than one factor were considered as one factor given higher factor load, the nature of the items, and consultation with members of the research team.Due to having limited items (three items), the eighth factor was combined with the second factor, and the sixth and seventh factorswere also combined with the first and third factor due to common items. Finally five primary factor remained respectively with 12 and 8, 7, 8 and 5 items, which showed respectively82.33%, 11%, 6.12%, 10.92% and 4.7 % of the variance expressed .

Scoring the items of the designed instruments ranged from 1 to 5. Item 1 was for "I disagree" and 5 was for "completely agree".The score for each construct was calculated by determining mean of that construct items, and the questionnaire total score was determined by calculating the mean score of the total items.

4. RELIABILITY

In this study, to determine the reliability of scale, the internal consistency (Cronbach's alpha) was estimated. Accordingly, internal consistency was determined in two steps, once before factor analysis and with 30 samples that participated in the pilot study and face validity test and once before and after factor analysis with 300 samples. Cronbach's alpha coefficient was measured for five factors, as well as for the entire questionnaire. The result of the initial questionnaire reliability was 0.92. The Cronbach's alpha coefficient for the questionnaire factors after factor analysis was $0.7 - 0.9$ and for the total scale was 0.8. Men's information questionnaire reliability was evaluated by test-retest. 10 men participating in research after 7-10 days filled the awareness survey again. The data were analyzed using Pearson correlation coefficient. The Pearson correlation coefficient was 0.3-0.8. The difference between the scores was not significant ($p > 0.05$).

5. DISCUSSION

This study was concerned with the concept of reproductive health needs of men in the field of STDs and HIV / AIDS. In many studies, despite much attention given to methodology of research or data analysis, researchers pay less attention to the validity of their instrument, and they suffice to the pretested validity of their research instrument. However, this can be to an extent logical, but it should be specified whether or not the validation of instrument in the previous studies has been done correctly. It should also be determined to what extent the instrument is capable of being used in the new condition [15].

There is a possibility that a very valid instrument becomes invalid a new or different condition or population since research instruments are generally designed for the needs of a specific group or a different purpose [19].

One strength of this study is that more than 90% of the questionnaire items were designed according to an interview with men and key specialists, which raises the precision of the instrument since the items are derived from a text written in the depth of one culture and society, thus they may be different from items of another questionnaire written in a different culture, region and country, and I can be in more concordance with Iranian culture. Therefore, the results of this study provide proper evidence regarding the solidness of factor analysis and research instrument reliability for Iranian male reproductive health needs associated with STDs and HIV / AIDS based on the understudy psychometric process. Producing questionnaire items based on individuals' comments instead of merely reviewing the previous literature increases the precision in designing the questionnaire regarding consistency between that and the target society. Different between the findings of this study and those of instrumentation studies on STDs and AIS is due to differences in socio-cultural features of different societies, which can cause variation in basic needs of men and prioritization of such needs in the mentioned domains.

To determine the scientific validity of the instrument, the initial format of the questionnaire was given to 15 specialists in different fields. In many studies, to determine the instrument validity less people are employed in specialist panel, which could be acceptable in topics with limited nature and scope. However, regarding topics such as investigating the needs of Iranian men or other health problems with extensive social, cultural, psychological, medical, behavioral and economic aspects, more specialists and scholars in different domains, who have a robust understanding of the topic should be employed. This can add to the value of our psychometric analysis, the importance of which has been clearly shown in this research.

In searching for assessment tools in relation to sexually transmitted diseases and AIDS in the literature and previous studies, we found no instrument with similar purpose for men's community, and the existing instruments were for the needs of patients [9, 20]. However, our intention here was to design an instrument for normal men in society. Furthermore, psychometrics in the previously designed questionnaires for patients is for stigma, life quality and healthcare rather than focusing on their needs. It can be stated that this is the first instrument for assessing the health needs of men's population regarding STDs and HIV/AIDS. The analysis of the instrument construct validity by factor analysis revealed 5 factors for needs consisting of "gender-based education and services", "overcoming the challenges of educational services", "adequate support", "correction of cultural beliefs" and "empowerment of women". In a study on designing an instrument for analysis of men's needs, construct validity (factor analysis) was used to determine the dormant factors in the instrument. In this study, first 140 phrases were designed. After a number of sessions with the research team, eliminating the improper items and merging the overlapping items, the number of items dropped to 96. After analyzing face and content validity, the number of phrases was 43. Then construct validity of the instrument was checked by completing a questionnaire by 300 male adults in the society. Finally the designed phrases were categorized into 5 domains.

In the present study, gender-based education and services had 12 items, which show a health policy with the purpose of giving awareness. These items are numbered reversely, and the high sum score shows the lack of information and awareness in this regard in the society. This is the biggest construct of the instrument and has occupied 12.33% of the overall variance. The items of this construct have attained cronbach alpha 0.813, which shows the internal consistency and correlation of this construct items. Need to education proper for job environment had the highest factor load (0.763), which shows the most important feature of education, which the participants of qualitative section emphasized. In other words, the highest number of men's needs was for education. To confirm this finding and that men's health education is important for regeneration. Hajizadeh et al (2015) only deal with health education needs in men. They found that the second most frequent need of men was education regarding STDs and AIDS [7].

In the existing designed instruments for patients, one issue emerging after factor analysis is stigma of STDs especially AIDS [20]. This was evident in the interviews with the participants, and many said that stigma related to AIS prevents those who are in danger from referring to health clinics or medical consultation. That is because even if individuals feel a

threat from such diseases, they prefer that their disease remains a secret since they are afraid of being disgraced and abandoned. This was evident in nee to correction of cultural beliefs. Socio-cultural needs in this study contain the same stigma, yet it did not come out as a single and independent construct.

The difference between the findings of this study and those of instrumentation studies in the field of STDs and AIDS is related different socio-cultural context of that society, which can cause difference in the basic needs of men and the prioritization of such needs in the mentioned domain. One difference that is culturally manifest in the questionnaire phrases and is also specific to our religion and culture is the emphasis on commonly accepted views and values in Iranian and Islamic society, an example of which is clear in need to support and facility. In other words, sexual needs are an undeniable basic fact and a blessing from God for the human beings regeneration. These needs have to be guided in the right path, and deviation from divine orders regarding sexual abstinence increases STDs and AIDs, which is specific to Iranian and Islamic culture and has emerged in the questionnaire. As per phrase "men have to be loyal to their married life, in order to decrease STDs and AIS. Some phrases have specific meaning in our society and community and are not in compliance with their meaning in western culture and society. Thus, it is necessary to note that in instrumentation studies, designing the questionnaire should be based on personal experiences of people and be based on their cultural constructs [21], which is a firm grounds for doing instrumentation research in different cultural contexts and among the two gender groups.

The validity of the present questionnaire was assessed in the light of specialists comments, which is the best method for collecting evidence to support an instrument [22].

One of the most important criteria for assessing the quality of an instrument is the existence of reliability in it. This questionnaire enjoyed a proper level of internal consistency and stability. A reliable instrument increases the potential of an study to distinguish the differences and significant relationships that are actually in run in a research [23].

6. CONCLUSION

In this study, we attempted to determine the validity of the research instrument by psychometrics and stating the related details in order to provide evidence in support of the instrument validity regarding constructs of the health reproductive needs of men with respect to STDs and HIV/AIDS. According to the findings of this study, Men's Reproductive Health Needs Assessment Questionnaire can be used as valid and reliable instrument that is in

agreement with Iranian cultural context in order to assess the reproductive health needs of men especially now that STDs and HIV/AIDS are among the most important concerns of world health institutions and that men have a huge role in this regard. That is because the instrument is designed based on understanding the concept of reproductive health needs from the viewpoint of men and experts via deep and qualitative research, and that it was adequately reliable and valid. The questionnaire had proper phrases (40), which makes it possible to get filled in a rather short time. This instrument can help us to focus on this issue and put a step toward national policies and objectives of WHO.

7. ACKNOWLEDGEMENT

8. REFERENCES

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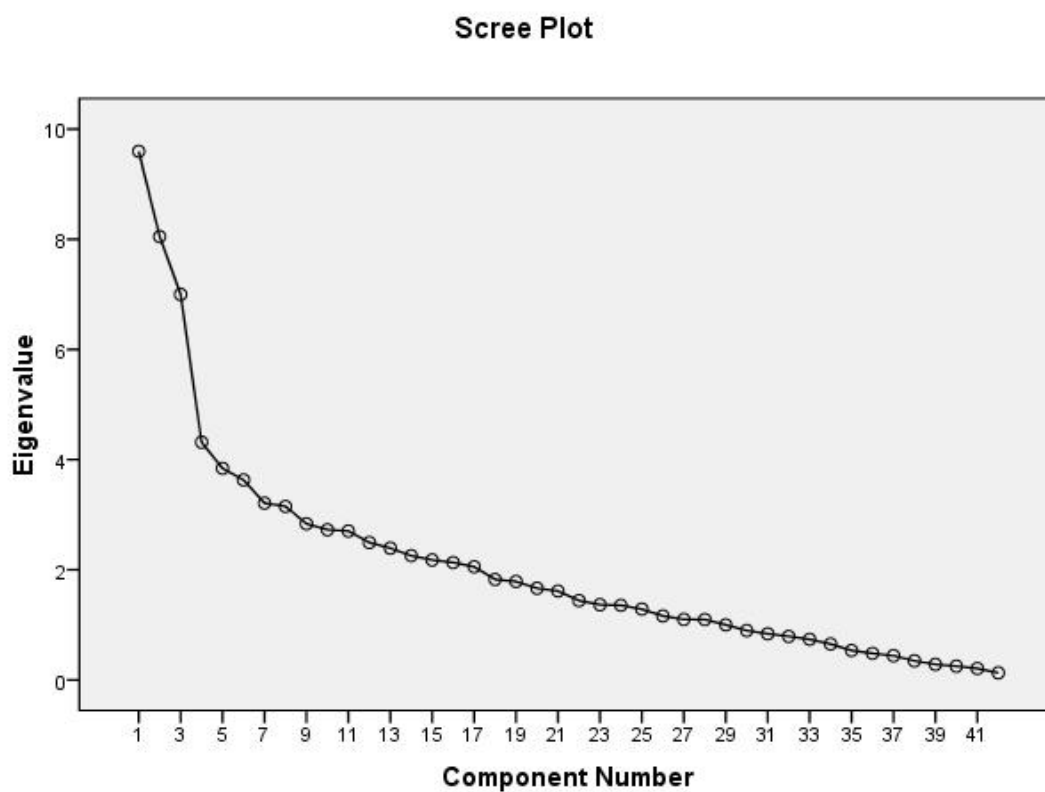
Table1. The Initial Eigenvaluesa and the percentage of variance explained

Component	Initial Eigenvaluesa			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.596	10.924	10.924	9.596	10.924	10.924	6.626	7.542	7.542
2	8.049	9.162	20.086	8.049	9.162	20.086	4.426	5.038	12.580
3	6.999	7.967	28.053	6.999	7.967	28.053	5.210	5.930	18.511
4	4.316	4.913	32.966	4.316	4.913	32.966	4.908	5.587	24.097
5	3.842	4.374	37.340	3.842	4.374	37.340	4.262	4.851	28.949
6	3.632	4.134	41.474	3.632	4.134	41.474	3.853	4.387	33.335
7	3.210	3.654	45.129	3.210	3.654	45.129	3.921	4.463	37.799
8	3.151	3.587	.71550	3.151	3.587	.71550	3.293	3.748	41.547
9	2.836	3.228	51.943	2.836	3.228	51.943	3.371	3.838	45.385
10	2.727	3.104	55.047	2.727	3.104	55.047	3.146	3.582	48.966
11	2.703	3.076	58.124	2.703	3.076	58.124	2.830	3.222	52.188
12	2.495	2.840	60.964	2.495	2.840	60.964	4.082	4.647	56.835
13	2.393	2.724	63.687	2.393	2.724	63.687	3.297	3.753	60.589
14	2.255	2.568	66.255	2.255	2.568	66.255	2.767	3.150	63.738
15	2.177	2.479	68.733	2.177	2.479	68.733	3.785	4.308	68.047
16	2.132	2.427	71.161	2.132	2.427	71.161	2.736	3.114	71.161

Table2. Sample Adequacy for Factor Analysis

.913	Kaiser- Myer-Olkin's test)KMO (	
1.012E4	X2	Bartlett's Sphericity test
1540	Freedom degree	
.000	Sig	

: Scree Plot

Scree Plot