Public Health Section

Evaluation of Validity and Reliability of Persian Version of the Gender Equitable Men-Scale (GEM-Scale) in Male Students, Iran

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ABSTRACT

Introduction: Gender inequality and gender-based discrimination and violence undermine the opportunities and facilities of women and have negative effect on sexual and reproductive health behaviours. Given the importance of men's role in establishing gender equality, awareness of men's attitude towards gender equality is very important. However, there are no valid tools for measuring the attitude of men towards gender equality in Persian.

Aim: This study was conducted with the aim of investigating the validity and reliability of Persian version of Gender Equitable Men-Scale (GEM-Scale) in Male Students of Nursing and Midwifery school, Mashhad University of Medical Sciences in 2015.

Materials and Methods: This study was a methodological and validation study. A total of 232 male students of Nursing and Midwifery School of Mashhad University of Medical Sciences were selected through census method. The data collection tool was Persian version of GEM-scale. Factor analysis was used to examine the factor structure of the tool and Cronbach's alpha coefficient was used to investigate the reliability of the tool. The analyses were conducted using LISREL software version 8.8 and SPSS version 20.

Results: The fitting indices of the confirmatory factor analysis model showed that the fitting of the two-factor model was appropriate (CFI, GFI, AGFI near 1, RMSEA index less than 0.1, and χ^2/df ratio less than 3). Cronbach's alpha coefficient for the whole tool was obtained 0.79, showing that the internal reliability of the tool is also acceptable.

Conclusion: The present study confirmed two-factor structure of the Persian version of GEM-scale, which includes inequitable gender norms subscale and equitable gender norms subscale. Therefore, this tool is suitable for assessing the attitude of men towards gender equality in Farsi-speaking men's society.

Keywords: Gender-based discrimination, Masculinity, Men's role, Norms

INTRODUCTION

Gender inequality, gender-based discrimination and gender-based violence are common in almost all aspects of life, and undermine women's opportunities and facilities and deprive them from full enjoyment of human rights, also having negative effect on sexual relationship [1].

Sexual relationship is one of the major causes of marital satisfaction, and its dissatisfaction can even lead to marital disruption [1-4]. Wide discrimination against women constitutes a major barrier to access the rights and the path to the advancement towards all the millennium development Goals [1,5-7]. It can be said that part of what women endure in their sexual life is the result of economic, social and cultural conditions, and in particular due to gender inequalities that can have a negative effect on sexual and reproductive health behaviours [8,9].

The Cairo Conference has emphasised that changing the knowledge, attitude and behaviour of men and women are both prerequisites for achieving a balanced and coordinated partnership between husband and wife, and the role of man in establishing justice between the two sexes is fundamental and significant. In addition, planning for gender equality and achieving equality and justice between women and men and the full participation of women in decision-making processes in all aspects of life can improve the lives of men and women by providing continuous benefits for future generations and open up the path to a truly sustainable development [6,8]. In order to carry out corrective actions regarding the removal or modification of the existing situation, it is first necessary to know, to be aware of the unequal and unfair situation which is then followed by the transformation issue [9]. Awareness of inequality involves the knowledge of superior and dominant groups against inferior groups [10].

Therefore, awareness of men's attitude towards gender equality is very significant for establishing gender equality, but the problem that is currently seen in Iran is that there is no tool for measuring the attitude of men towards gender equality. Pulerwitz J et al., designed the English version of GEM-Scale to examine the attitudes of men towards gender equality in Brazil, which is the only tool in this area [9]. The strengths of this tool are its desirable reliability and validity as well as its special design for men. Finally, as mentioned, since there is no valid tool for measuring the attitude of men towards gender equality in Persian language, and because the issue of gender and gender equality are affected by the culture and social conditions of a community, there is a need for a Persian version and investigation of its reliability and validity for Iranian men. Therefore, the researchers decided to evaluate the methodology and validation of factor structure and reliability of the Persian version of GEM-Scale.
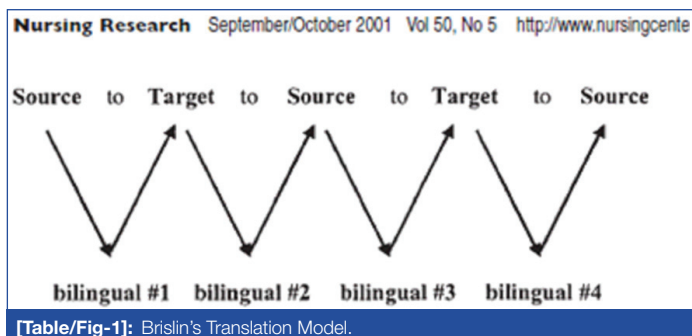
MATERIALS AND METHODS

This study was a methodological and validation study. The statistical population of this study comprised all male students studying at the Faculty of Nursing and Midwifery of Mashhad University of Medical Sciences in 2015-2016 who were entered into the study by census. Appropriate decision on sample size in methodological and validation studies is at least 10-15 times the number of factors. In the present study, 232 male students participated.

After getting approval for the research in the ethics committee of the university and obtaining permission from it, the researcher referred to the research environments and conducted the research. The researcher provided the necessary explanations about the purpose, the manner of conducting the research and the authority to discontinue the study to all eligible students of the research (based on the participation selection form) and obtained their consent to participate in the research. The inclusion criteria were: being Iranian, studying in a bachelor's degree, passing at least one semester. In the case of incomplete answers to the questionnaires, the subjects were excluded from the study.

The data collection tools were:

1　The individual and social characteristics questionnaire, that was a researcher-made questionnaire containing questions related to personal and social specifications including age, field of study, marital status, place of residence, educational status, residency, education level, occupation of the parents, economic and social status and so on.

2　The English version of the GEM-Scale consists of 24 items on gender equality, including item related to reproductive and sexual health, sexual relations, violence, housework and homophobia. Each item was scored on a 3-point Likert scale (agree=3, relatively agree=2, disagree=1). The questionnaire has seven negative items that are scored in reverse order and the total score of individuals is in the range of 24-72. The higher score of the questionnaire means that the attitude of the individual towards the gender equality is more positive and the student tends to be more inclined to support gender equality. GEM-Scale includes two subscales of Equitable Gender Norms and inequitable gender norms. A: The inequitable gender norms subscale has 17 items. From items 1 through 17, each item is scored between 1 to 3 based on 3-point Likert scale (agree=3, relatively agree=2, disagree=1). The minimum score in this subscale is 17 and the maximum score is 51, B: The Equitable Gender Norms subscale has 7 items. From items 18 through 24, each item based on 3-point Likert scale is scored between 1 to 3 (reversely) (agree=1, relatively agree=2, disagree=3). The minimum score in this subscale is 7 and the maximum score is 21 [9].

Validity of the questionnaires was confirmed using content and face validity method. In order to translate the GEM-Scale, the Brislin's model, translating, and back-translating were used [Table/Fig-1], which is a well-known model for providing viable and reliable tools for intercultural research. Based on this model, a fertility health professional who speaks English and Persian, first translated the tool from English (primary language) into Persian (target language), then another reproductive health specialist who is expert in English-Persian without accessing to the original Englidsh version (blindly) back-translates the translated tool to English (the back-translated version), if there was an error or contradiction in the comparison between the original version and the back-translation, then those options in the original version were translated from English to Farsi, then another reproductive health expert who was fluent in English and Persian language, back-translated the Persian version into English, this process was repeated until there was no error in comparison between the original version and the back-translated version.

[Table/Fig-1]: Brislin's Translation Model.

In the present study, the validity of the Persian version was verified by qualitative method using the content and face validity by a research team and several relevant experts and students. To determine the face validity, using the qualitative method, the Persian version of the scale was provided to 10 experts related to the subject of research and 8 eligible students. Their views were collected on the level of difficulty, the degree of disparity and ambiguity and based on which the necessary amendments were made. Also, to determine the content validity with a qualitative method, the tool were investigated based on grammatical criteria, using proper words, placing items in their proper place, and appropriate scoring by experts and the necessary corrections were made in the items [11,12].

Confirmatory factor analysis, maximum likelihood method and LISREL software version 8.8 were used to investigate the fitness of the two factor GEM-Scale model. In the present study, various indices of fit and structural coefficients of the model were used to examine the fit of the model. Comparative Fit Index (CFI), Goodness of Fit (GFI), Adjusted Goodness of Fit (AGFI), Root Mean Square Error Approximation (RMSEA) and chi-square index, and its corresponding degrees of freedom were used to study the fit of the confirmatory factor analysis model. It should be noted that the index RMSEA ≤0.05 indicates a good fit, 0.05≤RMSEA≤0.08 indicates reasonable and acceptable fit, 0.08≤RMSEA≤0.1 represents an average fit and RMSEA >0.1 indicates that the fit of the model is unacceptable. The value of the chi-square ratio to the degree of freedom is acceptable between 1 to 5 ($1<\chi^2/df<5$). If the $\chi^2/df<1$, the fit of the model is weak and if $\chi^2/df>5$, it indicates that the model needs to be improved and the CFI, GFI, and AGFI indices bigger than 0.9 are shown an acceptable model [13-16]. Cronbach's alpha coefficient and SPSS software version 20 were used to investigate the internal reliability of the tool.

RESULTS

In the present study, 232 male students of Mashhad Nursing and Midwifery Faculty participated to assess the attitude of men towards gender equality. Due to the lack of complete response of participants 41 questionnaires were excluded and 191 questionnaires were analysed.

The mean age of participants was 22.67±4.10 years. Married participants comprised 40(21.0%) of the participants. Nearly half of the participants 101 (53%) were studying nursing and the rest of the students were studying in the fields of operating rooms, anesthetics, and medical emergencies. The mean subscale score was 36.67±4.19, the mean score of equitable gender norms subscale was 16.65±2.92 and the mean of total male attitude toward gender equality was 53.32±5.42.

In the content validity stage by qualitative method, according to experts, three items of the questionnaire were removed (items 5, 11 and 16 of the inequitable gender norms subscale) due to inappropriateness in Iranian culture, so the Persian version of the GEM-Scale consists of 21 items. Each item is scored on a 3-point Likert scale (agree=3, relatively agree=2, disagree=1) and the total score of individuals is in the range of 21-63. The higher score of the questionnaire means that the attitude of the individual towards the gender equality is more positive.

To ensure the feasibility of performing factor analysis, KMO statistic was first computed to determine the sampling adequacy. Since the KMO=0.84 was more than 0.8, the sampling adequacy condition was established. Then, Bartlett's test of sphericity was carried out to ensure the justification of factor finding. The result of the Bartlett's test showed that the null hypothesis was rejected with the statistics 1279 at 95% level, the factor finding is justifiable. Then, to verify the construct validity, confirmatory factor analysis was performed using LISREL software version 8.8. [Table/Fig-2] shows the indices of the confirmatory factor analysis model. The results show that the CFI, GFI, and AGFI indices are close to 1, and the RMSEA index is less than 0.1. Also, the ratio of χ^2/df is less than 3, thus goodness of fit of 2-factor model is appropriate.

Fit index of the model	CFI	GFI	AGFI	RMSEA	χ^2/df
Value	0.93	0.90	0.80	0.07	2.53

[Table/Fig-2]: Goodness of fit indices in confirmatory factor analysis model of the Persian version of GEM-Scale.

The standard factor loads, multiple correlation squares, and the value of the t-statistic for each item are given in [Table/Fig-3]. The results indicate that in the inequitable gender norms subscale, the item 14, and in the Equitable Gender Norms subscale, the item 21 were not significant (t-statistic was less than 1.96). Except for these two items, the remaining items were significant in their subscales. Since in the inequitable gender norms subscale, items 5, 6, 9, and 11 had a higher standard load factor than the rest of the items, so they are better indices for their subscales. So that 75% (R^2=0.75) of the variation of item 5 is expressed using inequitable gender norms subscale. Also, the inequitable gender norms subscale expressed 64%, 69% and 61% of the variations of items 6, 9 and 11. In the Equitable Gender Norms subscale, items 15 and 18 are better indices for this subscale. So that 81% and 75% of the variations of items 18 and 15 were explained by the Equitable Gender Norms subscale.

Also, the results showed that in the first subscale, item 4 and in the second subscale, item 19 are the weaker indices than the rest of the items, so that only 30% of the variations of the item 4 are explained by the first subscale and 57% of the variations of the item 19 by the second subscale.

After removing items 14 and 21, Cronbach's alpha coefficient was used in order to verify the reliability of the GEM-Scale. The results showed that Cronbach's alpha coefficient for the whole tool, the inequitable gender norms subscale and for the second subscale was 0.79, 0.80 and 0.79, respectively. Since the Cronbach's alpha coefficient is more than 0.7, the internal reliability of the Persian version of the GEM-Scale is established.

DISCUSSION

The aim of this study was to investigate the factor structure and reliability of Persian version of GEM-Scale in 2015-2016. Despite the fact that items 14 and 21 were not significant (t<1.96), the results of the confirmatory factor analysis showed that the fit of the model is appropriate (CFI, GFI, AGFI and NFI indices are close to 1 and the RMSEA index is less than 0.1). In this way, like the two-factor structure of the English version of the GEM-Scale, the two-factor structure of the Persian version of this scale is confirmed by the factors of gender inequality and gender equality. Also, the Persian version of this GEM-Scale has a proper internal consistency (Cronbach's alpha coefficient equal to 0.79). In this study, the internal consistency for the whole scale was equal to 0.79. In fact, the results of the present study showed that after removing five items, the subscales extracted and the internal consistency of the Persian version of the GEM-Scale is established.

Therefore, the Persian version of the GEM scale seems to be appropriate for assessing men's attitudes toward gender equality

Subscale	Items	Standardised factor loading	R squared	t statistic
Inequitable gender norms subscale	1. It is the man who decides what type of sex to have	0.75	0.56	11.47
	2. A woman's most important role is to take care of her home and cook for her family	0.41	0.17	5.54
	3. Men need sex more than women do	0.42	0.18	5.75
	4. You don't talk about sex, you just do it.	0.51	0.26	7.13
	5. Changing diapers, giving the kids a bath, and feeding the kids are the mothers responsibility	0.40	0.23	4.01
	6. It is a woman's responsibility to avoid getting pregnant	0.64	0.41	9.32
	7. A man should have the final word about decisions in his home.	0.42	0.17	5.66
	8. Men are always ready to have sex.	0.48	0.23	6.68
	9. There are times when a woman deserves to be beaten	0.62	0.39	9.04
	10. If someone insults me, I will defend my reputation, with force if I have to	0.55	0.31	7.82
	11. A woman should tolerate violence in order to keep her family together	0.61	0.37	8.75
	12. I would be outraged if my wife asked me to use a condom	0.40	0.23	6.66
	13. It is okay for a man to hit his wife is she won't have sex with him.	0.80	0.64	12.75
	14. It disgusts me when I see a man acting like a woman	0.03	0	0.34
Equitable gender norms subscale	15. A couple should decide together if they want to have children	0.75	0.57	11.43
	16. In my opinion, a woman can suggest using condoms just like a man can.	0.64	0.40	9.12
	17. If a man gets a woman pregnant, the child is the responsibility of both	0.65	0.43	9.44
	18. A man should know what his partner likes during sex.	0.81	66/0	12.63
	19. It is important that a father is present in the lives of his children, even if he is no longer with the mother.	0.57	0.32	7.93
	20. A man and a woman should decide together what type of contraceptive to use.	0.67	0.45	9.73
	21. It is important to have a male friend that you can talk about your problems with.	0.12	0.01	1.52

[Table/Fig-3]: Results of confirmatory factor analysis of the Persian version of GEM-Scale.

among Persian speaking peoples, because awareness of inequality involves knowing the dominant groups against subordinate and unprofitable groups [10]. Therefore, for establishing gender equality, awareness of men's attitude towards sexual equality is

very significant, and awareness of men's attitude also needs proper investigation and information so that appropriate programs can be designed based on them [8] and the Persian version of the GEM-Scale can be useful in achieving these goals. By knowing men's attitudes toward gender equality, government can promote equal participation of women and men in all aspects of family responsibilities such as responsible parenting, sexual behaviour and reproduction, preventing the transmission of sexually transmitted diseases, and contributing to income regulation and children's welfare [17-22].

LIMITATION

The present study was the first study to investigate the factor structure and reliability of Persian version of GEM-Scale and that it was conducted in male students of Faculty of Nursing and Midwifery of Mashhad University of Medical Sciences, therefore, due to the limitations in terms of generalisability, it is suggested to conduct more study on its application in other men in Iran.

CONCLUSION

The present study confirmed the two-factor structure of Persian version of GEM-Scale, which included two subscales of Equitable Gender Norms and inequitable gender norms.

Therefore, due to the lack of reliable and valid instruments in accordance with Iranian culture to measure the attitude of men towards gender equality, the designed tools are considered appropriate and further research is recommended to apply it to other men.

ACKNOWLEDGEMENTS

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FINANCIAL OR OTHER COMPETING INTERESTS: None.