Original Article

Does the Farsi version of attitude toward plagiarism questionnaire have acceptable psychometric properties?

Saleheh Tajalli[1], Mansoureh Ashghali Farahani[2], Mazlome Hamzekhani[3], Azam Shirinabadi Farahani[4], Nima Pourgholam Amiji[1], Martina Mavrinac[5], Roqayeh Aliyari[6*]

1. Researcher, Nursing Care Research Center (NCRC), School of Nursing and Midwifery, Iran University of Medical Sciences, Tehran, Iran.
2. Professor, Nursing Care Research Center (NCRC), School of Nursing and Midwifery, Iran University of Medical Sciences, Tehran, Iran.
3. Instructor, Department of Midwifery, School of Nursing and Midwifery, Shahroud University of Medical Sciences, Shahroud, Iran.
4. Assistant Professor, Department of Pediatric and Neonatal Intensive Care Nursing, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
5. Professor, Department of Medical Informatics, Faculty of Medicine, University of Rijeka, Rijeka, Croatia.
6. Assistant Professor, Ophthalmic Epidemiology Research Center, Shahroud University of Medical Sciences, Shahroud, Iran.

Abstract

This study aims to assess the psychometric properties of the Persian version of the Attitudes Toward Plagiarism Questionnaire (ATPQ) among Iranian medical sciences postgraduate students and faculty members.

In this study, the ATPQ developed by Mavrinac et al. in 2010 was translated into Persian. After assessment of face and content validity, we distributed the ATPQ draft among 286 Iranian medical science postgraduate students and faculty members. Explanatory and confirmatory factor analysis were applied, and Cronbach's alpha was used to measure the reliability of the ATPQ.

All the items of our English version of the ATPQ were approved by the developer of the original ATPQ, and two were revised in the cognitive interview. Construct validity assessment showed that three items were not seriously involved in the extracted factors. The Persian version of the ATPQ had 26 items, five factors and a Cronbach's alpha of 0.81%, and the combined value explained 38.24% of the total variance of this scale.

Two new factors of “perceived control” and “attitude toward self-plagiarism” were extracted and incorporated into the Persian version.

To conclude, the ATPQ is a valid, reliable, and convenient instrument to determine attitudes toward plagiarism among Iranian medical science postgraduate students and faculty members.

****Corresponding Author***

Roqayeh Aliyari
Address: *Shahroud University of Medical Sciences and Health Services, Hafte Tir Square, Shahroud, Iran.*
Postal Code*: 3614773955*
Tel: *(+98) 23 32 39 16 09*
Email: *aliyari@shums.ac.ir*

Received: *8 Nov 2021*
Accepted: *6 Feb 2022*
Published: *8 Mar 2022*

Citation to this article:
Tajalli S, Ashghali Farahani M, Hamzekhani M, Shirinabadi Farahani A, Pourgholam Amiji N, Mavrinac M, et al. Does the Farsi version of attitude toward plagiarism questionnaire have acceptable psychometric properties? J Med Ethics Hist Med. 2022; 15: 1.

Keywords: *Plagiarism; Translations; Attitude; Psychometrics.*

Introduction:

Recently, academic dishonesty, cheating, deception and plagiarism have become increasingly common as a type of fraud (1). The intentional or unintentional use of words, ideas and phrases in quotations from oneself or others without proper explanation and credit to the work or the owner of the work is tantamount to plagiarism (2). Plagiarism is an emerging and growing phenomenon in the academic community. It is a form of aggression and non-commitment to knowledge (3, 4), and is therefore morally wrong.

Plagiarism is a serious issue among researchers and academicians that is being challenged on a global scale (5). Credentialism and grade orientation are the major factors influencing student plagiarism. Other related factors are lack of self-efficacy of students in conducting research and writing scientific reports, absence of proper mechanisms to identify and punish plagiarizers, socio-cultural factors, and inadequate prior training in citation and identification of plagiarism types (6). Teachers may fail to recognize and respond to students' plagiarism during high school or non-formal education. In addition, pressure factors, inadequate training in the identification and prevention of plagiarism at the university, having no fear of punishment and reprimand, and the opening of virtual and electronic spaces also affect plagiarism (6,7). We found attitude to be among The most influential factors in plagiarism, which is consistent with the findings of previous studies (8, 9). Based on former study results, attitude toward prior research is one of the most influential factors affecting dishonest behavior (10 - 12).

In 2016 Hadji et al. conducted a study to investigate the unethical behavior of Iranian authors in scientific writing. The researchers found that in Iran, scientific misconduct includes data fabrication (15.4%), plagiarism (4.90%), adding guest authors (18.1%), wrong study methodology (12.65%), and salami slicing (5.6%) (13). Babaii et al. investigated the reasons for plagiarism among Iranian students and concluded that the main reasons were students' ignorance about plagiarism, lack of time, and poor language and academic writing skills, as well as teachers' negligence, laziness and guilelessness, high expectations, and finally shortcomings in the educational system and its policies (14). The rate of research and academic writing is increasing globally, and therefore prevention of plagiarism seems essential. Ajzen (1991) found that the attitude toward an action is prediction of the intention behind a behavior and its actual performance (15). Therefore, it is important to study the level of awareness about, and attitude toward, plagiarism (16).

The assessment of academics' attitudes toward plagiarism, one of the most important research topics, should be done prior to practice (17).

In order to assess attitudes toward plagiarism, it is critical to select an appropriate scale. Previous research has also identified the need for a valid measure (18), and a few reliable instruments have been developed to assess attitudes toward plagiarism (18, 19). The Attitudes toward plagiarism questionnaire (ATPQ) developed in 2010 by Mavrinac et al. is a formative general indicator of attitudes toward plagiarism (19). The main advantage of this instrument over others is its comprehensiveness and solid theoretical background based on Ajzen's Theory of Planned Behavior (TPB) (15). Therefore, our aim was to evaluate the psychometric properties of the translated Persian version among Iranian medical science postgraduate students and faculty members.

Methods

This methodological study aimed to translate the ATPQ into Persian and assess its psychometric properties among Iranian medical science postgraduate students and faculty members between December and February 2020.

The Attitude toward Plagiarism Questionnaire (ATPQ)

This questionnaire was developed by Mavrinac et al. in 2010. The original ATPQ covers three factors: positive attitude, negative attitude and subjective norms, and has 29 items based on a five-point Likert scale (1= strongly disagree, 2= disagree, 3 = neither agree nor disagree, 4 = agree, and 5 = strongly agree).

The scoring of items 18 and 24 is reversed. The total score can be calculated using this formula: Sum of Positive Attitude + Sum of Subjective Norms + (6*7 - Sum of Negative Attitude).

An average score of 25-39 represents positive attitude, 12-20 negative attitude, and 21-31 subjective norms, and the total score may vary between 58 and 88 (19).

Translation technique

The first author obtained the consent of the developer of the ATPQ (Mavrinac et al) to translate and validate the ATPQ. Next, two native speakers of Persian who also spoke English and were experienced in translation of medical educational tools each translated the ATPQ independently according to the guidelines of the World Health Organization (20). Then the coauthor merged and unified the draft of the two translations into a single document. Next, an expert panel consisting of three professionals experienced in medical educational sciences and a bilingual translator commented on each item. Then a bilingual translator whose native language was English performed the back-translation of the ATPQ. Finally, the original developer of the ATPQ (Mavrinac et al) was asked to check our English version of the ATPQ.

Assessment of Validity

The validity of the ATPQ was examined on the

basis of face validity, content validity, and construct and discriminant validity.

Face Validity Assessment

The face validity of the preliminary Persian ATPQ was assessed through lay cognitive interviews. For the cognitive interviews, 30 Iranian medical science postgraduate students and faculty members were invited and asked to restate each item of the questionnaire in their own words and identify any vague items that were incomprehensible to them. The ATPQ was modified according to the students' comments, and the time required to complete the scale was also determined.

Content Validity Assessment

The content validity of the ATPQ was examined using qualitative and quantitative approaches. In the qualitative assessment of content validity, the Persian version of the ATPQ was given to 10 experts who were asked to rate and comment on the wording, item assignment, and scaling of the items (21). The Persian ATPQ was revised according to their comments and feedback, and after the necessary modifications were applied, the final Persian version of the questionnaire was proposed.

The quantitative content validity assessment of the ATPQ was conducted by calculating the content validity index (CVI) for the items.

The CVI reflects the degree of clarity, simplicity and relevance of the items, and was calculated for each item of the scale (I-CVI[1]) and for the total scale (S-CVI[2]). Accordingly, we asked the expert panel to rate the clarity, simplicity and relevance of the Persian ATPQ on a four-point scale (from 1 to 4). When rated 10 by the expert panel, an I-CVI score of 0.79 or higher was considered appropriate (22).

Data Collection

First, we uploaded the Persian version of the ATPQ to Porsline (https://porsline.ir/), an online questionnaire development system widely used in academic research in Iran. Then the research team shared the aim of study, informed consent and questionnaire link on WhatsApp as the most common social media platform among Iranian users and invited qualified individuals in their contacts to fill in the ATPQ.

The research team used IP address restriction technology to ensure users with the same IP address could only complete the questionnaire once. Three hundred responders filled the Persian version of the ATPQ. Questionnaires with up to 1% missing entries were excluded, and ultimately, 286 Iranian medical science postgraduate students and faculty members participated in our research.

Construct validity Assessment

We used factor analysis to examine the construct validity of the ATPQ. Factor analysis explicitly assumes that there are underlying factors based on the observed data. The Kaiser-Meyer-Olkin

[1] *Item content validity index*

[2] *Scale content validity index*

(KMO) test and Bartlett's test were used to assess the adequacy of the study data for factor analysis, as well as the adequacy of the sample for each variable in the model and the adequacy of the sample for the whole model. In general, a KMO value greater than 0.7 is considered adequate (23).

Two general categories of estimation methods are normally used to assess the factors. In the first method, maximum likelihood is considered. This method depends on multivariate normality assumptions, which naturally require a large sample size. The second method or main axis, however, uses least squares estimates and does not consider any hypothesis about the distribution of the data (24).

In this study, the generalized least squares method with varimax and equimax rotation was used. The communality is the proportion of the variance of each item that can be explained by factors and is defined as the sum of the squares of the agent loadings for the items. The common variance is between zero and one, values above 0.3 are appropriate, and values below 0.2 should be omitted (25). In this study, variables with common variance values less than 0.2 were not observed, and factor loadings greater than 0.3 were reported.

Discriminant validity

The discriminant validity of the ATPQ was evaluated by applying t-test to compare the scores of the extracted factors across groups for covariates such as gender, occupational role, participation in ethics workshops and categorical age of the participants.

Confirmatory factor analysis

Confirmatory factor analysis (CFA) was applied using the maximum likelihood method. The adequacy of the CFA model fit depends on several statistical tests. The chi-square test indicates the amount of the difference between expected and observed covariance matrices. The ratio of chi-square to degree of freedom equal to or lower than 2 indicates a superior fit (26). The Comparative Fit Index (CFI) is adjusted to sample size and ranges from 0 to 1, with a larger value indicating a better model fit. A CFI value of 0.90 or greater is acceptable (26). Root Mean Square Error of Approximation (RMSEA) values range from 0 to 1, with a smaller RMSEA value indicating a better model fit. In this study, an RMSEA value of 0.06 or less was considered acceptable (27).

Reliability assessment

The reliability of each extracted factor was calculated using Cronbach's alpha correlation coefficient.

Ethical considerations

The study was approved by the Iran University of Medical Sciences Ethics Committee (IR. IUMS. REC.1398.983). The participants consisted of Iranian medical science postgraduate students and faculty members, and were informed about the aims and procedures of the study and the voluntary nature of their participation.

Results

The Persian version of the ATPQ consisted of 29 items and was completed by 286 Iranian medical science postgraduate students and faculty members. The value of Bartlett's test (KMO) was 0.88, with $P \leq 0.001$ indicating the suitability of the data correlation structure for factor analysis and the adequacy of the sample. The qualitative results of the face validity of the Persian ATPQ showed that items 4 and 14 were difficult to understand, and therefore these two items were revised based on the suggestions of our expert panel. Thus, "Self-plagiarism should not be punishable in the same way as plagiarism is" and "Self-plagiarism is not punishable because it is not harmful (one cannot steal from oneself)" were changed to "There must be a difference between the penalty of self-plagiarism and that of other types of plagiarism" and "There should not be any penalty for self-plagiarism, as nobody is hurt."

The result of content validity assessment showed the S-CVI/average and S-CVI/universal to be 0.98 and 0.89, respectively. For construct validation, 286 Iranian medical science doctoral students and faculty members were asked to complete the Persian ATPQ. 22.5 % of the responders were male and 77.5% were female, and their minimum, maximum and mean ages were 23, 61 and 38.8 ± 7.0, respectively.

In this study, the generalized least squares method was used for hidden factor extraction. Based on the results of the explanatory factor analysis (EFA) and considering eigenvalues greater than 1.2, five factors were extracted from the data (Figure 1). Also, Equamax rotation with Kaiser Normalization was used. The factor loadings of each of these factors are shown in Table 1. Totally, 38.24% variance in the data is explained by these 5 factors. The factors are named according to the theory of planned behavior (*TPB*):as positive attitude toward plagiarism (4 items), perceived control (6 items), negative attitude toward plagiarism (7 items), subjective norms (6 items), and finally, attitude toward self-plagiarism (3 items) as a new factor. The values for the common variance (communalities) of each item appear in the Table 1. As can be seen in Table 1, considering the estimation method of generalized least squares (GLS), common variances lower than 0.2 were not observed for any of the items. Due to the extracted factor loadings (less than ± 0.25), items 8, 12 and 20 were not seriously involved in the extracted factors and were therefore removed from the questionnaire.

The discriminant validity of the ATPQ was evaluated by comparing the scores of the extracted factors with the independent variables, including gender, age, participation in an ethical research workshop in the last 6 months, and occupational role (faculty member or not). As can be seen in Table 2, the mean scores of Factors 3, 4 and 5 were statistically more likely to differ among

participants who had attended ethical research workshops than those who had not. The mean scores of factors 1 and 4 were also statistically lower for participants older than 40 compared to others. Our data do not explain the differences between male and female participants and also faculty members or other academic staff in the 5 extracted factors. Furthermore, the confirmatory factor analysis has been fitted to confirm the recommended factors by EFA. In advance, according to the Mahalanobis distance the 12-observation forest from centroid has been excluded from the study.

Table 1. Explanatory factor analysis of the Farsi version of ATPQ

Factor	Item No.		Factor loading	Eigenvalue	Extracted Variance	Cronbach's alpha
1	28	A plagiarized paper does no harm to science.	.959	7.5	14.99	0.816
	25	Sometimes, it is necessary to plagiarize.	.557			
	29	If one cannot write well in a foreign language (e.g., English), it is justified to copy parts of a similar paper already published in that language.	.510			
	27	I could not write a scientific paper without plagiarizing.	.494			
2	13	Sometimes I copy a sentence or two just to become inspired for further writing.	.570	2.0	12.34	0.726
	15	When I do not know what to write, I translate a part of a paper from a foreign language.	.569			
	5	Sometimes one cannot avoid using other people's words without citing the source, because there are only so many ways to describe something.	.501			
	17	I don't feel guilty for copying verbatim a sentence or two from my previous papers.	.491			
	24	If a colleague of mine allows me to copy from her/his paper, I'm NOT doing anything bad, because I have his/her permission.	.431			
	21	It is justified to use previous descriptions of a method, because the method itself remains the same.	.383			
3	16	Plagiarism is not a big deal.	.581	1.59	4.41	0.694
	19	I keep plagiarizing because I haven't been caught yet.	.526			
	18	Plagiarism is justified if I currently have more important obligations or tasks to do.	.515			
	23	Plagiarizing is as bad as cheating an exam.	-.401			
	2	Plagiarism impoverishes the investigative spirit.	-.325			
	7	The names of the authors who plagiarize should be disclosed to the scientific community.	-.325			
	26	Plagiarists do not belong in the scientific community.	-.314			
4	10	Those who say they never plagiarized are lying.	.608	1.37	3.86	0.584
	3	Short deadlines give me the right to plagiarize a bit.	.579			
	1	Sometimes I'm tempted to plagiarize, because everyone else is doing it (students, researchers, physicians).	.525			
	22	Authors say they do NOT plagiarize, when in fact they do	.377			
	9	I work (study) in a plagiarism-free environment.	-.362			
	6	Plagiarized parts of a paper may be ignored if the paper is of great scientific value.	.352			
5	14	Self-plagiarism is not punishable because it is not harmful (one cannot steal from oneself).	.657	1.2	2.64	0.639
	4	Self-plagiarism should not be punishable in the same way as plagiarism is.	.594			
	11	It is justified to use one's own previously published work without providing citation in order to complete the current work.	.533			

Table 2. Comparing the mean score of the extracted factors based on participants' characteristics

Variables		N (%)	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
	Female	222(77.5)	2.06 ± .78	2.76 ± .79	2.06 ± .59	2.71 ± .67	2.67 ± .81
Gender	Male	64(22.5)	2.17 ± .87	2.77 ± .79	2.03 ± .52	2.79 ± 69	2.64 ± .93
	P_{Value}		0.400	0.892	0.718	0.400	0.866
	Yes	228(79.6)	2.04 ± .78	2.73 ± .78	2.00 ± .56	2.68 ± .65	2.59 ± .83
Workshop	No	58(20.4)	2.25 ± .87	2.87 ± .84	2.23 ± .59	2.90 ± .75	2.92 ± .81
	P_{Value}		0.076	0.231	0.008	0.028	0.008
	Faculty Member	125(43.5)	1.99 ± .78	2.72 ± .86	2.02 ± .60	2.72 ± .70	2.64 ± .82
Role	Student	161(56.5)	2.15 ± .81	2.77 ± .76	2.08 ± .55	2.71 ± .66	2.68 ± .85
	P_{Value}		0.108	0.563	0.404	0.865	0.711
	>= 40	114(39.6)	1.92 ± .69	2.66 ± .76	1.98 ± .47	2.58 ± .62	2.64 ± .84
Age	< 40	172(60.4)	2.16 ± .84	2.81 ± .80	2.09 ± .61	2.80 ± .69	2.67 ± .84
	P_{Value}		0.018	0.154	0.094	0.010	0.786

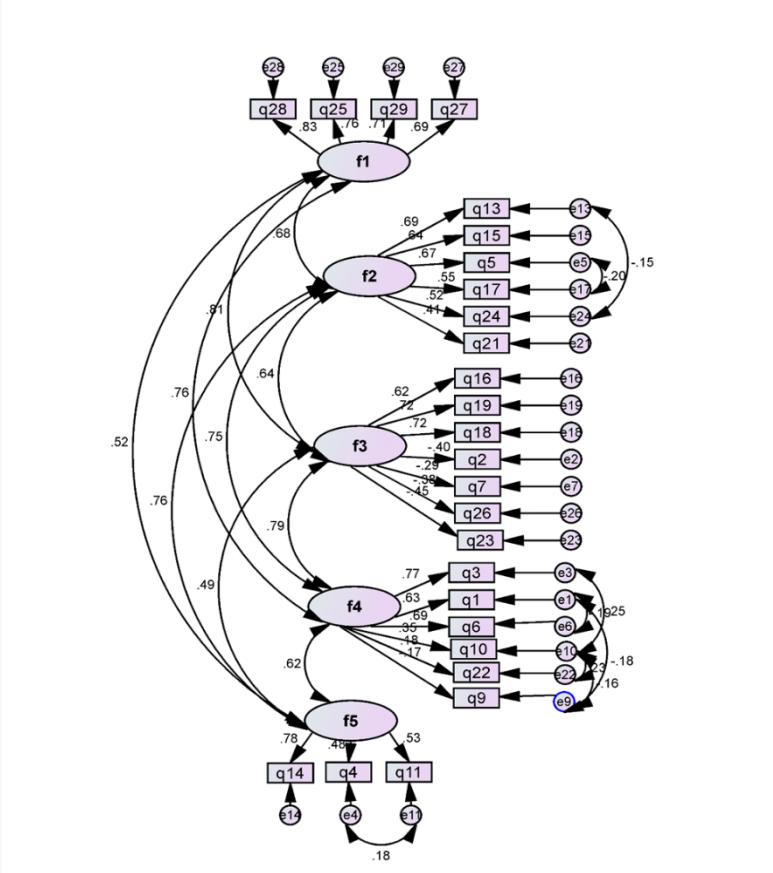
The model fit indices are presented in Table 3, and the indices show the CFA model fit is partially acceptable.

Figure1 demonstrates the standardized regression weights on the CFA diagram.

Table3. The model fit indices obtained through confirmatory factor analysis

Chi-square	DF	Chi-square/DF	P_{Value}	GFI	CFI	RMSEA (L, U)	P_{Value}
540.7	282	1.92	< 0.001	0.87	0.88	0.058 (0.051, 0.065)	0.037

Figure1: standardized regression weights on CFA diagram.



The overall Cronbach's alpha correlation coefficient of the questionnaire was 81%. The Cronbach's alpha correlation coefficient of the first five extracted factors were 0.82, 0.73, 0.69, 0.58 and 0.64, respectively.

The Persian version of the ATPQ consisted of 26 items based on a five-point Likert scale: strongly disagree (1), disagree (2), neither agree nor disagree (3), agree (4) and strongly agree (5). The score of the extracted factors was calculated using the mean of the loaded items for each factor, and items 2, 7, 9, 23 and 26 that had a negative sign for their loading were inverted for scoring. The range of the scores of the ATPQ is set from 4-20 for positive attitude, 6-30 for perceived control, 7-35 for negative attitude, 6-30 for subjective norms, 3-15 for attitude toward self-plagiarism, and 26-130 for the total score. Also, in order to compare the scores of the dimensions, it has been suggested to use mean scores instead of sum scores per dimension.

Discussion

Our aim was to determine the psychometric properties of the translated Persian version of the ATPQ among Iranian medical science postgraduate students and faculty members. The ATPQ is a valid, reliable and convenient instrument that can be used to determine attitudes toward plagiarism.

Mavrinac et al. designed the ATPQ following the Theory of Planned Behavior. They extracted three factors in their questionnaire, that is, positive attitude toward plagiarism, negative attitude toward plagiarism and subjective norms (19). Sohrabi et al. used all constructs of planned behavior, but added perceived control as another factor in their ATPQ (28). The main strength of our study is that in addition to these, we incorporated attitude toward self-plagiarism as a factor related to the concept of attitude toward plagiarism. We found that self-plagiarism (items 4, 11 and 14), which may be connected to negative or positive attitudes toward plagiarism, is identifiable as a factor of attitude toward plagiarism among Iranian scholars. Zayim extracted three factors, namely "attitude of minimal estimation toward plagiarism", "emotional attitude toward plagiarism" and "attitude toward the function of plagiarism" with Cronbach's alpha correlation coefficients of 0.60, 0.82 and 0.82, respectively, which can explain 47% of the variance (29). Sohrabi et al. found an overall variance of the ATPQ of 55.84 with four factors, namely positive attitude toward plagiarism, perceived control, subjective norms and negative attitude toward plagiarism. Cronbach's alpha coefficients for these factors were 0.794, 0.748, 0.733 and 0.692, respectively (28). In the current study, five factors were extracted with Cronbach's alpha coefficients of 0.82, 0.73, 0.69, 0.58 and 0.64, respectively, while the overall variance was estimated to be 0.81. The first factor of this scale is "positive attitude

toward plagiarism", which includes 4 items and. This factor shows how desirable, pleasant, useful or enjoyable plagiarism is to an individual, and that it depends on the individual's assessment of the consequences of plagiarism.

The second factor of this scale is "perceived control" which is presented in 6 items. This refers to the degree to which an individual feels they have control over whether or not to commit plagiarism.

The third factor of this scale is “negative attitude toward plagiarism” in 7 items. This means how uncomfortable, unpleasant, harmful or repulsive plagiarism seems to a person, and depends on the person's assessment of the consequences of plagiarism.

The fourth factor of this scale is “subjective norms” presented in 6 items and pertains to the role of social pressure in plagiarism as perceived by the individual, that is, the reflection of social influences on the individual.

Finally, the fifth factor of this scale is “attitude toward self-plagiarism” in 3 items. It shows the extent to which plagiarism is desirable or unpleasant, useful or repulsive to an individual, and depends on their assessment of the effects and consequences of plagiarism

In the present study, we found a statistically positive relationship between participation in publication ethics workshops and factors 3, 4 and 5. In this regard, Bettaieb et al. and Min suggest continuing to take courses on research to prevent plagiarism (30, 31). We found no statistical association between gender and the factors in the Persian version of the ATPQ. Tindall and Curtis also reported that gender did not predict an individual’s attitude toward plagiarism (32). Lynch et al. concluded that it is necessary to promote awareness and improve students' attitude to reduce the significant amount of unintentional plagiarism (33). The attitude toward plagiarism indicates how a person performs an unethical task, and therefore it is critical to select an appropriate scale to assess it. Several instruments have been developed for this purpose, and we found that the Persian version of the ATPQ can be an effective tool to identify the attitude toward plagiarism.

Conclusion

The Persian version of the ATPQ is a reliable and valid questionnaire for researchers and teachers to identify attitudes toward plagiarism among Iranian medical science postgraduate students and faculty members. Our results support the validity and reliability of the ATPQ. We recommend to add statements to the self-plagiarism factor and re-evaluate the instrument in the Iranian society.

Funding:

This study is funded by the Iran University of Medical Science.

Acknowledgements

The authors gratefully acknowledge the participants of this study.

Conflicts of Interests

No conflicts of interest for any of the authors.

References

1. Thurmond BH. Student Plagiarism and The Use of a Plagiarism Detection Tool by Community College Faculty [dissertation]. Indiana (USA). Indiana State University; 2010.

2. COPE. What to do if you suspect plagiarism (a) suspected plagiarism in submitted manuscript. [cited March 2022]; Available from: https://publicationethics.org/files/u7140/plagiarism%20A.pdf

3. Hansen B. Combating plagiarism. CQ Researcher. 2003; 13(32): 775-96.

4. Park C. In other (people's) words: Plagiarism by university students--literature and lessons. Assessment & Evaluation in Higher Education. 2003; 28(5): 471-88.

5. Cameron C, Zhao H, McHugh MK. Publication ethics and the emerging scientific workforce: understanding 'plagiarism' in a global context. Acad Med. 2012; 87(1): 10.1097/ACM.0b013e31823aadc7.

6. Comas-Forgas R, Sureda-Negre J. Academic plagiarism: Explanatory factors from students' perspective. Journal of Academic Ethics. 2010;8(3):217-32.

7. Sutton A, Taylor D, Johnston C. A model for exploring student understandings of plagiarism. Journal of Further and Higher Education. 2014; 38(1): 129-46.

8. Badea-Voiculescu O. Letter to editor. Attitude of Romanian medicine students towards plagiarism. Rom J Morphol Embryol. 2013; 54(3 Suppl): 907-8.

9. Hofmann B, Myhr AI, Holm S. Scientific dishonesty-a nationwide survey of doctoral students in Norway. BMC Med Ethics. 2013; 14: 3.

10. Stone TH, Jawahar I, Kisamore JL. Predicting academic misconduct intentions and behavior using the theory of planned behavior and personality. Basic and Applied Social Psychology. 2010; 32(1): 35-45.

11. Cronan TP, Mullins JK, Douglas DE. Further understanding factors that explain freshman business students' academic integrity intention and behavior: Plagiarism and sharing homework. Journal of Business Ethics. 2018; 147:197-220.

12. Mustikarini A, Winardi RD, Azalea M. Why do accounting students at higher learning institutions conduct an academic dishonesty? SHS Web of Conferences. 2017; 34: 06008.

13. Hadji M, Asghari F, Yunesian M, Kabiri P, Fotouhi A. Assessing the prevalence of publication misconduct among Iranian authors using a double list experiment. Iranian Journal of Public Health. 2016; 45(7): 897-904.

14. Babaii E, Nejadghanbar H. Plagiarism among Iranian graduate students of language studies: perspectives and causes. Ethics & Behavior. 2017; 27(3): 240-58.

15. Ajzen I. The theory of planned behavior. Organizational Behavior and Human Decision Processes. 1991; 50(2):179-211.

16. Ling T, Soper B, Buxton M, et al. How Do You Get Clinicians Involved in Quality Improvement? UK: RAND Europe Publications; 2010.

17. Husain FM, Al-Shaibani GKS, Mahfoodh OHA. Perceptions of and attitudes toward plagiarism and factors contributing to plagiarism: a review of studies. Journal of Academic Ethics. 2017;15(2):167-95.

18. Uzun AM, Kilis S. Investigating antecedents of plagiarism using extended theory of planned behavior. Computers & Education. 2020; 144: 103700.

19. Mavrinac M, Brumini G, Bilić-Zulle L, Petrovečki M. Construction and validation of attitudes toward plagiarism questionnaire. Croat Med J. 2010; 51(3): 195-201.

20. WHO. Process of translation and adaptation of instruments. [cited March 2022]; Available from: https://www.mhinnovation.net/sites/default/files/files/WHO%20Guidelines%20on%20Translation%20and%20Adaptation%20of%20Instruments.docx

21. Colton D, Covert RW. Designing and Constructing Instruments for Social Research and Evaluation. USA: John Wiley & Sons; 2007.

22. Lynn SJ, Das LS, Hallquist MN, Williams JC. Mindfulness, acceptance, and hypnosis: cognitive and clinical perspectives. Int J Clin Exp Hypn. 2006; 54(2): 143-66.

23. Lioret S, Ferreres A, Hernandez A, Tomas I. The exploratory factor analysis of items: guided analysis based on empirical data and software. Anales de Psicologia. 2017; 33(2): 417-32.

24. Watkins MW. Exploratory factor analysis: a guide to best practice. Journal of Black Psychology. 2018; 44(3): 219-46.

25. Child D. The Essentials of Factor Analysis, 3rd ed. UK: Bloomsbury Academic; 2006.

26. Cole DA. Utility of confirmatory factor analysis in test validation research. J Consult Clin Psychol. 1987; 55(4): 584-94.

27. Hu LT, Bentler PM. Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. Structural Equation Modeling: A Multidisciplinary Journal. 1999; 6(1):1-55.

28. Sohrabi Z, Ghasemzadeh M, Salehi L. Psychometric analysis scale of attitude toward plagiarism based on the theory of planned behavior in the students of Iran University of Medical Sciences. Journal of Medical Education Development. 2018; 10(28): 53-64.

29. Zayim M. Attitudes towards plagiarism scales development and initial validation. [cited March 2022]; Available from: https://eera-ecer.de/ecer-programmes/conference/6/contribution/17089/

30. Bettaieb J, Cherif I, Kharroubi G, Mrabet A. Attitudes towards plagiarism among academics of the faculty of medicine of Tunis. Account Res. 2020; 27(8): 521-37.

31. Min SK. Plagiarism in medical scientific research: can continuing education and alarming prevent this misconduct? Vasc Specialist Int. 2020; 36(2): 53-6.

32. Tindall IK, Curtis GJ. Negative emotionality predicts attitudes toward plagiarism. Journal of Academic Ethics. 2020;18: 89-102.

33. Lynch J, Everett B, Ramjan LM, Callins R, Glew P, Salamonson Y. Plagiarism in nursing education: an integrative review. J Clin Nurs. 2017; 26(19-20): 2845-64.