Original Article

Turkish version methodological validation study of the Decision Regret Scale

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Abstract

Background: Experiencing regret after receiving medical care or treatment is a normal aspect of health, based on the quality of service received. This is a considerable component of medical decisions. The Decision Regret Scale is a one-dimensional and five-item scale that evaluates patients' regret after receiving a medical procedure or health service.

Objective: The aim of this study is to evaluate the validity and reliability of the Turkish version of the Decision Regret Scale.

Methods: This is a methodological scale validation research conducted with patients from a university hospital in Istanbul, Turkey. Data was collected from 53 participants who had a total abdominal hysterectomy operation after myoma uteri diagnosis without oophorectomy. Data was collected using a structured questionnaire, which included socio-demographic information, Decision Regret Scale, and the World Health Organization's WHOQOL-BREF quality of life assessment scale. Data was evaluated using confirmatory factor analysis and correlation analyses.

Results: The Cronbach α value of the Decision Regret Scale was 0.868, which indicated an acceptable internal consistency. Results of the confirmatory factor analysis were sufficient with satisfactory model fit statistics (p = 0.282, $\chi2/df$ = 1.3, RMSEA = 0.069, and GFI = 0.943).

Discussion: The Turkish version of the Decision Regret Scale was a valid and reliable instrument for evaluating regret about receiving health services.

Conclusions: The addition of regret as an outcome health care received will inform health care providers in terms of their decisions about the various treatment options and their associated feelings of regret. Thus, enabling decisions around health to be more informed, structured and more patient oriented. [*Ethiop. J. Health Dev.*2021: 35(4): 362-366]

Keywords: Regret, validity and reliability, patient centered outcomes research, decision.

Introduction

Patient involvement in medical decisions around their health is gradually increasing (1). A community-based study conducted in Malaysia has found that a significant number of patients are willing to be involved in the decisions about the health services that they are going to receive, which varies between 28% and 51% (2). Patients' active participation in the decision-making process regarding the health services they receive has many benefits, such as reducing instability, limiting confusion, increasing the level of knowledge, and understanding around the problem and the solution, and creating awareness around the conditions and limiting unnecessary expectations (3). However, patients are still prone to making decisions that they may come to regret later (4). A comprehensive and up-to-date systematic review evaluated the frequency of regret of patients after surgical interventions which stated that 14.4% of patients regret their interventions (5).

Sometimes there may not be an alternate treatment for certain conditions, and treatment options are limited (6). Regret is a condition that is not easy to measure due to the emotional and cognitive components. Most of the scales that assess individuals' regret of their decisions, aim to evaluate consumer satisfaction, and are not designed to be used in the field of health service provision (7). Two of the most widely used scales for evaluation of regret are The Regret Elements Scale and The Regret and Disappointment Scale which are both used for nonmedical purposes (8,9). There is currently no scale which has been developed or validated to evaluate the regret of medical decisions for patients in the Turkish society.

One of the most widely used and easy to implement scales associated with evaluating patients' regrets with healthcare services is The Decision Regret Scale (DRS), which is one dimensional and consists of five items. The scale was developed by Brehaut et al. (2003) in Canada. DRS has been validated for many languages including French, Chinese, Spanish, and Japanese (10).

This study evaluates the validity and reliability of the Turkish version of the DRS by testing the hypothesis of whether the Turkish version of the DRS is a valid and reliable tool for evaluating regret about medical services.

Methods

This study serves as a methodological validation research of an instrument for a different language version and aims to evaluate the validity and reliability of the Turkish version of the DRS.

Translation process

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To ensure language equivalence, the items of the scale were translated into the Turkish language by two independent translators whose native language is Turkish and who are fluent in English at an advanced level. The translations obtained were evaluated by the researchers and combined into a single text. For the Turkish text, expert opinion was taken from two independent gynecologists and two obstetric nurses, and the final version was translated back into English by a different translator. After receiving expert opinions, it was seen that the back translation precisely reflects the original text, so the Turkish translation was included in the study as it is.

The scale's structural characteristics like social acceptability, transparency, and applicability of the DRS were examined by two public health specialists and one psychiatric nurse and was found to be appropriate.

Sample
The DRS consists of five items. Considering a minimum of 10 participants per item, the minimum number of people in the study was calculated as 50 (11). With an extra 10%, the sample size was determined to be 55. By using the quota sampling technique, 55 patients who experienced total abdominal hysterectomy with a diagnosis of myoma uteri were included in the study. Two of the patients refused to participate, and research was conducted with 53 female participants. The achieved power was calculated as 97.5% for two tails with $\alpha = 0.05$ and correlation p H1=0.50 by G*Power 3.1.9.6 software (12).

All participants had a total abdominal hysterectomy without oophorectomy at a university hospital between January 2017 and December 2019. There was an interval of at least six months between the surgery and the study for the participants. Patients with oophorectomy were excluded because of possible additional morbidities and due to causing premature menopause, which could influence patients' regret.

Data Collection
Data were collected from 53 participants between 15 August and 15 October 2020. To evaluate the temporal consistency, a re-test was conducted after at least 15 days of the first questionnaire. Data were collected via telephonic interviews using a structured questionnaire which had three sections. Some socio-demographic characteristics of the patients were requested during the first part of the data collection process. The second section was DRS, and the last one was the WHOQOL-BREF quality of life scale, which was developed by the World Health Organization.

The DRS consists of five items with one factor structure and evaluates the patients' regret after the health service they receive. Each item consists of a 5-point Likert type response ranging from 1 point (strongly agree) to 5 points (strongly disagree). Two of the items (second and fourth items) are structurally negative. For the calculation of the score obtained from the scale, at first, two negatively constructed items are coded in reverse. Then, one is subtracted from the points obtained from each item and converted into percentage points by multiplying it by 25. Finally, all scores are added up, and their average is calculated (divided by five). Zero points indicate no regrets, while 100 points indicate a high degree of regret. Cronbach α coefficient of the scale has been reported to be between 0.81 and 0.92 (13).

The WHOQOL-BREF scale was developed by the World Health Organization. It examines people's quality of life in four dimensions: physical health, psychological health, social relations, and environmental health (14). The validity and reliability study for the Turkish version of the scale was conducted and found to be valid (15).

Data analysis
Internal consistency was calculated by using the Cronbach α coefficient for the reliability analysis of the DRS. Test-retest correlation was evaluated by Pearson correlation coefficient. Confirmatory factor analysis was conducted for the validity assessment. Concurrent validity was assessed by the Pearson correlation coefficient between the scores obtained from four areas of the WHOQOL-BREF scale and the DRS score. Since the high WHOQOL-BREF score indicates an increase in the quality of life, a negative correlation with the DRS score was accepted in favor of the validity.

Statistical analyses were performed by the R Software version 4.0.3 (R foundation, Vienna, Austria) using Tidyverse and Lavaan libraries. Statistical significance level was accepted as $p < 0.05$. For confirmatory factor analysis, acceptable model fit statistics were $\chi^2/df < 3$, RMSEA < 0.08, GFI > 0.9 (16).

Ethical considerations
For the study, ethical approval was obtained from a local state university Ethics Committee, dated 01.07.2020 and numbered 2020/0422. Participants were included in the study by obtaining their verbal informed consent. No funds or financial support have been received for the study.

Results
Sample characteristics
All participants had undergone surgery for benign diseases and were completely free of their diseases during the study period. Participants of this study ranged in age from 38 to 54 years of age, with a mean of 46.43±3.39 years. All 53 women completed the questionnaire without missing values. Of the participants, 67.9% (n = 36) were housewives and 60.4% (n = 32) were primary school graduates.

Reliability
The Cronbach α was 0.868. The total correlations of items in the DRS were all above 0.25 with a minimum of 0.56 (fourth item) and a maximum of 0.77 (second item). When item 4 was removed, Cronbach α only increased to 0.869 (Table 1). The test-retest correlation was significantly high, with an r-value of 0.945 (p < 0.001).

Table 1. Decision Regret Scale item statistics and reliability values of the first administration.

Original (English) Items	Translated (Turkish) Items	Mean (SD)	Item Total Correlation	Cronbach α when item removed
It was the right decision	Doğru karardı	1.60 (0.84)	0.62	0.86
I regret the choice that I was made	Aldığım karardan pişmanım	1.53 (0.91)	0.77	0.82
I would go for the same choice if I had to do it over again.	Eğer tekrar yapmak zorunda kalsaydım yine aynı kararı alırdım	1.53 (1.03)	0.70	0.84
The choice did me a lot of harm	Kararım bana çok zarar verdi	1.45 (0.77)	0.56	0.87
The decision was a wise one	Kararım akıllıcaydı	1.51 (0.80)	0.70	0.81
Total score		13.11 (17.71)		

All four domains of WHOQOL-BREF showed a negative correlation with DRS scores. The psychological health domain showed the highest correlation, which was moderate and significant ($p < 0.001$; r: -0.567). There was no relationship between the social relations domain and the DRS scores ($p = 0.173$; r: -0.190) (Table 2).

Table 2. Correlations between WHOQOL-BREF domains and Decision Regret Scale score.

WHOQOL-BREF Domains	Correlation coefficient	P value
Physical health	-0.486	< 0.001
Psychological health	-0.567	< 0.001
Social relations	-0.190	0.173
Environmental health	-0.383	0.005

To evaluate the consistency of the patients' responses to the scale over time, the scale was applied to the same patients at least 15 days after the first application, and the Pearson correlation coefficient between the two applications was calculated as 0.945. These values show that the scale is at a sufficient level of reliability.

Validity
The confirmatory factor analysis results for DRS were $p = 0.282$, $\chi^2/df = 1.3$, RMSEA = 0.069, and GFI = 0.943. The calculated values were acceptable and model fit was achieved (Table 3).

Table 3. Model fit indexes for the confirmatory factor analysis of the Decision Regret Scale.

Index name	Threshold value	Value of the study	Achieved fit
P value	> 0.05	0.282	Perfect fit
χ^2/df	$0 \leq \chi^2/df \leq 2$ perfect, $2 < \chi^2/df \leq 3$ acceptable	1.252	Perfect fit
RMSEA	$0 \leq RMSEA \leq .05$ perfect, $0.05 \leq RMSEA \leq 0.08$ acceptable	0.069	Acceptable fit
GFI	> 0.95 perfect, $0.90 \leq GFI \leq 0.95$ acceptable	0.943	Acceptable fit
AGFI	> 0.90 perfect, $0.85 \leq AGFI \leq 0.90$ acceptable	0.830	Weak fit
NFI	> 0.95 perfect, $0.90 \leq NFI \leq 0.95$ acceptable	0.959	Perfect fit
NNFI	> 0.95 perfect, $0.90 \leq NNFI \leq 0.95$ acceptable	0.961	Perfect fit

To evaluate the error variances of the DRS standardized solution, values were between 0.07 (fifth item) and 0.47 (fourth item). The interpretation of t-values showed that all items exceeded 1.96 (Table 4).

Table 4. Standardized analysis values and t-values of the Decision Regret Scale's confirmatory factor analysis.

Items	Standardized solution		t-values	
	Error variances	Item parameter value	Error amount	t-values
Item 1	0.35	0.81	4.67	7.07
Item 2	0.22	0.88	4.16	8.12

Item 3	0.29	0.84	4.51	7.52
Item 4	0.47	0.73	4.87	6.08
Item 5	0.07	0.96	1.91	9.47

Discussion

In the study, the mean RDS score of the participants was found to be 13.11. The original scale scores range between 12.9 and 25.4 (13). As a result of the research, since the degree of regret is calculated over 100, it can be considered that the value obtained is relatively low, so patients do not regret their surgery.

The DRS developers have investigated the scale in four different groups who have undergone four different medical interventions and found the Cronbach alpha value to be greater than 0.8 as an indicator of internal consistency in all of them. In the validity and reliability study of the Japanese version of the DRS, this value was found to be 0.85 (17). The 0.868 Cronbach alpha value obtained in this study is like other studies.

In the validity analysis, the Japanese version of the scale was applied together with the Japanese version of the SF-8 quality of life scale, and the correlation coefficient was calculated as -0.4 (17). In the adaptation study of the Spanish version of the DRS, the quality-of-life scale named EORTC QLQ-C30 was used, and the correlation coefficients were found to be between -0.257 and -0.316 (18). Similarly, in this study, correlation coefficients were found to be between -0.190 and -0.567 for the comparisons made with the WHOQOL-BREF.

Test-retest correlation is an important outcome for validity studies to evaluate the temporal consistency. This study revealed a strong correlation between two implementations of the RDS at least 15 days apart with a correlation coefficient of 0.945. A similar application was made to evaluate the Japanese version of the DRS, and the test-retest correlation was calculated as 0.85 (18). Those values suggest that DRS has sufficient temporal consistency.

The validation study for the Chinese version of the DRS had similar model fit values for confirmatory factor analysis as with this study. χ^2/df and RMSEA values for the Turkish and the Chinese version of the DRS were 1.252 and 2.865; 0.069 and 0.051, respectively (19). Model fit parameters for the Turkish version of the DRS indicate a sufficient validity.

Although the research shows that the Turkish version of the DRS is a valid and reliable measurement tool, it has some limitations. Firstly, all participants of the study were women. Although developers of the DRS do not specify gender as a distinctive variable for the scale, results of this study should be considered primarily for women and further research including males should be considered. Also, the scale was conducted with patients treated only in one hospital. Although scale validity and reliability studies are generally single-centered and have a relatively low sample size, future studies in samples with different characteristics from different centers will allow for the

opportunity to recognize the DRS's structural features more evidently.

There are many implications for the use of the DRS like the evaluation of regret for irreversible surgical interventions such as tubal ligation or vasectomy or medical interventions for cosmetic purposes.

Conclusions

As a result, the Turkish version of the Decision Regret scale has been evaluated as a valid and reliable measurement tool for measuring regret after the implementation of a health service or medical interventions that female patients have undergone. Due to the lack of a similar scale developed or adapted in the Turkish language, this scale's application will make up for the lack of scientific data on the state of regret for health services.

Declaration of interest statement

Authors declare no conflict of interest. This research had not received any funds or financial support.

References

1. Maccarthy J, Guerin S, Wilson AG, Dorris ER. Facilitating public and patient involvement in basic and preclinical health research. Salsberg J, editor. PLoS One. 2019 May 14;14(5):e0216600.

2. Lee YK, Ng CJ. The state of shared decision making in Malaysia. Z Evid Fortbild Qual Gesundhwes. 2017 Jun;123–124:66–8.

3. Løwe MM, Osther PJS, Ammentorp J, Birkelund R. The Balance of Patient Involvement: Patients' and Health Professionals' Perspectives on Decision-Making in the Treatment of Advanced Prostate Cancer. Qual Health Res. 2021 Jan 16;31(1):29–40.

4. Kuo N-T, Kuo Y-L, Lai H-W, Ko N-Y, Fang S-Y. The influence of partner involvement in the decision-making process on body image and decision regret among women receiving breast reconstruction. Support Care Cancer. 2019 May 21;27(5):1721–8.

5. Wilson A, Ronnekleiv-Kelly SM, Pawlik TM. Regret in Surgical Decision Making: A Systematic Review of Patient and Physician Perspectives. World J Surg. 2017;41(6):1454–65.

6. Boyle FM, Allen J, Rey-Conde T, North JB. Learning from regret. Br J Surg. 2020 Mar 4;107(4):422–31.

7. Sarwar MA, Awang Z, Habib MD. Consumer Purchase Regret: A Systematic Review. Int J Acad Res Bus Soc Sci. 2019 Sep 23;9(9). http://hrmars.com/index.php/journals/papers/IJARBSS/v9-i9/6307

8. Marcatto F, Ferrante D. The Regret and Disappointment Scale: An instrument for

assessing regret and disappointment in decision making. Judgm Decis Mak. 2008;3(1):87–99.

9. Buchhanan J, Summerville A, Lehmann J, Reb J. The Regret Elements Scale: Distinguishing the affective and cognitive components of regret. Judgm Decis Mak. 2016;11(3):275–86.

10. Becerra Pérez MM, Menear M, Brehaut JC, Légaré F. Extent and Predictors of Decision Regret about Health Care Decisions. Med Decis Mak. 2016 Aug 14;36(6):777–90.

11. Tsang S, Royse CF, Terkawi AS. Guidelines for developing, translating, and validating a questionnaire in perioperative and pain medicine. Saudi J Anaesth. 2017 May;11(Suppl 1):S80–9.

12. Erdfelder E, Faul F, Buchner A. GPOWER: A general power analysis program. Behav Res Methods, Instruments, Comput. 1996 Mar;28(1):1–11.

13. Brehaut JC, O'Connor AM, Wood TJ, Hack TF, Siminoff L, Gordon E, et al. Validation of a decision regret scale. Med Decis Mak. 2003;23(4):281–92.

14. World Health Organization. The Development of the World Health Organization Quality of Life Assessment Instrument (the WHOQOL). In: Quality of Life Assessment: International Perspectives. Berlin, Heidelberg: Springer Berlin Heidelberg; 1994. p. 41–57.

15. Fidaner C, Elbi H, Eser E. Yaşlılar İçin Dünya Sağlık Örgütü Yaşam Kalitesi Modülü WHOQOL-OLD : Türkiye Alan Çalışması Türkçe Sürüm Geçerlilik ve Güvenilirlik Sonuçları. Türk Psikiyatr Derg. 2010;21(1):37–48.

16. İlhan M, Çetin B. LISREL ve AMOS Programları Kullanılarak Gerçekleştirilen Yapısal Eşitlik Modeli (YEM) Analizlerine İlişkin Sonuçların Karşılaştırılması. Eğitimde ve Psikolojide Ölçme ve Değerlendirme Derg. 2014;5(2):26–42.

17. Tanno K, Bito S, Isobe Y, Takagi Y. Validation of a Japanese version of the decision regret scale. J Nurs Meas. 2016;24(1):E44–54.

18. Calderon C, Ferrando PJ, Lorenzo-Seva U, Higuera O, Ramon y Cajal T, Rogado J, et al. Validity and Reliability of the Decision Regret Scale in Cancer Patients Receiving Adjuvant Chemotherapy. J Pain Symptom Manage. 2019;57(4):828–34.

19. Xu RH, Zhou LM, Wong EL, Wang D, Chang JH. Psychometric Evaluation of the Chinese Version of the Decision Regret Scale. Front Psychol. 2020 Dec;11:3101.