Original article

Development and Validation of the Organ Donation Attitudes Scale in Kazakhstan

Aidos Bolatov [1], Aruzhan Asanova [2], Gulnur Daniyarova [3], Vitaliy Sazonov [4],
Aigerim Abdiorazova [5], Yuriy Pya [6]

[1] *PhD-student at Shenzhen University, Shenzhen, China; Researcher at University Medical Center, Astana, Kazakhstan.*
E-mail: bolatovaidos@gmail.com
[2] *General manager of the Department of Science, University Medical Center, Astana, Kazakhstan.*
E-mail: asanova.aruzhan@umc.org.kz
[3] *Academic secretary of the University Medical Center, Astana, Kazakhstan. E-mail: daniyarova.g@umc.org.kz*
[4] *Researcher at University Medical Center, Astana, Kazakhstan. E-mail: dr.sazonov@gmail.com*
[5] *Deputy Chairman of the Board, University Medical Center, Astana, Kazakhstan. E-mail: a.aigerim@umc.org.kz*
[7] *Chairman of the Board, University Medical Center, Astana, Kazakhstan. E-mail: yuriy.pya@umc.org.kz*

Abstract

Objective: The Organ Donation Attitudes Scale (ODAS) was developed to assess public attitudes toward organ donation in Kazakhstan. Given the bilingual nature of the country, the aim of the study was to design and validate ODAS in both Kazakh and Russian languages.

Methods. The study employed a cross-sectional design, with participants recruited from various regions of Kazakhstan. The scale was developed through a combination of literature review, expert consultation, and cognitive interviewing. The psychometric properties of the ODAS were evaluated through Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) to confirm the factor structure. Internal consistency, test-retest reliability, and criterion-related validity were also assessed. ROC curve analysis was used to evaluate the predictive validity of the scale with regard to participants' willingness to donate organs.

Results. The EFA revealed a two-factor structure for both the Kazakh (K-ODAS) and Russian (R-ODAS) versions, which was confirmed by CFA. The KMO values were 0.928 for K-ODAS and 0.904 for R-ODAS, with Bartlett's test of sphericity significant at $p<0.001$ for both versions. Cronbach's alpha indicated high internal consistency for both K-ODAS (0.924) and R-ODAS (0.900) after adjustments. Test-retest reliability showed an ICC of 0.907, indicating stability over time. Criterion-related validity was supported by significant correlations between ODAS scores and external variables such as knowledge and willingness to donate organs. The ROC curve analysis further demonstrated the scale's predictive validity.

Conclusion. The ODAS is a reliable and valid tool for assessing attitudes toward organ donation in Kazakhstan. Its development in both Kazakh and Russian languages ensures its applicability across the country's diverse population. The scale's robust psychometric properties make it a valuable resource for healthcare professionals and policymakers aiming to promote organ donation.

Keywords: organ donation, attitudes, scale development, scale validation, Kazakhstan.
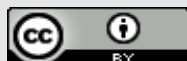
Introduction

Organ donation is a critical component of modern healthcare systems, offering a lifeline to individuals with end-stage organ failure. As of May 10, 2024, the national waiting list for organ transplants in Kazakhstan comprises a total of 4,099 patients, reflecting the growing demand for life-saving organs. The majority of these patients are awaiting kidney transplants, with 3,661 adults and 85 children on the list. The need for liver transplants is also substantial, with 179 adults and 10 children awaiting a suitable donor. Additionally, there are 18 adults on the waiting list for lung transplants, although no children are currently listed. For heart transplants, 136 adults and 5 children are in need, while the heart-lung transplant list includes 2 adults and 3 children [1].

Organ donation represents a unique intersection of medical science, ethics, and cultural beliefs, where individual decisions can significantly impact broader societal outcomes [2]. Despite its life-saving potential, organ donation often encounters barriers rooted in personal, cultural, and religious beliefs, as well as concerns about the fairness and ethics of the medical system [3].

In Kazakhstan, a country with a rich cultural and religious diversity, these factors are particularly relevant. Understanding public attitudes toward organ donation is essential for developing strategies to increase donor rates and improve the overall effectiveness of the transplantation system [4]. Previous research indicates that positive attitudes towards organ donation are strongly associated with a higher likelihood of consenting to donation [5]. However, attitudes are influenced by a variety of factors, including beliefs about the sanctity of the body, trust in the medical system, and the perceived social value of donation [6].

The Organ Donation Attitudes Scale (ODAS) was developed to capture the complex and multifaceted perspectives on organ donation in Kazakhstan. This scale encompasses a broad range of factors that influence attitudes, including personal beliefs, societal values, and ethical considerations. It reflects the importance of recognizing organ donation as a life-saving act, which aligns with the widely supported notion that organ donation is a vital contribution to society [7].

Cultural and religious beliefs are also integral to shaping these attitudes, highlighting the need to consider how these influences can affect individuals' willingness to donate [8-10]. Trust in the medical system is another crucial factor, as confidence in ethical practices within the healthcare system is essential for fostering a supportive environment for organ donation [11, 12].

Family dynamics play a significant role in shaping organ donation attitudes, particularly in terms of comfort in discussing donation with loved ones and the likelihood of encouraging family members to consider becoming donors. These interpersonal discussions are critical in shaping donation decisions [13, 14].

Finally, concerns about the fairness of the organ allocation process are acknowledged as they significantly impact public trust and the overall willingness to participate in organ donation [15]. This scale aims to provide a comprehensive understanding of the various factors that contribute to the attitudes toward organ donation in Kazakhstan.

In summary, the ODAS aims to provide a comprehensive assessment of attitudes toward organ donation in Kazakhstan, taking into account the complex interplay of individual beliefs, cultural and religious factors, and trust in the healthcare system. By understanding these attitudes, policymakers and healthcare providers can develop targeted interventions to increase organ donation rates and improve the overall effectiveness of the transplantation system in Kazakhstan.

Material and methods

Study design. This study employed a cross-sectional design to develop and validate the Organ Donation Attitudes Scale (ODAS) in Kazakhstan. The scale was designed to measure attitudes towards organ donation among the general population, with versions available in both Kazakh and Russian languages. The study was conducted in two phases: the initial development of the scale, followed by its psychometric validation. Data were collected through self-administered questionnaires distributed to a representative sample across different regions of Kazakhstan, ensuring coverage of diverse demographic groups.

Scale development. The ODAS was developed to assess the attitudes towards organ donation among the population in Kazakhstan. The scale was designed to be applicable in both Kazakh (K-ODAS) and Russian (R-ODAS) languages to accommodate the bilingual nature of the population. The initial items for the scale were generated through a comprehensive literature review of existing organ donation attitude scales [16-20] and interviews with subject matter experts, including healthcare professionals and social psychologists. This process ensured that the items were culturally relevant and reflective of the local context. The generated items were then translated into both Kazakh and Russian, following the guidelines for cross-cultural translation and adaptation of self-report measures.

A preliminary version of the scale was pre-tested on a small sample (N=19) of bilingual participants to evaluate the clarity, cultural relevance, and understanding of the items in both languages. Cognitive interviewing techniques were used to gain insights into how respondents interpreted each item. Based on the feedback, minor revisions were made to the wording of certain items to enhance clarity and cultural appropriateness.

Sample and Data Collection. The study sample consisted of 1294 participants from different regions of Kazakhstan, representing diverse demographic backgrounds; among them 675 participants were Kazakh-speaking and 619 Russian-speaking. Data collection was conducted through self-administered questionnaires created in Google Forms platform. Participants were provided with either the Kazakh or Russian version of the ODAS, depending on their language preference.

Scale validation. The validation of the Kazakh- and Russian-language ODAS was conducted through a series of statistical analyses to ensure its reliability and validity. The process involved evaluating the test-retest reliability, internal consistency, construct validity, and criterion-related validity of the scale.

Test-retest reliability was assessed to determine the stability of the ODAS over time. A subsample of participants (N=19) was selected for this purpose. These participants completed the ODAS at two different time points, with a three-week interval between administrations. The intraclass correlation coefficient (ICC) was calculated to assess the

degree of agreement between the two sets of scores. An ICC value of 0.75 or higher was considered indicative of acceptable test-retest reliability [21].

Internal consistency of the ODAS was evaluated using Cronbach's alpha. This analysis was performed separately for the Kazakh and Russian versions of the scale to ensure that each version reliably measures the underlying construct. Cronbach's alpha values of 0.70 or higher were considered to indicate good internal consistency [22]. Additionally, item-total correlations were examined to identify any items that might reduce the overall reliability of the scale.

Construct validity was assessed through exploratory factor analysis (EFA) followed by confirmatory factor analysis (CFA). EFA was conducted using minimum residuals extraction with Promax rotation to identify the underlying factor structure of the scale. The number of factors retained was determined based on eigenvalues greater than 1.0 and the scree plot. The suitability of the data for factor analysis was assessed using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity.

Following EFA, CFA was performed on a separate sample to confirm the factor structure identified. Model fit was evaluated using the Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and Root Mean Square Error of Approximation (RMSEA), with CFI and TLI values of 0.90 or higher and RMSEA values of 0.08 or lower indicating an acceptable fit [23].

Criterion-related validity was examined by correlating ODAS scores with external criteria that are theoretically related to attitudes towards organ donation. These criteria included measures of knowledge and willingness to organ donation. Pearson correlation coefficients were calculated to determine the strength and direction of these relationships. Significant correlations in the expected directions would support the criterion-related validity of the ODAS.

ROC curve analysis was employed to assess the predictive validity of the ODAS in relation to participants' willingness to be organ donors. Willingness was originally measured on a 5-point Likert-type agreement scale and subsequently dichotomized into two categories: "Agree" (those who expressed willingness) and "Disagree" (those who did not).

Data analysis. Data were analyzed using Jamovi software (version 2.2.5). Descriptive statistics, including means, standard deviations, and percentages, were calculated for all variables. Prior to conducting inferential analyses, the normality of the data was assessed using the Shapiro-Wilk test, and the homogeneity of variance was evaluated using Levene's test. For group comparisons, Chi-square tests were used for categorical variables, and t-tests were employed for continuous variables when the assumptions of normality and homogeneity of variance were met. In cases where these assumptions were violated, appropriate non-parametric alternatives, such as the Mann-Whitney U test, were utilized. The level of statistical significance adopted was 5% ($p < 0.05$).

Ethical Considerations. The study was approved by the Local Bioethics Commission of the "University Medical Center" Corporate Fund (Protocol No. 3 dated July 14, 2023). Informed consent was obtained from all participants before data collection, and they were assured of the confidentiality and anonymity of their responses.

Results

The study included two sets of participants: those who primarily speak Kazakh and those who primarily speak Russian. A total of 1294 participants were recruited, with 675 Kazakh-speaking participants and 619 Russian-speaking participants. The Kazakh-speaking group consisted of 20.6% males, while the Russian-speaking group included 22.9%. The overall gender distribution across both groups was relatively balanced, with 21.7% males and 78.3% females. Participants' ages ranged from [insert age range] years, with a mean age of 36.8±11.5 years. Study participants' socio-demographic data is presented in Table 1.

Table 1- Study population

Variable	Kazakh-speaking (N=675)	Russian-speaking (N=619)	χ²/U-test, p
	n (%) / M±SD		
Gender			
Male	139 (20.6%)	142 (22.9)	1.05, p=0.306
Female	536 (79.4%)	477 (77.1)	
Age	37.5±11.7	36.1±11.2	193818, p=0.025
Occupation			
Student	68 (10.1%)	93 (15.0%)	
Employed	553 (81.9%)	445 (71.9%)	
Self-employed	27 (4.0%)	49 (7.9%)	22.5, p<0.001
Unemployed	13 (1.9%)	22 (3.6%)	
Pensioner	14 (2.1%)	10 (1.6%)	
Profession			
Non-medical	119 (17.6%)	265 (42.8%)	98.1, p<0.001
Medical	556 (82.4%)	354 (57.2%)	
Residence			
Rural	202 (29.9%)	65 (10.5%)	74.4, p<0.001
Urban	473 (70.1%)	554 (89.5%)	

The analysis revealed an ICC of 0.907, with a 95% confidence interval (CI) ranging from 0.764 to 0.964. The F-value was 10.804, with a significance level of p < 0.001.

These results indicate a high level of reliability, suggesting that the ODAS produces stable and consistent results over time.

The internal consistency of the Organ Donation Attitudes Scale (ODAS) was evaluated separately for the

Kazakh (K-ODAS) and Russian (R-ODAS) versions of the scale using Cronbach's alpha. The initial analysis revealed that one item (item 8) showed a low item-rest correlation and resulted in a higher value of Cronbach's alpha if the item was dropped (Table 2). For the Kazakh version (K-ODAS), Cronbach's alpha was initially 0.916. After removing the item 8 with low item-rest correlation, the adjusted Cronbach's alpha increased to 0.924, indicating a very high level of internal consistency. Similarly, for the Russian version

(R-ODAS), the initial Cronbach's alpha was 0.860. After the removal of the problematic item 8, the adjusted Cronbach's alpha increased to 0.900, reflecting an improvement in the scale's internal consistency. These results suggest that both the K-ODAS and R-ODAS have strong internal consistency, particularly after the adjustment for the identified item. The high Cronbach's alpha values support the reliability of the scale for assessing attitudes toward organ donation in both language groups.

Table 2 - K-ODAS and R-ODAS internal consistency

#	Item	M±SD	IRC	Cronbach's α if item dropped
	Kazakh-Organ Donation Attitude Scale			
1	Мен орган донорлығын адам өмірін сақтап қалудың маңызды амалы деп есептеймін *Men organ donorlygyn adam omirin saktap қaludyn manyzdy amaly dep eseptejmin*	3.75±1.05	0.736	0.905
2	Мен қайтыс болғаннан кейін өз органдарымды донорлыққа беру идеясына оң көзқараспен қараймын	3.00±1.38	0.763	0.903
3	Орган донорлығы – қоғам өмірі үшін құнды үлес болып табылады *Men kajtys bolgannan kejin oz organdarymdy donorlykka beru idejasyna on kozkaraspen karajmyn*	3.54±1.13	0.812	0.898
4	Менің діни немесе мәдени сенімдерім бойынша орган донорлығы құпталады *Menin dini nemese madeni senimderim bojynsha organ donorlygy kuptalady*	3.21±1.12	0.767	0.902
5	Мен өз отбасымның мүшелеріне орган донорлығы туралы ойлануды кеңес етер едім *Men oz otbasymnyn myshelerine organ donorlygy turaly ojlanudy kenes eter edim*	3.04±1.18	0.789	0.900
6	Қазақстанның медициналық жүйесінде органдар донорлығы этикалық нормаларға сай қаралатынына сенімдімін *Kazakstannyn medicinalyk zhuesinde organdar donorlygy etikalyk normalarga saj karalatynyna senimdimin*	3.30±1.12	0.748	0.903
7	Мен үшін отбасыммен, достарыммен орган донорлығы тақырыбын талқылау ыңғайлы *Men ushin otbasymmen, dostarymmen organ donorlygy takyrybyn talkylau yngajly*	3.05±1.15	0.724	0.905
8*	Мені Қазақстандағы донорлық органдарды үлестіру әдісінің қаншалықты әділетті екендігі алаңдатады *Meni Kazakstandagy donorlyk organdardy uylestiru adisinin kanshalykty adiletty ekendigi alandatady*	3.37±1.07	0.469	0.924
	Russian-Organ Donation Attitude Scale			
1	Я считаю, что донорство органов – важный способ спасти жизни *Ja schitaju, chto donorstvo organov – vazhnyj sposob spasti zhizni*	4.16±1.00	0.680	0.835
2	Я отношусь положительно к идее пожертвования своих органов после смерти *Ja otnoshus' polozhitel'no k idee pozhertvovanija svoih organov posle smerti*	3.90±1.21	0.794	0.819
3	Донорство органов – ценный вклад в жизнь общества *Donorstvo organov – cennyj vklad v zhizn' obshhestva*	4.16±0.96	0.784	0.825
4	Мои религиозные или культурные убеждения поддерживают донорство органов *Moi religioznye ili kul'turnye ubezhdenija podderzhivajut donorstvo organov*	3.69±1.10	0.702	0.832
5	Я бы посоветовал членам моей семьи подумать о донорстве органов *Ja by posovetoval chlenam moej sem'i podumat' o donorstve organov*	3.51±1.15	0.791	0.820
6	Я верю, что медицинская система Казахстана будет этично относиться к донорству органов *Ja verju, chto medicinskaja sistema Kazahstana budet jetichno otnosit'sja k donorstvu organov*	3.52±1.16	0.587	0.846
7	Мне комфортно обсуждать тему донорства органов со своей семьей и друзьями *Mne komfortno obsuzhdat' temu donorstva organov so svoej sem'ej i druz'jami*	3.53±1.09	0.548	0.850
8*	Меня беспокоит справедливость распределения и распространения органов для донорства в Казахстане *Menja bespokoit spravedlivost' raspredelenija i rasprostranenija organov dlja donorstva v Kazahstane*	3.72±0.99	0.014	0.900
	* item was removed from final scale IRC – item-rest correlation			

Exploratory Factor Analysis was conducted to examine the underlying factor structure of the ODAS. The EFA revealed a two-factor structure for both versions of the scale, suggesting that the ODAS captures two distinct dimensions of attitudes towards organ donation (items 1-3 for factor 1 and items 4-7 for factor 2). For the K-ODAS, Bartlett's test of sphericity was highly significant (p < 0.001), indicating that the data were suitable for factor analysis. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.928, demonstrating that the sample size was adequate for the factor analysis. Similarly, for the R-ODAS, Bartlett's test of sphericity was also highly significant (p < 0.001), with a KMO value of 0.904. These results confirm that the factor structure identified by the

EFA is robust and that the data are appropriate for this type of analysis. The two-factor structure identified through EFA underscores the validity of the ODAS in capturing the key components of attitudes towards organ donation across both language groups.

The two-factor structure identified by EFA was further examined using Confirmatory Factor Analysis (CFA). The CFA results confirmed the two-factor model, demonstrating that it provided a better goodness of fit for both the K-ODAS and R-ODAS compared to alternative models (Table 3 and Figure 1). The goodness-of-fit indices indicated that the two-factor structure is robust across both language groups, thus validating the factor structure of the ODAS.

Table 3 - CFA Model Fit Indices

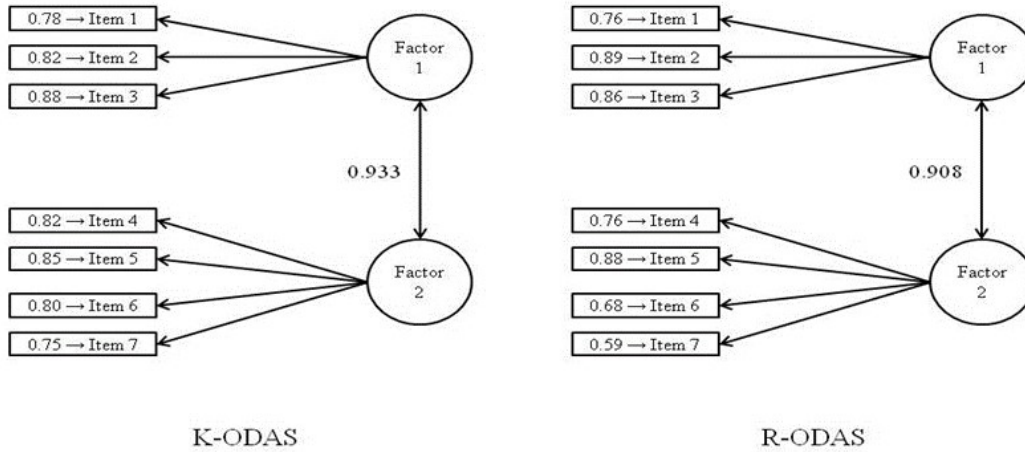| Scale	Model	Exact fit	CFI	TLI	RMSEA	RMSEA 90% CI	
						Lower	Upper
K-ODAS	1-factor	<0.001	0.974	0.962	0.093	0.08	0.11
	2-factor	<0.001	0.988	0.981	0.065	0.05	0.08
R-ODAS	1-factor	<0.001	0.956	0.934	0.114	0.10	0.13
	2-factor	<0.001	0.980	0.968	0.079	0.06	0.10

Figure 1 - CFA Model of the K-ODAS and R-ODAS

The criterion-related validity of the scale was assessed by examining its correlation with two key external variables: knowledge of organ donation and willingness to donate organs. These variables were chosen based on their theoretical relevance to attitudes towards organ donation. For both K-ODAS and R-ODAS, significant positive correlations were observed between ODAS scores and participants' knowledge of organ donation. This suggests that individuals with higher knowledge levels tend to have more favorable attitudes towards organ donation. Similarly, significant correlations were found between ODAS scores and participants' willingness to donate organs, indicating that those with more favorable attitudes as measured by the ODAS are more likely to express a willingness to donate (Table 4). These findings support the criterion-related validity of both the K-ODAS and R-ODAS, demonstrating that the scale is effective in predicting related constructs such as knowledge and willingness in the context of organ donation.

Table 4 - Criterion-related validity and ROC-curve analysis

Scale	M±SD	Knowledge on organ donation	Willingness to organ donation	Sensitivity (%)	Specificity (%)	AUC
		Correlation Spearman's rho (p)				
K-ODAS	3.27±0.965	0.529 (<0.001)	0.787 (<0.001)	87.74	80.35	0.910
R-ODAS	3.78±0.869	0.460 (<0.001)	0.831 (<0.001)	82.84	84.34	0.915

The area under the ROC curve (AUC) was calculated to determine the ability of the ODAS to distinguish between participants who were willing and those who were not willing to donate organs. The AUC for the Kazakh version was 0.910, while the AUC for the Russian version was 0.915, indicating good level of accuracy (Table 4, Figure 2). These results suggest that the ODAS is an effective tool for predicting organ donation willingness across both language groups.
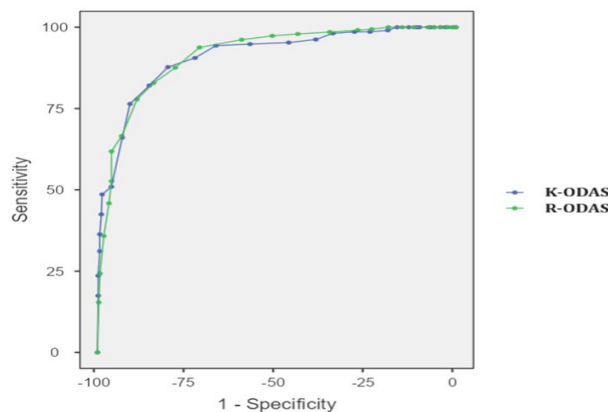

Figure 2 - ROC-curve analysis

Discussion

The development and validation of the Organ Donation Attitudes Scale (ODAS) in both Kazakh (K-ODAS) and Russian (R-ODAS) versions represent a significant step forward in understanding public attitudes towards organ donation in Kazakhstan. The findings of this study provide valuable insights into the psychometric properties of the ODAS and its utility in assessing organ donation attitudes in a culturally diverse population.

The results of the exploratory and confirmatory factor analyses indicate that the ODAS is a robust measure with a stable two-factor structure across both language groups. The high values of the Kaiser-Meyer-Olkin (KMO) measure and the significance of Bartlett's test of sphericity confirm the suitability of the data for factor analysis, with KMO values of 0.928 for K-ODAS and 0.904 for R-ODAS. The confirmation of the two-factor model by CFA suggests that the scale accurately captures the key dimensions of attitudes toward organ donation in both Kazakh and Russian-speaking populations.

The reliability of the ODAS was further supported by strong internal consistency and high test-retest reliability. The Cronbach's alpha values for both K-ODAS (0.916, adjusted to 0.924) and R-ODAS (0.860, adjusted to 0.900) indicate that the scale is consistent and reliable. The test-retest reliability, with an intraclass correlation (ICC) of 0.907, underscores the scale's stability over time.

The criterion-related validity of the ODAS was supported by significant correlations with knowledge of organ donation and willingness to donate organs. These findings are consistent with existing literature, which suggests that individuals who are more knowledgeable about organ donation are also more likely to have favorable attitudes and a higher willingness to donate [24, 25]. The strong correlations observed for both K-ODAS and R-ODAS versions further validate the scale's effectiveness in predicting related constructs, underscoring its utility in assessing organ donation attitudes across different cultural and linguistic groups.

Implications for Practice and Research. The validated ODAS can serve as a valuable tool for healthcare professionals, policymakers, and researchers in Kazakhstan to better understand and address public attitudes towards organ donation. The scale's ability to reliably measure attitudes in both Kazakh and Russian languages ensures its applicability across the diverse population of Kazakhstan. This is particularly important in a multicultural context where language and cultural differences may influence health-related attitudes and behaviors.

Future research could focus on longitudinal studies to assess changes in attitudes over time and the impact of targeted educational interventions. Additionally, exploring the applicability of the ODAS in other Central Asian countries with similar cultural and linguistic contexts could further enhance the generalizability of the findings.

Study limitation. While the findings of this study are promising, there are several limitations that should be acknowledged. The study sample, though representative, may not fully capture the attitudes of all subgroups within the population, particularly those in more remote or underserved areas. Additionally, while the scale demonstrated strong psychometric properties, further validation in different contexts and settings is necessary to fully establish its reliability and validity.

Conclusion

In conclusion, the ODAS is a reliable and valid tool for assessing attitudes towards organ donation in Kazakhstan. Its development and validation in both Kazakh and Russian languages ensure that it can be effectively used across the country's diverse population. The scale's robust psychometric properties, coupled with its strong criterion-related validity, make it a valuable resource for promoting organ donation awareness and understanding public attitudes in Kazakhstan.

Conflict of interest. The authors declare that they have no confict of interest.

Financing. This research has been funded by

Author contributions. Conceptualization – B.A., As.A. and P.Y.; Methodology – B.A., As.A. and S.V.; Validation and Formal analysis – B.A.; Investigation and Data Curation – As.A, D.G., S.V. and Ab.A.; Writing - Original Draft – B.A.; Writing - Review & Editing - As.A, D.G., S.V., Ab.A. and P.Y.; Project administration – Ab.A.; Supervision and Funding acquisition – P.Y.

References

1. Республиканский центр по координации трансплантации и высокотехнологичных медицинских услуг. Веб-сайт (Дата обращения: 05 апреля 2024 года). Режим доступа: https://transplant.kz/ru/8-news/456-list-ozhidaniya

Respublikanskij centr po koordinacii transplantacii i vysokotehnologichnyh medicinskih uslug (Republican Center for Coordination of Transplantation and High-Tech Medical Services) [in Russian]. Veb-sajt (Data obrashhenija: 05 aprelja 2024 goda). Rezhim dostupa: https://transplant.kz/ru/8-news/456-list-ozhidaniya

2. Al-Qerem W., Carter N., Ling J. Attitudes to Organ Donation and Transplantation: An Insight From Jordan. Experimental and clinical transplantation : official journal of the Middle East Society for Organ Transplantation, 2022; 20(6): 602–608. [Crossref]

3. Soqia J., Ataya J., Alhomsi R., Soqia H., Kakaje A., et al. Attitudes and factors influencing organ donation decision-making in Damascus, Syria: a cross-sectional study. Scientific reports, 2023; 13(1): 18150. [Crossref]

4. Timar J., Bleil M., Daly T., Koomar S., et al. Successful strategies to increase organ donation: the Gift of Life Donor Program Philadelphia model. Indian journal of thoracic and cardiovascular surgery, 2021; 37(Suppl 3): 380–394. [Crossref]

5. Carola V., Morale C., Vincenzo C., Cecchi V., et al. Organ donation: psychosocial factors of the decision-making process. Frontiers in psychology, 2023; 14: 1111328. [Crossref]

6. Irving M.J., Tong A., Jan S., Cass A., et al. Factors that influence the decision to be an organ donor: a systematic review of the qualitative literature. Nephrology, dialysis, transplantation: official publication of the European Dialysis and Transplant

Association - European Renal Association, 2012; 27(6): 2526–2533. [Crossref]

7. Dibaba F.K., Goro K.K., Wolide A.D., Fufa F. G., et al. Knowledge, attitude and willingness to donate organ among medical students of Jimma University, Jimma Ethiopia: cross-sectional study. BMC public health, 2020; 20(1): 799. [Crossref]

8. Doerry K., Oh J., Vincent D., Fischer L., Schulz-Jürgensen S. Religious and cultural aspects of organ donation: Narrowing the gap through understanding different religious beliefs. Pediatric transplantation, 2022; 26(7): e14339. [Crossref]

9. Mostafazadeh-Bora M., Zarghami A. Cultural and religious issues in organ transplantation: Crucial role in multiethnic countries. Saudi journal of kidney diseases and transplantation: an official publication of the Saudi Center for Organ Transplantation, Saudi Arabia, 2017; 28(1): 188–189. [Crossref]

10. Soylu D., Özdemir A., Soylu A. Does religious attitude affect organ donation and transplantation?. Transplant immunology, 2022; 71, 101555. [Crossref]

11. Martínez-López M.V., McLaughlin L., Molina-Pérez A., Pabisiak K., et al. Mapping trust relationships in organ donation and transplantation: a conceptual model. BMC medical ethics, 2023; 24(1): 93. [Crossref]

12. Robinson D.H., Perryman J. P., Thompson N. J., Lamonte Powell C., Jacob Arriola K.R. Exploring Donotion-related Knowledge Attitudes, Beliefs and Distrust Among African Americans. Journal of the National Medical Association, 2015; 107(3): 42–50. [Crossref]

13. Luo A., He H., Xu Z., Ouyang W. et al. A Qualitative Study in Family Units on Organ Donation: Attitude, Influencing Factors and Communication Patterns. Transplant international: official journal of the European Society for Organ Transplantation, 2022; 35: 10411. [Crossref]

14. Molina-Pérez A., Delgado J., Frunza M., Morgan M., et al. Should the family have a role in deceased organ donation decision-making? A systematic review of public knowledge and attitudes towards organ procurement policies in Europe. Transplantation reviews (Orlando, Fla.), 2022; 36(1): 100673. [Crossref]

15. Nayak V. C., Nayak S. An empirical investigation on the impact of attitudes towards organ donation in India. F1000Research, 2023; 12: 463. [Crossref]

16. Sengul S., Sahin M.K. The willingness and attitudes of medical students regarding organ donation and transplantation: a cross-sectional study from Turkey. Revista da Associacao Medica Brasileira (1992), 2022; 68(12): 1631–1637. [Crossref]

17. Yazici Sayin Y. Turkish validity and reliability of Organ Donation Attitude Scale. Journal of clinical nursing, 2016; 25(5-6): 642–655. [Crossref]

18. Gao C., Dai Y., Chai Y., Wang Y., et al. Knowledge, Attitudes, Willingness, and Associated Factors to Organ Donation Among Intensive Care Unit Health Care Workers: Findings of a Cross-Sectional Study. Transplantation proceedings, 2024;56(3), 469–478. [Crossref]

19. Fan X., Li M., Rolker H., Li Y., et al. Knowledge, attitudes and willingness to organ donation among the general public: a cross-sectional survey in China. BMC public health, 2022; 22(1): 918. [Crossref]

20. Alwahaibi N., Al Wahaibi A., Al Abri M. Knowledge and attitude about organ donation and transplantation among Omani university students. Frontiers in public health, 2022; 11: 1115531. [Crossref]

21. Koo T.K., Li M.Y. A Guideline of Selecting and Reporting Intraclass Correlation Coefficients for Reliability Research. Journal of chiropractic medicine, 2016; 15(2): 155–163. [Crossref]

22. Taber K.T. The Use of Cronbach's Alpha When Developing and Reporting Research Instruments in Science Education. Research in Science Education, 2016; 48: 1273-1296. [Crossref]

23. Kline R.B. Principles and practice of structural equation modeling (4th ed.). Guilford Press. 2016: 165 p. [Google Scholar]

24. Shrivastav V., Murugan Y., Gandhi R., Nagda J. Knowledge, Attitudes, and Practices Regarding Organ Donation Among Medical Students in India: A Mixed Methods Study. Cureus, 2024; 16(3): e56136. [Crossref]

25. Abukhaizaran N., Hashem M., Hroub O., Belkebir S., Demyati K. Knowledge, attitudes, and practices of Palestinian people relating to organ donation in 2016: a cross-sectional study. Lancet (London, England), 2018; 391 Suppl 2: S45. [Crossref]

Қазақстандағы орган донорлығына көзқарас шкаласын әзірлеу және валидациялау

Болатов А.К. [1], Асанова А.А. [2], Даниярова Г.Д. [3], Сазонов В.Г. [4],
Абдиоразова А.А. [5], Пя Ю.В. [6]

[1] *Шэньчжэнь университетінің PhD-студенті, Шэньчжэнь, Қытай; University Medical Center ғылыми қызметкері, Астана, Қазақстан. E-mail: bolatovaidos@gmail.com*

[2] *Ғылым департаментінің бас менеджері, University Medical Center, Астана, Қазақстан. E-mail: asanova.aruzhan@umc.org.kz*

[3] *University Medical Center ғылыми хатшысы, Астана, Қазақстан. E-mail: daniyarova.g@umc.org.kz*

[4] *University Medical Center ғылыми қызметкері, Астана, Қазақстан. E-mail: dr.sazonov@gmail.com*

[5] *Басқарма төрағасының орынбасары, University Medical Center, Астана, Қазақстан. E-mail: a.aigerim@umc.org.kz*

[6] *Басқарма төрағасы, University Medical Center, Астана, Қазақстан. E-mail: yuriy.pya@umc.org.kz*

Түйіндеме

Зерттеудің мақсаты: Орган Донорлығына Көзқарас Шкаласы (ODAS) Қазақстандағы орган донорлығына деген қоғамдық көзқарасты бағалау үшін әзірленген. Елдің екі тілді сипатын ескере отырып, зерттеудің мақсаты қазақ және орыс тілдерінде ODAS шкаласын әзірлеу және валидациялау болды.

Әдістері. Зерттеу барысында көлденең қима дизайны қолданылды, оған қатысушылар Қазақстанның әртүрлі аймақтарынан қатысты. Шкала әдебиетке шолу, сараптамалық кеңес және танымдық сұхбаттардың жиынтығы арқылы

әзірленді. ODAS шкаласының психометриялық қасиеттері факторлық құрылымды валидтілігін анықтау үшін барлау факторлық талдау (EFA) және растау факторлық талдау (CFA) арқылы бағаланды. Сондай-ақ, ішкі жүйелілік, қайта тестілеудің сенімділігі және критерийлерге байланысты валидтілік бағаланды. ROC қисық сызығын талдау қатысушылардың органдарды донорлыққа беруге дайындығына қатысты шкаланың болжамды негізділігін бағалау үшін пайдаланылды.

Нәтижесі. EFA шкаланың қазақ (K-ODAS) және орыс (R-ODAS) нұсқалары үшін екі факторлы құрылымды анықтады, ол CFA арқылы расталды. KMO мәндері K-ODAS үшін 0,928 және R-ODAS үшін 0,904 болды, Бартлеттің сфералық сынағы екі нұсқа үшін де p<0,001 деңгейінде болды. Кронбахтың альфасы түзетулерден кейін K-ODAS (0,924) және R-ODAS (0,900) үшін де жоғары ішкі құрылымды көрсетті. Тест-қайта тестілеудің сенімділігі ICC 0,907 мәнін көрсетті, бұл шкаланың уақыт өте келе тұрақтылығын көрсетеді. Критерийлерге байланысты валидтілік ODAS ұпайлары мен білім және органдарды донорлыққа даярлығы сияқты сыртқы айнымалылар арасындағы маңызды корреляциялармен расталды. ROC қисығын талдау шкаланың болжамды валидтілігін дәлелдеді.

Қорытынды. ODAS - бұл Қазақстандағы орган донорлығына деген көзқарасты бағалаудың сенімді және жарамды құралы. Оның қазақ және орыс тілдерінде дайындалуы оның елдің әр түрлі тұрғындарына қолданылуын қамтамасыз етеді. Шкаланың сенімді психометриялық қасиеттері оны денсаулық сақтау мамандары мен орган донорлығын ілгерілетуге ұмтылатын саясаткерлер үшін құнды ресурсқа айналдырады.

Түйін сөздер: орган донорлығы, көзқарас, шкала әзірлеу, шкала валидациясы, Қазақстан.

Разработка и валидация шкалы отношения к донорству органов в Казахстане

Болатов А.К. [1], Асанова А.А. [2], Даниярова Г.Д. [3], Сазонов В.Г. [4], Абдиоразова А.А. [5], Пя Ю.В. [6]

[1] PhD-студент Шэньчжэньского университета, Шэньчжэнь, Китай; научный сотрудник University Medical Center, Астана, Казахстан. E-mail: bolatovaidos@gmail.com

[2] Главный менеджер Департамента науки, University Medical Center, Астана, Казахстан. E-mail: asanova.aruzhan@umc.org.kz

[3] Ученый секретарь University Medical Center, Астана, Казахстан. E-mail: daniyarova.g@umc.org.kz

[4] Научный сотрудник University Medical Center, Астана, Казахстан. E-mail: dr.sazonov@gmail.com

[5] Заместитель Председателя Правления University Medical Center, Астана, Казахстан. E-mail: a.aigerim@umc.org.kz

[6] Председатель Правления University Medical Center, Астана, Казахстан. E-mail: yuriy.pya@umc.org.kz

Резюме

Цель исследования: Шкала отношения к донорству органов (ODAS) была разработана для оценки отношения общества к донорству органов в Казахстане. Учитывая двуязычный характер страны, целью исследования было разработать и валидизировать ODAS как на казахском, так и на русском языках.

Методы. В исследовании использовался перекрестный подход, участники были набраны из различных регионов Казахстана. Шкала была разработана на основе анализа литературы, консультаций с экспертами и когнитивного интервью. Психометрические свойства ODAS были оценены с помощью исследовательского факторного анализа (EFA) и подтверждающего факторного анализа (CFA) для подтверждения факторной структуры шкалы. Также были оценены внутренняя согласованность, надежность повторного тестирования и критериальная валидность. Анализ ROC-кривой был использован для оценки прогностической достоверности шкалы в отношении готовности участников пожертвовать органы.

Результаты. EFA выявило двухфакторную структуру как для казахской (K-ODAS), так и для русской (R-ODAS) версий, что было подтверждено CFA. Значения KMO составили 0,928 для K-ODAS и 0,904 для R-ODAS, при этом критерий сферичности по Бартлетту был достоверным при p<0,001 для обоих версий. Альфа Кронбаха после корректировки показала высокую внутреннюю согласованность как для K-ODAS (0,924), так и для R-ODAS (0,900). Коэффициент надежности при повторном тестировании составил 0,907, что указывает на стабильность во времени. Критериальная валидность была подтверждена значительными корреляциями между показателями ODAS и внешними переменными, такими как знания и готовность к донорству органов. Анализ кривой ROC дополнительно продемонстрировал прогностическую валидность шкалы.

Выводы. ODAS - это надежный и валидизированный инструмент для оценки отношения к донорству органов в Казахстане. Его разработка как на казахском, так и на русском языках обеспечивает применимость к различным слоям населения страны. Надежные психометрические свойства шкал делают их ценным ресурсом для медицинских работников и политиков, стремящихся продвигать донорство органов.

Ключевые слова: донорство органов, отношение, разработка шкалы, валидация шкалы, Казахстан.