BMC Health Services Research

RESEARCH

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Workplace dignity scale in Iranian nurses: translation and psychometric evaluation

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Abstract

Background Workplace dignity is defined as a person's perception of respect and trust, equal and fair treatment, valuing the person, independence, freedom of expression, and decision-making enjoyed by the employee in the workplace. Therefore, this study aimed to develop the Workplace Dignity Scale (WDS) and evaluate its psychometric properties.

Methods In this methodological study, WDS was translated based on Beaton et al. Guideline. After assessing face and content validity (using CVI, CVR, modified kappa, and item impact), 250 nurses were selected by random sampling from Kashan hospitals in 2023. Then, WDS was assessed through expletory factor analysis (EFA), known-groups comparison, internal consistency, and stability. The ceiling and floor effects were also examined. Data were analyzed using SPSS v16 by Kruskal–Wallis test, Cronbach's alpha, McDonald's Omega, interclass correlation coefficient (ICC), standard error of measurement (SEM), and minimum detectable changes (MDC).

Results The scale's CVI, CVR, and modified kappa were above 0.79. Item impact was higher than 1.5. EFA extracted three factors, including "general dignity, respect, and indignity", that could explain 70.6% of the total variance in scale. WDS could differentiate between the three groups in terms of occupation satisfaction status. Cronbach's alpha, McDonald's Omega, ICC, SEM, and STC of scale were 0.949, 0.950, 0.970, 2.793, and 7.742, respectively.

Conclusion The Persian version of the WDS has shown validity and reliability for measuring workplace dignity among nurses in the Iranian context.

Keywords Workplace, Dignity, Nurse, Psychometrics

Introduction

It is thought that dignity is a prominent feature in humans in a way that separates humans from other beings [1]. Dignity is a dynamic and subjective feeling that makes a person feel valued and respected and that others treat him similarly [2]. The concept of dignity has been studied in a wide range of disciplines to the extent that the International Labor Organization has defined it as one of the basic human rights in its constitution [3], thus the impact of dignity in various aspects. Human life is meaningful, especially in the workplace, as an environment that affects dignity so that people can directly master new skills, participate in activities, and perform optimally to strengthen their self-esteem and increase their dignity. On the other hand, their dignity may change performance errors, mismanagement, inherent self-esteem, receiving inappropriate feedback, and negative work experiences [1, 4, 5].

Hospitals and treatment environments are among the most challenging places threatening workplace dignity.

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In this context, due to their full-time activity in this environment, nurses are more prone to neglect or failure of dignity than others [6, 7]. Nurses show that their human dignity and professional reputation are vulnerable to degrees by doctors and their families or colleagues [7], and, on the other hand, it is crucial to evaluate the cultural experiential aspects that may affect professional dignity and values in different ways [8] and their different aspects should be strengthened in nurses [9]. Also, more research in a different clinical environment will be helpful in our understanding of the concept of nursing dignity [10]. Therefore, to develop the dignity of the work environment among nurses, it is necessary to evaluate the dignity of the work environment using a valid and reliable scale.

So far, three tools have been designed and introduced to measure dignity. The WPD tool was designed by Tiwari and Sharma in 2019 in India. Even though this tool was designed and developed to measure workplace dignity, most items measure the attitude of completing the tool toward the concept of workplace dignity [3].

Khakchian et al.'s tool was designed and introduced in Iran in 2023. Despite the specificity of the special tools for nurses in the hospital environment, it does not allow comparisons between different groups working in environments, such as other doctors, nurses, and nurses [11].

In the meantime, the WDS tool was designed and psychologized in 2018 by Thomas and Lucas to measure dignity in the workplace in Amazon Mechanical Turk workers in America. The tool examines the dignity of the workplace in 18 items and six areas, including Respectful Interaction, Competence Contribution, Equality, Inherent value, General dignity and Indignity [12]. The WDS scale has been evaluated psychometrically in different languages and in various occupational groups, such as employees (Turkish), workers (Spanish), and prolific academic database (English); the psychometric properties of all versions have been reported as favourable [1, 13, 14]. This tool can be used to evaluate the dignity of the work environment in the employees of different work environment languages.

Considering the importance of the work environment and, the development of nurses' dignity and the challenges in medical settings, there is a need for a valid and reliable scale that evaluates its characteristics. The present study evaluated the psychometric properties of the Work Environment Dignity Questionnaire (WDS).

Materials and methods

The current methodological study was designed and reported based on the Consensus-based Standards for selecting health Measurement Instruments [15]. This study was carried out in 2023 in four stages:

Stage 1. Translation and cultural adaptation

The WDS translation (English to Persian language) and cultural adaptation were carried out according to the guidelines of Beaton et al. [16]. To achieve the desired intercultural equivalence, it is essential to ensure semantic, terminological, conceptual, and experimental equivalences. First, the authors obtained permission from the scale developer; then, steps of the guidelines of Beaton et al. were carried out that contain Initial Translation, Synthesis of the Translations, Back Translation, Expert Committee, Test of the Pre-Final Version, and Submission of Documentation to the Developers or Coordinating Committee for Appraisal of the Adaptation Process. All translators were independent, fluent in both languages and familiar with the psychometrics of the scale in both the initial and backward translations.

Stage 2. Content and face validity

In order to achieve content validity, the scale was reviewed by ten experts in psychometrics, ethics, sociology, management, psychology, and nursing. Also, they presented their opinions about perceptibility, clarity, comprehensiveness, and scoring scale [17]. The quantitative content validity was assessed by calculation of Content Validity Ratio (CVR) [18], Content Validity Index (CVI) and Scale Content Validity Scale (S-CVI) [19], and modified Kappa statistic [17]. Twenty nurses evaluated the face validity of the scale; any ambiguities, contradictions, and problems in understanding the items were recorded. Also, the quantitative formal validity (item impact) was calculated and interpreted based on the nurses' level of comprehensibility on the 5-point Likert scale [17].

Stage 3. Data collection

The study population included nurses working in one of the affiliated hospitals of Kashan University of Medical Sciences (including Shahid Beheshti, Naqavi, Matini, Kargarnejad, and Seyed al-Shohada hospitals). Inclusion criteria include Iranian citizenship, having a university degree in nursing, engaging in clinical activity, having at least six months of full-time work experience in a hospital (not working in the form of short-term contracts), not having psychological disorders (based on self-report), and consent to participate in the study. According to the number of items on the WDS scale (18 items), the sample size was considered 250 nurses to have sufficient samples and to achieve more variance in the studied samples [20].

All permissions were obtained from the Research and Technology Deputy and Ethics Committee of Kashan University of Medical Sciences. The first researcher received the list of all working nurses in the mentioned hospitals (according to the entry criteria). The sampling was done using a simple random method (Table of

Random Numbers). Thus, the included nurses obtained written consent after explaining the research; then, the scales were provided to be completed at the appropriate time until the end of the shift. In case of unwillingness to answer the questions, the nurse has the right to withdraw, and another sample from the same department was randomly replaced. The study scales include the demographic questionnaire, the Persian version of WDS, and the short-form Minnesota Satisfaction Questionnaire (MSQ). The last six months were taken into account to respond to the tools used by nurses to measure the dignity of the work environment.

The demographic questionnaire included personal information (age, sex, marital status, education, and native) and job information (hospital and ward, employment status, job position, work experiences, manager and colleague support, and salary and job satisfaction); this questionnaire whose qualitative content validity was confirmed by five faculty members of Kashan Nursing and Midwifery Faculty.

The Workplace Dignity Scale (WDS) was introduced by Thomas and Lucas in 2019 in the USA [12]. This scale consists of 18 items in 6 subscales, including "respectful interaction", "competence contribution", "equality, inherent value", "general dignity", and "indignity". The WDS scale is scored on a 7-point Likert scale, including "strongly disagree", "disagree", "more or less disagree", "undecided", "more or less agree", "agree", and "strongly agree". In total, scores are determined between 18 and 126, so higher scores indicate higher dignity in the workplace. So far, this scale has been translated and evaluated into Spanish and Turkish. In addition to assessing the face, content, and construct validity in different languages, its concurrent validity has been checked and confirmed with the competence, interpersonal justice, work environment, and job satisfaction scales. Also, Cronbach's alpha, Omega, and Guttman coefficients are estimated at 0.860–0.975, 0.91–0.98, and 0.852, respectively [12, 14, 21, 22].

A Minnesota Satisfaction Questionnaire (MSQ) was designed by Brayfield and Rothe in 1951. The short form of the questionnaire was introduced by Weiss et al. in 1967 [23]. This questionnaire comprises 19 items on a 5-option Likert scale and six subscales: Payment Systems, job type, Advancement Opportunities, Organizational Climate, Leadership Types, and Physical Conditions. The total scores in the 19–38, 38–57, and above 57 indicate poor, moderate, and very good job satisfaction, respectively [23]. The psychometric properties of the Persian version of this questionnaire have been confirmed in various studies. Also, Cronbach's alpha has been reported to be 0.86 to 0.92 [24, 25].

Stage 4. Construct validity

The psychometric properties were evaluated based on the Classical Test Theory (CTT). The construct validity was conducted using Exploratory Factor Analysis (EFA), convergent validity, and known-groups comparison. Kaiser-Mayer-Olkin (KMO) and Bartlett's sphericity tests were used to determine the appropriateness of the data for factor analysis. The parallel analysis and scree plot were considered to extract the factors. Principal Axis Factoring (PAF) with varimax rotation was used as a factor extraction method. The items' minimum factor loading and commonality was considered to be 0.4 [20]. In addition to EFA, the known-groups comparison was done to evaluate construct validity. This method was implemented assuming that the dignity of the work environment is different in nurses with varying levels of job satisfaction [14]. Based on this, nurses were divided into three job satisfaction groups based on the MSQ scale: poor (scores 19–38), moderate (scores 38–57), and very good (scores 57–95). Then, the WDS score in the three groups was compared.

Stage 5. Reliability and ceiling and floor effects

The reliability was evaluated by internal consistency and stability. In order to achieve internal consistency, Cronbach's alpha and McDonald's Omega coefficients were calculated for the total and subscale (based on EFA). The test-retest was used to assess the stability; 20 nurses (from the primary sample) were randomly selected and completed the WDS after two weeks again [17, 26]. Then, the Intraclass Correlation Coefficient (ICC) will be calculated twice between the scale scores. The Standard Error of Measurement (SEM) and the Minimal Detectable Change (MDC) were calculated as absolute reliability. The formulas of SEM and MDC are $SEM = SD\sqrt{1-ICC}$ and $MDC = 1.96 \times \sqrt{2} \times SEM$, respectively. The ceiling and floor effect was assessed by calculating the relative frequency of the samples with the highest and lowest scores obtained from the WDS scale [27].

Data analysis

Data were analyzed using SPSS version 16 statistical software (SPSS Inc, Chicago, IL, USA). Descriptive statistics were used to describe the data and assess ceiling and floor effect, skewness, and kurtosis to assess the normality of the data (range ± 2), and the Kruskal–Wallis test to compare known groups. The significance level was less than 0.05 in all analyses.

Results

Descriptive analysis

The draft of the Persian version of the WDS scale includes 18 items on a 7-point Likert scale. The face and content validity changes were made using a qualitative

method to simplify, comprehensibly, and conceptualize items; however, there was no change in items. The scale's CVR, CVI, and modified Kappa statistics were higher than 0.8, 0.8, and 0.79, respectively. The result shows that S-CVI is 0.9. The impact score of all the tool items was higher than 1.953.

A total of 250 nurses were examined; No sample was excluded from the study. The average age of the studied samples was 34,840±7,891 (in the range of 22 to 55 years). Also, the working experience of nurses was 10,329±7,156 years. Most of the investigated nurses were female (72.8%), married (75.2%) and had a bachelor's degree (90.8%). The demographic characteristics of the studied samples are reported in Table 1.

Table 1 Demographic characteristics

Variables		Mean ± SD *N* (%)
Personal Information		
Age (year)		34.840 ± 7.891
Sex	Female	182 (72.8)
	Male	68 (27.2)
Marital Status	Single	59 (23.6)
	Married	188 (75.2)
	Widow / Divorced	3 (1.2)
Education	Associate degree	2 (0.8)
	Bachelor of Science	227 (90.8)
	Master of Science and Doctor of Philosophy	21 (8.4)
Native	Native	244 (97.6)
	non-Native	6 (2.4)
Job Information		
Hospital	Beheshti	145 (58.0)
	Seyed al-Shohada	31 (12.4)
	Kargarnezhad	30 (12)
	Matini	24 (9.6)
	Naghavi	20 (8.0)
Ward	Medical	55 (22.0)
	Surgical	52 (20.8)
	Emergency	35 (14)
	Intensive Care	40 (16)
	Ear, Nose and Throat (ENT)	8 (3.2)
	Pediatric	12 (4.8)
	Psychiatric	27 (10.8)
Employment Status	Permanent	169 (67.6)
	Temporary-to-permanent	22 (8.8)
	Contract	7 (2.8)
	Compulsory-Service-Program	52 (20.8)
Job Position	Manager	4 (1.6)
	Supervisor	20 (8.0)
	Head Nurse	20 (8.0)
	Nurse	206 (82.4)
Work Experiences (year)		10.329 ± 7.156
Manager Support (scoring of 1–10)		3.180 ± 2.583
Colleague Support (scoring of 1–10)		6.592 ± 2.500
Salary Satisfaction (scoring of 1–10)		2.468 ± 2.197
Job Satisfaction	Poor	26 (10.4)
	Moderate	138 (55.2)
	Very Good	86 (34.4)

Psychometric analysis

The KMO statistic was calculated as 0.913 (between 0.796 and 0.958 for all items). Also, Bartlett's test was significant ($\chi 2 = 4213.020$, $p < 0.001$). Therefore, the samples were suitable for exploratory factor analysis. Exploratory factor analysis led to the extraction of three factors that could explain 70.6% of the total variance of the instrument score (Fig. 1; Table 2).

To check construct validity by comparing known groups, the average score of the Persian version of the WDS scale was checked in the low, medium, and high job satisfaction groups (based on the short version of the MSQ), which was 76.269±18.248, 85.478±12.116, and 91.779±12.339, respectively. The Kruskal-Wallis test reported this difference as significant ($S = 74.665$, $p > 0.001$).

The relative frequency of the minimum and maximum score obtainable from the Persian version of the scale was 0.4 and 0, respectively.

The internal consistency of the whole scale was calculated using Cronbach's alpha and Macdonald's omega indices, which were 0.949 and 0.950, respectively. Cronbach's alpha of factors 1 to 3 was 0.949, 0.902, and 0.857, respectively. The equivalence of the scale's total score was checked twice after completion of the tool with an interval of 2 weeks; The ICC index was reported as 0.970 (in the range of 0.923 to 0.988, $p < 0.001$). The SEM and MDC were calculated at 2.793 and 7.742, respectively.

Discussion

The present study was conducted to translate and psychometric evaluate workplace dignity.

Considering the importance of intercultural equivalence in the concept of workplace dignity, choosing a comprehensive way to translate the scale is necessary. Therefore, in the first step, the scale translation was done according to the guidelines of Beaton et al., (2000) [16]. This guideline guarantees semantic, terminological, conceptual, and experimental equivalence of the tool objects. The translation process in Kalafatoğlu et al. (2021) and Scott-Campbell and Williams (2020) studies has been done without considering a specific translation guideline. However, considering the translation guideline and using the "Test of the Pre-Final Version" stage can guarantee the achievement of translation and cultural compatibility compared to similar studies [1, 13].

According to the purpose of the study, it is of great importance to measure content and face validity accurately in the present study. Psychometrics of the WDS

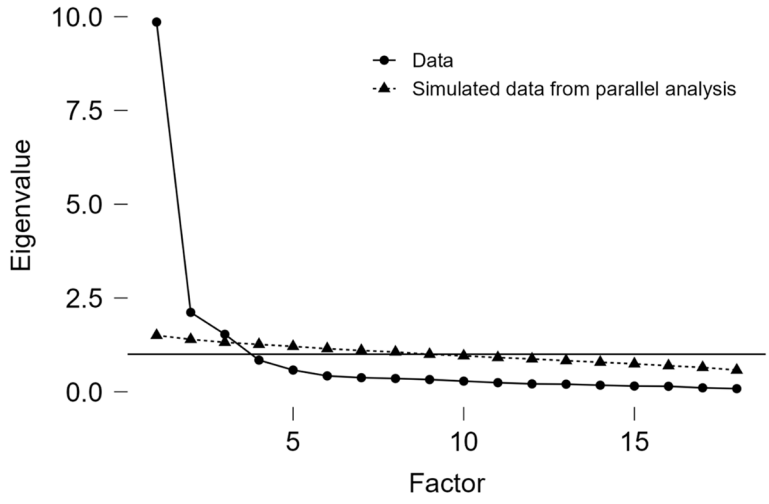

Fig. 1 The scree plot of the WDS

Table 2 Exploratory factor analysis of WDS

Items	Factor Loadings [a]			Communality [b]
	Factor 1 [c]	Factor 2 [d]	Factor 3 [e]	
WDS 1		**0.847**		0.748
WDS 2		**0.717**		0.634
WDS 3		**0.924**		0.876
WDS 4	**0.666**	0.520		0.732
WDS 5	**0.659**	0.553		0.750
WDS 6	**0.550**	0.543		0.631
WDS 7	**0.803**			0.708
WDS 8	**0.789**			0.741
WDS 9	**0.766**			0.700
WDS 10	**0.780**			0.735
WDS 11	**0.748**	0.420		0.780
WDS 12	**0.611**			0.616
WDS 13	0.407	**0.577**	-0.417	0.672
WDS 14		**0.635**		0.641
WDS 15	-0.539		**0.412**	0.465
WDS 16	-0.490		**0.609**	0.618
WDS 17			**0.861**	0.806
WDS 18			**0.892**	0.858
Eigenvalue	9.858	2.115	1.530	-
The variance explained (%)	**31.2**	**24.0**	**15.4**	
	70.6			

[a] The minimum factor loading was 0.4 (lower factor loadings are not included)

[b] The minimum commonality was considered 0.4 (lower commonality is not included)

[c] Factor 1, entitled "General Dignity", includes items 4, 5, 6, 7, 8, 9, 10, 11, and 12

[d] Factor 2, entitled "Respect", includes items 1, 2, 3, 13, and 14

[e] Factor 3, entitled "Indignity", includes items 15, 16, 17, and 18

scale has been carried out in previous studies in educational, workshop, and public work environments [1, 13, 14]. The current study aims to psychometric evaluate this scale in the hospital environment and health department staff. To achieve the desired content validity, you will ask related experts about the concept of dignity in the workplace. After assessing qualitative face and content validity, the index and ratio of content validity and modified kappa statistic were calculated; these were considered acceptable based on the values proposed by Ayre and Scully [18], Waltz et al. [19], and Polit and Beck [17], respectively, which indicate the necessary criteria to verify the scale's content validity. The face validity of the scale was done to better understand the concept from the point of view of the completers of the scale. Also, the impact score of all items was estimated as favourable. Therefore, the content and face validity results confirm the appropriateness of all items of the WDS scale from the point of view of experts and employees of the health department. Content and face validity have not been studied in similar studies on the WDS scale [1, 13, 14] ; only Scott-Campbell and Williams (2020) evaluated the content validity of the WDS by 11 experts [1]. It seems that the evaluation of content and form validity is necessary as two critical steps in measuring the scale's psychometric properties in the present study.

Construct validity by Exploratory Factor Analysis (EFA) showed three factors in the instrument. It was able to explain 70.6% of the total variance of the instrument sample, which was calculated for each of the factors: the first factor was 31.2% (General dignity), the second factor was 24.0% (Respect), and the third factor was 15.4% (Indignity). Also, the factor loading of all items was suitable. The explanation of at least 50% of the total score of the tool indicates an acceptable structure (20).Therefore, the structure of the WDS scale was confirmed. Previous studies confirmed the existence of 6 factors in the WDS scale, which includes six factors [12]. Even though the factors of respect and lack of dignity are the same, four other factors were extracted in the form of one factor in the present study. It is essential to state that the completers of the WDS scale had access to the definitions

of the words used in the questionnaire, such as dignity, workplace dignity, sexual harassment, people, respect, and competence, before answering the questions. The possible reason for this could be, in addition to the difference of the target group in this study compared to other studies, cultural differences and the flow of the format in a society where different vocabulary scale had the same value from the point of view of the completers. Also, despite the necessity of conducting Exploratory Factor Analysis after translating a scale into another language and culture, the studies of Saniz et al. (2021) and Kalafatoglu et al. (2021), only performed Confirmatory Factor Analysis according to the results of the initial survey of the instrument, and the possibility of different results in there is a way to do exploratory factor analysis in their study [13, 14].

The results of construct validity using the known group's method showed that the Persian version of the WDS scale can separate the subgroups of job satisfaction. Similar studies did not evaluate construct validity by known-groups comparison. However, the MSQ has been used by Kalaftagho et al. (2021) in the convergent validity assessment and Saniz et al. (2021) in the convergent validity assessment. The results of both studies were consistent with the present study [13, 14].

The relative frequency of the minimum and maximum scores obtained from the Persian version of the WDS scale was less than 15%. This shows the ability to separate the dignity of the work environment, which favours the tool's stability [27].

Cronbach's alpha coefficient for the first, second, and third factors was calculated as 0.949, 0.902, and 0.857, respectively, in line with the results of similar studies; previous studies reported this amount for the whole instrument in the range of 0.916 to 0.975 [1, 13, 14]. Also, Macdonald's omega coefficients for the whole instrument were calculated at 0.950. Therefore, the WDS scale has good internal consistency.

Also, stability was checked by test-retest method among 20 nurses; after two weeks of completing the instrument, the agreement coefficient was 1.953. In line with the analysis of absolute reliability, the SEM and the MDC were calculated, which were 2.793 and 7.742, respectively. This indicates that if the WDS scale is used again for an individual, their score may change by ±2.793. Also, the lowest score change that can be considered clinically significant is 7.742 [20].

Although the main sampling was done among nurses, in the face and content validity assessment, the application of the scale was considered suitable for all occupations in the hospital setting, which is one of the study's strengths. However, it is necessary to perform other psychometric evaluations of the scale in other occupational groups, such as doctors, psychiatrists, nurses' assistants, psychologists, and clinical students, which is one of the limitations of the present study. It is also suggested that cross-sectional studies in different groups considering individual and occupational factors be carried out to improve the dignity of the occupational therapy work environment. Confirmatory factor analysis (CFA) was also not performed due to the sampling limitation. Future research should use CFA techniques with a larger sample size to verify the proposed factor structures. This will help establish stronger psychometric properties for the proposed scale. Also, considering that the concept of dignity depends on the culture of the work environment, it seems necessary to examine this concept with regard to cultural differences in different societies.

Conclusion

The Persian version of the WDS scale has 18 items in three factors and can be used as a valid and reliable tool to measure the dignity of the work environment (Supplementary file). Identifying factors that threaten the dignity of the nurses' work environment can help hospital managers to improve the nurses' working conditions.

Abbreviations

WDS	workplace Dignity
CVI	Content Validity Index
S-CVI	Scale Content Validity Index
MSQ	Minnesota Satisfaction Questionnaire
CTT	Classical Test Theory
EFA	Exploratory Factor Analysis
PAF	Principal Axis Factoring
ICC	Intraclass Correlation Coefficient
SEM	Standard Error of Measurement
MDC	Minimal Detectable Change

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s12913-024-11703-8.

Supplementary Material 1.

Acknowledgements

The authors would like to thank all participants and Deputy Research of Kashan University of Medical Sciences for supporting this project.

Authors' contributions

MHK, ZT, and MZ developed the project and study. MHK, MZ and ZT contributed to the study design and managed data analysis. MHK, MZ and ZT prepared the first and revised drafts of the manuscript and critically edited the manuscript. All authors have read and approved the manuscript.

Funding

The research was financially supported by the Deputy Research of Kashan University of Medical Sciences (Grant ID: 401135).

Availability of data and materials

All relevant raw data will be freely available to any scientist wishing to use them for non-commercial purposes without breaching participant confidentiality. The datasets generated and/or analyzed during the current study are not publicly available because sending the data needs obtaining permission from the university but are available from the corresponding author upon reasonable request.

Declarations

Ethics approval consent to participate
The study was approved by the ethics committee of Kashan University of Medical Sciences, with the code "IR.KAUMS.NUHEPM.REC.1401.072". All methods were performed under the relevant guidelines and regulations as approved by the deputy of research and the ethical committee of Kashan University of Medical Sciences. The participants gave their informed consent to participate after receiving oral information about the study, including that participation was voluntary and that they could end participation whenever they wanted to without any consequences.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

Received: 14 May 2024 / Accepted: 3 October 2024
Published online: 07 October 2024

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