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ABSTRACT

The purpose of the authors was to develop a valid and reliable measurement tool for assessing the status of privacy protection. This study was conducted methodologically. This scale was tested with 500 healthcare professionals who were employed in nine provinces in Turkey. The obtained data were used to test the scale's validity and reliability. In the level of awareness section, the variance explained 47.13% of the total variance. In the frequency of application section, the variance explained 49.12% of the total variance. The internal consistency coefficient of the scale was calculated as the level of awareness 0.95 and frequency of application sections 0.96. The time invariance of the scale indicated its high reliability, and the concurrent application validity was determined to be supported. This study prepared measurement tool of 5-point Likert-type consisting of two sections, two sub-scales, and 30 items was developed.

Background

Privacy is defined as the prohibition of looking at, touching, talking about, or examining an individual's private areas (Diler, 2014). Protection of privacy is not only limited to the hiding and protection of secrets related to medical information or personal information (Arslan & Demir, 2017). Privacy, which is a fundamental value in human and reproductive rights; it should be taken care of in all health practices that especially in birth, gynecological examination, treatment and diagnostic procedures (Bekmezci & Özkan, 2015).

The protection of the privacy of mothers who deserve all kinds of respect and support during the childbirth process is one of the most important responsibilities and duties of healthcare professionals and hospital management (Aktaş & Pasinlioğlu, 2016; Larkin et al., 2009; Sjöblom et al., 2014). Furthermore, taking the incentive steps for gynecological

examination in order to make the early diagnosis of gynecological cancers and creating secure environments that ensure privacy for this should be a priority goal (Bekmezci & Özkan, 2015). Protection of privacy in obstetrics and gynecology has a key role in improving care satisfaction.

In the literature review, no valid and reliable measurement tool that could be used to evaluate the status of individual privacy protection of healthcare professionals in obstetrics and gynecology was found. This study was carried out to develop a valid and reliable measurement tool for assessing the status of individual privacy protection of healthcare professionals in obstetrics and gynecology. Thus, this scale will contribute significantly to the literature and bears an original value.

Method

Standards for the Reporting of Diagnostic Accuracy Studies (STARD) guidelines were followed when reporting this research.

Design

This study was conducted methodologically.

Preparation of scale items

Due to the qualitative studies on the subject in the literature (Akyüz & Erdemir, 2013; Güneş & Karaçam, 2018), no qualitative studies have been conducted in order to develop the scale, and 10 health professionals have been interviewed. A 56-item draft form was prepared by utilizing the responses of the health professionals and the literature. In order to eliminate the content, spelling, and expression problems of the draft scale, a preliminary evaluation was taken from 10 healthcare professionals, 1 linguist, and 1 statistical expert, and the necessary changes were made. Finally, the testing form of the scale was created with 50-items.

For content validity, the draft scale was examined by 9 experts in the field of privacy. While obtaining expert opinions, the "content validity index" was obtained using the Davis technique (Esin, 2014; Karakoç & Dönmez, 2014; Taşkın & Akat, 2010). The five items in the scale (items 28, 37, 45, 48, and 49) had the low Content Validity Index (CVI) value of 0.67, one item had the CVI value very close to 0.80 (item 9, the CVI of 0.78), and the CVI value of the other 50 items was higher than 0.80. As a result of the evaluation, it was decided to remove items 9, 28, 37, 45, 48, and 49 with a low CVI value from the scale. The overall scale CVI value was determined to be 0.94 (94%) and 0.97 (97%) when the

items with a low CVI value were removed from the scale. The intraclass correlation coefficient (ICC) was used to evaluate the agreement between expert opinions (Alpar, 2014). The ICC coefficient of the scale was found to be 0.92 (p = 0.000). These values indicate that there is a high level of agreement between experts evaluating the content/scope validity of the scale.

Prior to the validity and reliability application, a pilot study was conducted with 30 healthcare professionals to eliminate the spelling, expression, or form problems of the created scale. As a result of this application, it was observed that there was no need to change the scale draft form. The preliminary application data of the study were not included in the research data.

Study sample

Factor analysis is a large sample size technique in scale development validity and reliability studies. An inadequate sample size leads to reduced generalizability and inappropriate results. The number of individuals 5-10 times higher than the total number of items in the scale is usually selected to perform analyses on a sufficient number of individuals (Esin, 2014). Since there were 50 items in the draft scale, 500 healthcare professionals, 10 times the number of items in the scale, were sampled. In the study sample, all healthcare professionals meeting the inclusion criteria and working in the hospitals in 9 provincial centers. The inclusion criteria are working in obstetrics and gynecology units, working as a midwife, nurse, or physician, speaking and understanding Turkish, and accepting to participate in the study.

Of the healthcare professionals included in the study, 47.4% were in the 25-34 age group, 87.6% were female, 60.6% were married, 40.2% were midwives, and 59% had a bachelor's degree. It was determined that 49.8% of the healthcare professionals worked in private hospitals, 61% had less than 5 years of working experience, 79.6% had read the patient rights regulation before, 74.2% were satisfied with their job, and 65.6% stated that they always paid attention to patient privacy. It was found out that 57.8% of female healthcare professionals had a positive gynecological examination and 51.4% had a positive childbirth experience, and 45.2% had not given birth before. Of male healthcare professionals, 46.8% were found to have had a positive genital examination experience.

Data collection

This study was conducted between December 2017-September 2018 in nine provincial centers. The data were collected by the researcher in the city where the researcher was located. However, since the study was conducted in nine provinces and the sample size was large, the surveyor

support was received. After obtaining the necessary institutional permissions, data were collected from the healthcare professionals who volunteered to participate in the study without damaging the operation and reliability of the institution they worked in, without interrupting their working hours and service. For the test-retest reliability, 62 volunteer healthcare professionals were visited for the second time, and data were collected by the same method after 1 week.

Data analysis

In the study, number, percentage, median and standard deviation were used for descriptive statistics. The statistical significance level was accepted as $p < 0.05$.

For the validity analyses of the scale:

- The Content Validity Index and the Intraclass Correlation Coefficient (ICC) were applied for content validity (evaluation of expert opinions),
- Exploratory factor analysis and confirmatory factor analysis were applied for construct validity.

For the reliability analysis of the scale, the following analyses were used:

- Pearson's correlation analysis for item analyses (item-total score analysis, item-sub-scale analysis, and sub-scale-total score analysis),
- Cronbach's alpha analysis for the internal consistency of the overall scale and its sub-scales,
- Pearson's correlation analysis for concurrent criterion validity,
- The t-test and ICC analysis in dependent groups to compare the test-retest scores for time invariance.

Ethics

This study was approved by the Ethics Committee (dated 26.12.2017 and numbered 2017/005) and conducted according to the principles of the Declaration of Helsinki.

Results

Validity analysis: exploratory factor analysis

According to the exploratory factor analysis, the Kaiser-Meyer-Olkin (KMO) coefficient was found to be 0.91, and the result of Bartlett's test was found to be significant ($\chi2 = 10572.14$, df = 1225, p = 0.000) for the level of awareness section. For the frequency of application section of the scale, the KMO

coefficient was found to be 0.90, and the result of Bartlett's test was found to be significant ($\chi2 = 11279.75$, df = 1225, p = 0.000, Table 1).

In the exploratory factor analysis, the items of the draft scale were collected in two sub-scales in the most suitable way for the theoretical structure (trials were conducted in a different number of sub-scales). In the grouping performed as a result of the examination of the item contents, 30 items with factor loads >0.40 and a difference of at least 0.10 and above between the load values taken in the two sub-scales and a sufficient load were left in the scale structure. It was determined that the first half of the items (1-15) was collected in the physical-social privacy sub-scale, and the other half (16-30) was collected in the psychological-information privacy sub-scale (Table 1).

In the level of awareness section, the variance explained by the sub-scales varies between 26.49% and 20.64%, and the two sub-scales explain 47.13% of the total variance. In the frequency of application section, the variance explained by the sub-scales varies between 25.35% and 23.77%, and the two sub-scales explain 49.12% of the total variance (Table 1). The lowest and highest scores, mean scores and standard deviations of the scale items are given in Table 2.

Validity analysis: confirmatory factor analysis

The compliance values obtained as a result of the confirmatory factor analysis are presented in Table 3. The path coefficients (factor loads) of the scale items with their own dimensions were found to be between 0.52 and 0.80 in the level of awareness section and between 0.55 and 0.88 in the frequency of application section.

Reliability analysis: item analysis

The scale item-total score reliability coefficients were found to be between r = 0.54 and 0.75 in the level of awareness section and between r = 0.49 and 0.75 in the frequency of application section, and a positive and statistically significant relationship was detected (p < 0.001, Table 4).

The reliability coefficients of the scale two sub-scales' items and the sub-scale total scores were between r = 0.57 and 0.75 in the physical-social privacy sub-scale and between r = 0.66 and 0.81 in the psychological-information privacy sub-scale in the level of awareness section, and between r = 0.59 and 0.78 in the physical-social privacy sub-scale and between r = 0.71 and 0.79 in the psychological-information privacy sub-scale in the frequency of application section, and a positive and statistically significant relationship was detected (p < 0.001, Table 4).

Table 1. Exploratory factor analysis results.

New No	Old No	Level of Awareness Section — Physical-Social Privacy Sub-Scale	Level of Awareness Section — Psychological-information Privacy Sub-Scale	Frequency of Application Section — Physical-Social Privacy Sub-Scale	Frequency of Application Section — Psychological-information Privacy Sub-Scale
M1	M1	0.27	0.21	0.33	0.16
M2	M2	0.52		0.42	
	M3	0.49		0.50	
M3	M4	0.45		0.32	0.33
M4	M5	0.45		0.55	
	M6	0.41		0.64	
M5	M7	0.67		0.50	0.43
	M8	0.76		0.39	0.31
M6	M9	0.55		0.62	
M7	M10	0.46	0.41	0.63	
M8	M11	0.62		0.66	
M9	M12	0.72		0.48	
M10	M13	0.57		0.58	
M11	M14	0.62		0.55	
	M15	0.53		0.73	
M12	M16	0.54		0.64	
M13	M17	0.59		0.47	0.42
	M18	0.63		0.70	
	M19	0.64		0.68	
	M20	0.44	0.41	0.67	
M14	M21	0.46	0.42	0.74	
M15	M22	0.40	0.48	0.79	
	M23	0.56		0.60	
	M24	0.75		0.55	
	M25	0.30	0.38	0.69	
	M26	0.46	0.51	0.75	
	M27	0.52	0.44	0.73	
	M28		0.69	0.28	0.38
M16	M29		0.77		0.58
	M30		0.79	0.50	0.59
	M31		0.67	0.46	0.55
	M32		0.78	0.51	0.59
M17	M33		0.73		0.63
M18	M34		0.74		0.68
M19	M35		0.69		0.66
M20	M36		0.75		0.72
M21	M37		0.67		0.71
	M38	0.46	0.47		0.70
M22	M39		0.55		0.69
M23	M40		0.59		0.67
	M41		0.74	0.53	0.54
M24	M42		0.74		0.62
	M43		0.70	0.50	0.58
M25	M44		0.72		0.78
M26	M45		0.47		0.69
M27	M46		0.63		0.66
	M47	0.53	0.54	0.44	0.51
M28	M48		0.55		0.61
M29	M49		0.52		0.64
M30	M50		0.64		0.71
Eigenvalue		20.55	3.02	21.75	2.81
Variance Explained by Sub-scale (%)		26.49	20.64	25.35	23.77
Explained Total Variance (%)		47.13		49.12	
Kaiser-Meyer Olkin		0.91		0.90	
Bartlett's Test		$\chi 2 = 10572.14$ df = 1225 p = 0.000		$\chi 2 = 11279.75$ df = 1225 p = 0.000	

Table 2. Distribution of the responses to the privacy protection scale in obstetrics and gynecology based on the items.

Items	Level of Awareness Section		Frequency of Application Section	
	x̄±SS	Min-Max	x̄±SS	Min-Max
Physical-Social Privacy Sub-Scale				
M1. The lighting of the environment should be adjusted according to the individual's wishes.	4.07±0.90	1-5	3.91±0.99	1-5
M2. The direction of the gynecological table should face the wall rather than the door or window.	4.38±0.72	1-5	4.30±0.70	1-5
M3. Before entering the room of the individual, permission should be asked by knocking on the door.	4.44±0.70	1-5	4.32±0.84	1-5
M4. In inspections/practices performed in an environment where more than one individual is present, a curtain/screen should be placed between each bed.	4.63±0.54	2-5	4.43±0.67	1-5
M5. The body should not be touched without the consent of the individual.	4.50±0.67	2-5	4.27±0.83	1-5
M6. The duration of the inspections/practices should not be extended more than necessary.	4.50±0.63	2-5	4.30±0.76	1-5
M7. The individual should have the right to choose according to the gender of the healthcare professionals.	4.21±0.83	1-5	4.10±0.89	1-5
M8. Unnecessary auxiliary personnel should not be present in inspections/practices.	4.36±0.71	1-5	4.18±0.77	1-5
M9. The student must attend the inspections/practices with the consent of the individual.	4.30±0.79	1-5	4.16±0.89	1-5
M10. It should be prevented from seeing the individual by other patients during inspections/practices.	4.53±0.56	3-5	4.42±0.67	2-5
M11. The gown used in the inspections/practices should be dressed in a way that protects the privacy of the individual.	4.53±0.64	2-5	4.46±0.63	3-5
M12. Disturbing and unconsent physical contact should be avoided.	4.57±0.60	1-5	4.41±0.67	2-5
M13. Unless the individual needs assistance, they should not dress in the presence of the healthcare professionals.	4.41±0.73	1-5	4.36±0.67	1-5
M14. Individuals should be able to be alone whenever they want.	4.25±0.74	2-5	4.12±0.83	2-5
M15. If the individual wishes, her relatives should be able to participate in the inspections/practices.	4.19±0.83	1-5	4.11±0.89	1-5
Psychological-İnformation Privacy Sub-Scale				
M16. The understanding of privacy regarding the cultural characteristics of the individual should be respected.	4.46±0.55	2-5	4.30±0.71	1-5
M17. The individual should not think that she is being watched or observed.	4.39±0.63	2-5	4.32±0.76	1-5
M18. The individual should be reassured that her privacy will be protected.	4.49±0.55	2-5	4.40±0.68	2-5
M19. It should be noted that inspections/practices are not a routine or ordinary procedure for the individual.	4.44±0.54	3-5	4.25±0.74	1-5
M20. Embarrassing statements should be avoided.	4.49±0.61	2-5	4.34±0.77	1-5
M21. According to the individual's religious beliefs, the perception/understanding of privacy should be respected.	4.46±0.63	1-5	4.41±0.74	1-5
M22. If the person does not want it at the time of taking the anamnesis, others should not be present.	4.41±0.69	1-5	4.26±0.83	1-5
M23. The file containing the individual's health information should not be at the bedside.	4.33±0.78	1-5	4.19±0.91	1-5
M24. No video or photo should be taken without the consent of the individual.	4.54±0.60	2-5	4.33±0.84	1-5
M25. Prior information should be given about interventions that would violate privacy.	4.54±0.52	3-5	4.30±0.72	2-5
M26. When it is necessary to share the private information of the individual with other healthcare professionals, the necessity of it should be explained and the consent of the individual should be obtained.	4.36±0.65	1-5	4.27±0.76	1-5
M27. While transferring information about the individual during guard duty or visits, people outside the team should be prevented from hearing.	4.42±0.64	2-5	4.32±0.72	1-5
M28. An individual should have the right to control his or her information as permitted by law.	4.42±0.60	3-5	4.20±0.72	2-5
M29. If there is a possibility of harming someone else and herself, information belonging to the individual should be shared within the framework of the law.	4.43±0.57	3-5	4.30±0.81	1-5
M30. Information about the deceased person should be kept confidential.	4.52±0.55	3-5	4.45±0.61	2-5

Table 3. Confirmatory factor analysis compliance values.

CFA Compliance Values	Level of Awareness Section	Frequency of Application Section
Ki-kare/p value	764.12/p = 0.00 (p < 0.05)	590.63/p = 0.00 (p < 0.05)
Degree of Freedom	0.402	0.402
Ki-kare value: Degree of Freedom	764.12:402 = 1.90	590.63:402 = 1.47
RMSEA/p	0.095 (p < 0.05)	0.089 (p < 0.05)
SRMR	0.078	0.071
CFI	0.95	0.96
NNFI	0.95	0.96

Table 4. Item-total score reliability coefficients of the scale and sub-scales.

	Level of Awareness Section				Frequency of Application Section			
	Article-Total Correlation							
	Physical-Social Privacy		Psychological-İnformation Privacy		Physical-Social Privacy		Psychological-İnformation Privacy	
Items	r	p	r	p	r	p	r	p
M1	0.54	**0.000**	0.61	**0.000**	0.53	**0.000**	0.59	**0.000**
M2	0.66	**0.000**	0.69	**0.000**	0.65	**0.000**	0.71	**0.000**
M3	0.64	**0.000**	0.64	**0.000**	0.72	**0.000**	0.77	**0.000**
M4	0.59	**0.000**	0.57	**0.000**	0.62	**0.000**	0.67	**0.000**
M5	0.59	**0.000**	0.60	**0.000**	0.73	**0.000**	0.78	**0.000**
M6	0.64	**0.000**	0.67	**0.000**	0.75	**0.000**	0.78	**0.000**
M7	0.68	**0.000**	0.75	**0.000**	0.63	**0.000**	0.69	**0.000**
M8	0.68	**0.000**	0.72	**0.000**	0.69	**0.000**	0.76	**0.000**
M9	0.56	**0.000**	0.61	**0.000**	0.61	**0.000**	0.67	**0.000**
M10	0.67	**0.000**	0.66	**0.000**	0.72	**0.000**	0.78	**0.000**
M11	0.65	**0.000**	0.64	**0.000**	0.67	**0.000**	0.70	**0.000**
M12	0.60	**0.000**	0.66	**0.000**	0.68	**0.000**	0.72	**0.000**
M13	0.64	**0.000**	0.68	**0.000**	0.65	**0.000**	0.71	**0.000**
M14	0.57	**0.000**	0.62	**0.000**	0.49	**0.000**	0.60	**0.000**
M15	0.56	**0.000**	0.70	**0.000**	0.58	**0.000**	0.66	**0.000**
M16	0.68	**0.000**	0.74	**0.000**	0.71	**0.000**	0.75	**0.000**
M17	0.68	**0.000**	0.73	**0.000**	0.74	**0.000**	0.77	**0.000**
M18	0.66	**0.000**	0.75	**0.000**	0.72	**0.000**	0.79	**0.000**
M19	0.61	**0.000**	0.66	**0.000**	0.65	**0.000**	0.71	**0.000**
M20	0.74	**0.000**	0.80	**0.000**	0.69	**0.000**	0.75	**0.000**
M21	0.70	**0.000**	0.77	**0.000**	0.71	**0.000**	0.77	**0.000**
M22	0.63	**0.000**	0.67	**0.000**	0.69	**0.000**	0.75	**0.000**
M23	0.64	**0.000**	0.69	**0.000**	0.70	**0.000**	0.73	**0.000**
M24	0.72	**0.000**	0.75	**0.000**	0.67	**0.000**	0.72	**0.000**
M25	0.69	**0.000**	0.76	**0.000**	0.70	**0.000**	0.77	**0.000**
M26	0.62	**0.000**	0.62	**0.000**	0.68	**0.000**	0.76	**0.000**
M27	0.75	**0.000**	0.81	**0.000**	0.68	**0.000**	0.73	**0.000**
M28	0.66	**0.000**	0.70	**0.000**	0.67	**0.000**	0.73	**0.000**
M29	0.65	**0.000**	0.67	**0.000**	0.63	**0.000**	0.74	**0.000**
M30	0.63	**0.000**	0.71	**0.000**	0.70	**0.000**	0.77	**0.000**

The reliability coefficient between the total scale scores of the level of awareness section and the physical-social privacy sub-scale scores was found to be r = 0.94 and between the psychological-information privacy sub-scale scores was found to be r = 0.93, and a very strong, positive and significant relationship was detected (p < 0.001). The reliability coefficient between the total scale scores of the frequency of application section and both the physical-social privacy sub-scale and the psychological-information privacy sub-scale scores was found to be r = 0.92, and a very strong, positive and significant relationship was detected (p < 0.001).

Reliability analysis: internal consistency reliability coefficients

Cronbach's alpha reliability coefficient for the level of awareness and frequency of application sections was found to be, respectively, 0.95 and 0.96 for the overall scale, 0.90 and 0.92 for the physical-social privacy sub-scale, and 0.93 and 0.94 for the psychological-information privacy sub-scale.

Reliability analysis: test-retest analysis

No statistically significant difference was determined between the mean scores obtained from the first and second measurements of the scale applied at a one-week interval ($p > 0.05$, Table 5). When the intraclass correlation coefficient was examined in order to test the fit between the repetitive test scores of the scale and its sub-scales, the reliability coefficient was found to be between 97.2% and 99.8% in the level of awareness section and between 99.6% and 99.9% in the frequency of application section, and the consistency was found to be significant ($p < 0.001$, Table 5).

Reliability analysis: concurrent criterion validity

For the criterion validity of the scale, a strong and significant positive relationship was determined between the scale scores and the concurrently measured Privacy Scale scores (The level of awareness $r = 0.69$; the frequency of application $r = 0.64$, $p < 0.001$). As the score obtained from the scale and its two sub-scales increases, the score obtained from the Privacy Scale also increases.

Discussion

The purpose of this paper was carried out to develop a valid and reliable measurement tool for assessing the status of privacy protection. In studies

Table 5. Test-retest average and relation of scales and sub-scales (n = 62).

Section	Scales and Sub-scales	First Test x̄ ± SS	Second Test x̄ ± SS	t*	p	ICC	p
Level of Awareness Section	Physical-Social Privacy Sub-Scale	67.89 ± 6.23	67.65 ± 6.18	0.924	0.359	0.972	0.000
	Psychological-Information Privacy Sub-Scale	67.60 ± 6.65	67.81 ± 6.72	0.885	0.380	0.980	0.000
	Total Scales	135.48 ± 11.89	135.45 ± 11.95	0.261	0.795	0.998	0.000
Frequency of Application Section	Physical-Social Privacy Sub-Scale	63.60 ± 7.16	63.69 ± 7.08	1.097	0.277	0.998	0.000
	Psychological-Information Privacy Sub-Scale	64.79 ± 7.07	64.71 ± 6.95	0.743	0.461	0.996	0.000
	Total Scales	128.39 ± 13.15	128.40 ± 12.80	0.134	0.894	0.999	0.000

* T test in dependent groups: degree of freedom = 61.

examining the attitudes of healthcare professionals toward protecting privacy, it has been determined that although the principle of respect for privacy is considered important, it is not adopted in practice (Oztürk et al., 2019). In the study in which the perception of mothers regarding the protection of privacy during labor was evaluated, it was determined that although the mothers stated that privacy was well protected, they experienced negative emotions such as fear and pain in the delivery room, and that the necessary explanation was not given to them before the practices (Bekmezci et al., 2016). For this reason, it is thought that the attitude of healthcare professionals who are in constant interaction with the individual receiving care is important. (Arslan & Demir, 2017). However, these scales are limited in terms of questioning status of privacy protection of healthcare professionals in obstetrics and gynecology. In this context Privacy Protection Scale in Obstetrics and Gynecology is the first measurement instrument that was designed to measure. As the first step of scale development, it is stated that it is necessary to select concepts suitable for the content and purpose of the theoretical concept, make conceptual definitions, create items and sub-scales, take feedback, and expert opinion (Cakmur, 2012; Carpenter, 2018). The recommended steps were followed in the scale development stage of the study.

Obstetrics and gynecology services are a special area where personal control is reduced, there is concern about not protecting privacy, and information and attention are needed (Leino- Kilpi et al., 2002). When the literature on vaginal examination applied outside of labor is examined, it is stated that it is an uncomfortable and stressful practice affected by many factors (Bonilla-Escobar et al., 2016; Lai & Levy, 2002). It can lead to traumatizing effects ranging from anxiety and embarrassment to avoiding being examined (Erbil et al., 2008), and the inability to benefit from diagnosis, treatment and care services determined by gynecological examination (Güneş & Karaçam, 2018). The fact that these practices are positive for women depends on the interest of the midwife, the cleanliness and comfort of the environment, understanding and respectful service, and respect for privacy (Bekmezci & Özkan, 2015). In the field of health, privacy is addressed in terms of physical, social, psychological and informational aspects (Akyüz & Erdemir, 2013; Bekmezci & Özkan, 2015). In this direction, it is seen that the physical-social privacy sub-scale, and psychological-information privacy sub-scale are compatible with the literature.

A developed scale needs to be valid and reliable, validity is a measure of whether a scale measures what it intends to measure, and reliability is a measure of its consistency between measures (Lipovetsky, 2017; Louangrath & Sutanapong, 2018). A factor analysis was conducted to determine the construct validity of the scale, and it was observed that the scale consisted

of 30 items, and these items were under two factors that explained 47.13% (level of awareness section) and 49.12% (frequency of application section) of the total variance. DeVellis (2016) states that, the rate of the total variance that is explained should be at least 0.40 in the scale development studies (DeVellis, 2016). Thus, it may be argued that the value of 47-49 is sufficient.

The Cronbach's alpha value provides information about how consistent the items in the scale are with each other. The Cronbach's alpha value was calculated to determine the internal consistency of the developed scale (Esin, 2014; LoBiondo-Wood & Haber, 2010; Polit & Beck, 2010). In the study, Cronbach's alpha reliability coefficient of the level of awareness and frequency of application sections was determined to be, respectively, 0.95 and 0.96 for the overall scale, 0.90 and 0.92 for the physical-social privacy sub-scale, and 0.93 and 0.94 for the psychological-information privacy sub-scale, and the scale was found to be highly reliable according to the internal consistency coefficients.

As the eigenvalue increases, the variance explained by the factor also increases. Factors with an eigenvalue of 1 and higher are usually accepted as significant factors (Eser, 2017; Tabachnick & Fidel, 2014). The eigenvalue of all factors in this study is above 1.

The minimum value of 0.80 is an acceptable level for the CVI calculated for assessing the status of the scale and each item in the scale of measuring the concept desired to be measured and including different concepts (DeVellis, 2016; Esin, 2014; Karakoç & Dönmez, 2014; Taşkın & Akat, 2010). In the study, the total scale CVI value was found to be 0.94 (94%) and 0.97 (97%) when the items with a low CVI value were removed from the scale. This result indicates that the scale items are capable of measuring the concept of privacy.

The ICC acceptance level performed to assess the agreement between expert opinions was 0.70, and values between 0.85-0.94 indicate a high agreement (Alpar, 2014). In the study, the ICC value was found to be 0.92. In accordance with this result, it is observed that the items can measure the concept of privacy and the level of agreement among experts is high.

Exploratory factor analysis is applied the suitability of the data set for factor analysis is evaluated. Therefore, Bartlett's test was performed to test whether the KMO and variables were correlated with each other. The KMO value below 0.50 indicates that the sample size is not adequate for validity analysis (Esin, 2014; Karagöz, 2014). The fact that the KMO coefficient found as a result of the factor analysis was 0.91 in the level of awareness section and 0.90 in the frequency of application section indicates that the sample was suitable for factor analysis, while the fact that Bartlett's test was significant ($p = 0.000$) indicates

that the items were suitable for the factor analysis of the correlation matrix.

In this study, according to the results of the confirmatory factor analysis, the chi-square value was found to be 1.90 in the level of awareness section and 1.47 in the frequency of application section, indicating that the model was a good model. For the RMSEA, values below 0.05 indicate a good fit, values below 0.08 indicate a reasonable fit, values between 0.08-0.10 indicate a moderate fit, and values above 0.10 are not acceptable. Furthermore, the SRMR is preferred since the fit worsens as the number of variables increases. In this study, the fact that the RMSEA value was found to be (0.095 and 0.089) indicates a moderate fit. The SRMR below 0.10, CFI equal or above 0.90, NNFI equal or above 0.90 indicate a fit. In the present study, the SRMR of 0.078 and 0.071, CFI of 0.95 and 0.96, and NNFI of 0.95 and 0.96 in the level of awareness and frequency of application sections demonstrate an excellent fit of the scale items to the sub-scales.

For a reliable measurement tool, time invariance, test-retest, and parallel form reliability are applied (Esin, 2014; LoBiondo-Wood & Haber, 2010; Polit & Beck, 2010). In the test-retest method, the scale was applied twice to the sample group (Esin, 2014; Polit & Beck, 2010). The ICC values between 0.70-0.84 indicate moderate, between 0.85-0.94 high, and between 0.95-1.00 indicate a perfect fit (Alpar, 2014). The time invariance of the scale indicates high reliability, and a perfect fit at the level of 97.2-99.9% was found between the repetitive measurements. The parallel form reliability, which is called the alternative or equivalent form reliability, is applied when there is an alternative form related to the concept desired to be measured (Esin, 2014). A strong relationship between the mean scale score and the mean score of the Privacy scale used as a parallel form indicates that the results are consistent and there is the equivalent form reliability of the scale.

Limitations

The results of the research can be generalized to healthcare professionals working in the field of obstetrics and gynecology, which make up the sample group. The developed scale can be applied to healthcare professionals working in obstetrics and gynecology.

Conclusion

The valid and reliable Privacy Protection Scale in Obstetrics and Gynecology, which is of 5-point Likert-type, consists of two sections, being the level

of awareness and the frequency of application, two sub-scales, and 30 items, was developed.

Author contributions

Hediye Karakoc, Nebahat Özerdoğan conceptualized the study.
Hediye Karakoc collected the data.
Hediye Karakoc analyzed the data.
Hediye Karakoc, Nebahat Ozerdogan drafted the initial manuscript.
Hediye Karakoc, Nebahat Ozerdogan reviewed the manuscript, approved the final manuscript and agree to be accountable for all aspects of the work.

Disclosure statement

No potential conflict of interest was reported by the authors.

Ethical approval

This is an evaluation as a matter of quality management, it was performed in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This study was approved by the Ethics Committee of the KTO Karatay University (dated 26.12.2017 and numbered 2017/005) and conducted according to the principles of the Declaration of Helsinki.

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