Original Article

Development and Validation of the Immediate Postpartum Care Adherence Questionnaire: An Application of the Theory of Planned Behavior among Healthcare Professionals

Abstract

Background: The postpartum period is critical for women and newborns. Many complications, such as deaths, are preventable by utilizing appropriate postpartum care. We aimed to assess healthcare professionals' adherence to the World Health Organization's (WHO) immediate postpartum care guidelines, investigating factors influencing their adoption at Jordanian hospitals. **Materials and Methods:** A methodological study design, developing, and testing the psychometric properties of the Immediate Postpartum Care Adherence Questionnaire (IPCAQ) was created based on the Theory of Planned Behavior, extensive literature review, and the WHO guidelines following a manual construct questionnaire, and using a deductive method. The IPCAQ was developed using four steps: domain identification, scale construction, judgmental evidence, and psychometric evaluation. **Results:** The final draft of IPCAQ consisted of four domains and 63 items deductively formulated from the theoretical constructs. The domains are attitudes, behavioral intention, subjective norms, and perceived behavioral control. They were subsumed by four subthemes, general caring assessment, counseling, subjective norms, and perceived behavioral control. The IPCA showed high content (0.94) and face validity indices (0.97), moderate content scale universal agreement (0.77), and excellent face agreement (0.81) for the 63 items. IPCAQ is a reliable instrument that measures adherence to immediate postpartum care guidelines. **Conclusions:** IPCAQ is reliable and valid in the current sample. The IPCAQ can be used to assess healthcare professionals' adherence to immediate postpartum care guidelines, identify factors influencing the adoption of standardized care to overcome barriers to adherence, and facilitate high-quality care.

Keywords: *Adherence, healthcare professionals, planned behavior theory, postpartum care*

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Introduction

The postpartum period is critical for women and newborns, but there is limited monitoring and follow-up by healthcare professionals, despite several international recommendations.[1-4] Half of maternal mortality occurs within the first 24 hours postpartum.[1,5] These deaths are preventable by adopting appropriate postpartum care based on standardized clinical practice guidelines.[6-9] Even with many international practice guidelines, adherence to these guidelines is still suboptimal.[10-12] Clinical practice guidelines include recommendations to optimize patient care based on a systematic review of evidence and an assessment of the benefits and harms of alternative care options.[13] Therefore, a valid and reliable instrument is required to identify factors that facilitate or impede healthcare professionals' adherence to these guidelines.

Developing guidelines based on a theory has been increasing globally.[14] Theory of Planned Behavior (TPB) is the most used one[15,16]; nearly 47.2% of medical guidelines were theory-based; (38.1%) of them adopted TPB, compared with Theoretical Domains Framework (23.8%), Diffusion of Innovation Theory (7.1%), and Cabana Framework of Barriers to Physician Guideline Adherence 7.%.[17] It was used because of its generalized applicability, clearly defined constructs and framework, especially in the maternal field,[18] and adherence to professional guidelines.[19,20] TPB assumes that many human behaviors are goal-directed and socially influenced. In other words, people make logical, reasoned

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decisions and are affected by the following psychosocial factors: attitudes towards intentional behavior, subjective norms, and perceived behavioral control in combination with individual background factors.[21] The background factors could be personal factors such as age, gender, education, income, personality, mood, emotions, intelligence, values, stenotype knowledge, or social-environmental determinants such as religion, race, ethnicity, culture, laws, economic status, media intervention, geographic area, training, and awareness.[22] To the best of the researchers' knowledge, no instruments were found to fulfill the study's purpose. So, the researchers decided to develop a new instrument that served the purpose of the study. It is expected that this instrument will provide a guide for clinical practitioners and healthcare planners to promote a quality-controlled, evidence-based practice to improve maternal and newborn health outcomes.

This study aimed to develop and validate an instrument based on TPB constructs by determining factors influencing adherence to immediate postpartum care guidelines and adherence behaviors among healthcare professionals.

Materials and Methods

This study is a methodological study design that aimed to the development, and testing the psychometric properties of the Immediate Postpartum Care Adherence (IPCA) questionnaire was created based on the Theory of Planned Behavior (TPB), extensive literature review, and the WHO guidelines following a manual construct questionnaire, and using a deductive method. Data collection for this study was conducted between February and March 2022. Ajzen's (TPB) model was selected to develop an instrument to measure the intention of IPCA. Based on an extensive literature search, it was found that the "intention of immediate postpartum care adherence" is a behavior that is based on three considerations. These considerations are "the attitude that is related to healthcare professional evaluation of engaging in the adoption of guidelines," "subjective norms perceived from social pressure by the healthcare professional to adopt IPCA professionals," and "the perceived ease or difficulty of identifying facilitators based on both experience and anticipated barriers (perceived behavioral control)," see Figure 1.

Four steps were undertaken to develop the IPCA theory-based questionnaire: domain identification, scale construction, judgmental evidence, and psychometric evaluation.[23] In a deductive approach, four domains were derived from the TPB constructs: attitudes, behavioral intention, subjective norms, and perceived behavioral control. Additionally, the intentional behavior of IPCA was determined by referring to the WHO guidelines for postnatal care of the mother and newborn.[5] The literature search process involved following the PRISMA[24] flowchart, which included identifying relevant articles, screening them based on title and abstract, assessing eligibility (full texts in English), and finally, including the eligible articles. Between January 2022 and February 2022, three researchers conducted a search process in various electronic databases, including Science Direct, MEDLINE, CINAHL, EBSCO, and PUBMED. The search aimed to identify relevant literature using a set of keywords, such as "postnatal," "care," "immediate," "compliance," "acceptance," "adherence," "barriers," "facilitators," "clinical guidelines," and "TPB." These keywords were searched separately and in combination. The search process generated a total of 60 items.

To guide the search, the researchers referred to Francis *et al*.'s (2004) manual construct questionnaire for healthcare professionals.[25] This questionnaire was developed by European Union researchers involved in the Research-Based Education and Quality Improvement Project (ReBEQI) and was based on an extensive literature review of 222 TPB studies published in the Medline database and 610 studies published in the Psychological Information Database (PsycINFO) from 1985 to January 2004. The manual provided valuable insights on using various approaches to measure TPB constructs in practice.

The first draft of the IPCA conceptual framework resulted in four themes and a total of 60 items. Each TPB construct was measured by asking respondents to assess the operational definition of each item on a scale ranging from highly negative to extremely positive.[25] The study involved nurses, midwives, obstetricians, and pediatricians directly involved in postpartum care. A total of eight central Ministry of Health hospitals from three regions in Jordan participated in the study: Middle (n = 3), North (n = 3), and South (n = 2).

To ensure a diverse representation, a purposive sample of healthcare professionals was selected using a quota sampling method. The selection considered factors such as age groups, years of experience, job titles, educational levels, marital status, and working shifts. The sample size was determined based on a power of. 80, α = 05, and a medium effect size of. 50. For all healthcare professionals, Z = 1.962, e = 0.05, p = 0.20, but N = population size are varied; for nurses and midwives = 784, obstetricians = 273, and pediatricians = 307. In total, 588 healthcare professionals were included in the study, comprising 104 nurses, 154 midwives, 170 pediatricians, and 160 obstetricians The proportional representation of each profession and region within the study sample was calculated to ensure an accurate representation.

A set of items were inserted under each construct to assess attitudes toward the behavior, and the respondents were asked to answer six questions, including "To what extent do respondents agree or disagree with the following statements?" Intentional behavior (I) was measured by 42 items derived from the WHO[5] postpartum care questionnaire. Respondents were asked whether they

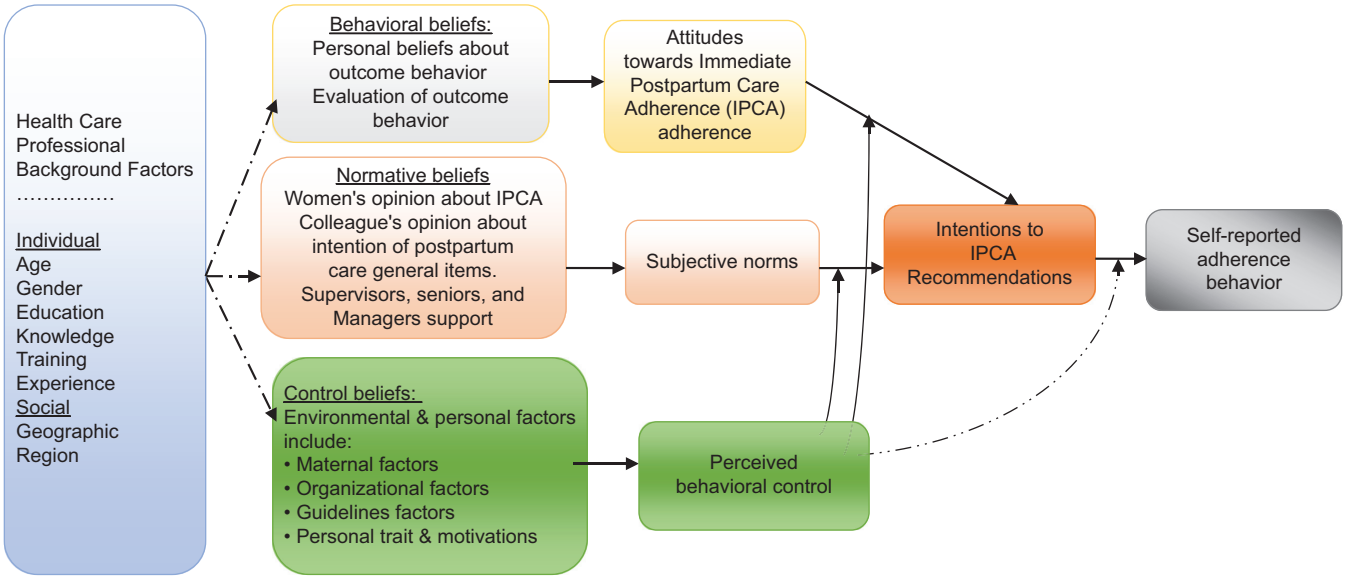

Figure 1: Schematic representation of Intention to Postpartum Care Adherence (IPCA) based on the Theory of Planned Behavior

intended to adopt IPCA for all women during normal births or only in complicated cases (two items). Afterward, they were asked to answer questions like, "In your practice, how often did you intend to provide the following care during immediate postpartum care?" Responses ranged between 1 (never) and 5 (almost always). Items in this domain were distributed as follows: providing care for the mother and her baby (9 items), assessments for the mother and infant,[9] physical,[5] and psychological counseling.[17]

Subjective norms were evaluated by asking the respondents to rate their responses according to the following question: How do the following people provide pressure and motivation for you to use clinical practice guidelines? (three items: mothers, colleagues, supervisors). Ratings ranged from 1 (definitely should not) to 5 (definitely should use). Finally, nine items assessed the perceived behavioral control factors, facilitators, or barriers to guidelines adoption (personal self-efficiency and internal motivation, n = 2 items; guidelines factors, n = 2 items; organizational resources and lack of time, n = 2 items; women factors, n = 2 items). These factors were reported in the literature.[26-29]

The scale underwent assessment for face and content validity.[30] Firstly, a qualitative evaluation was conducted to determine whether the questionnaire items adequately covered the study purpose and content area. This evaluation involved subjective judgments from both the respondents and expert panels.[30,32] The target group gave a comprehensive view of the questionnaire, consisting of 20 healthcare professionals (midwives, n = 10, maternal health nurses, n = 5, obstetricians, n = 3, and pediatricians, n = 2). On the other hand, the experts were 13 panelists, distributed as follows: 8 content experts and academic professors in maternal-child nursing (United States = 2, Jordan = 3, one professor in Midwifery from Jordan, one professor in psychiatry, and one WHO collaborating nurse, one professor in community health nursing from Jordan). In addition, five clinical experts working in immediate postpartum care were included in the panels; the clinical experts were two obstetricians and gynecologists, one pediatrician, and two midwives. The number of panelists and response rates exceeded the acceptable number of experts.[23,32-34]

Experts and the target group were asked to evaluate the questionnaire items for clarity of language, simplicity, readability, consistency of style and formatting, and appropriateness for participants' cultures to achieve face validity (response process). Based on experts' and target group opinions and feedback, unclear and ambiguous items were revised and written to reflect a precise meaning, then revised again by a language specialist for wording and grammar, resulting in 65 items.[34,35] After the subjective judgment of scale, the researchers used statistical tests to quantify the results. For the response process, health professionals were asked to rate their judgment regarding the clarity and importance of items.[31,34] The 65 items were kept as they were.

To estimate content validity, 13 expert panelists evaluated the instrument to assess whether the content of scale items adequately reflects specific domain relevancy and essentiality of the construct as measured in terms of relevancy and essentiality of scale items.[35-37]

A Content Validity Index (CVI) was adopted to determine items' relevancy. Content experts were asked to assess the relevancy of each item on a 4-point Likert scale (1 = non-relevant to 4 = very relevant). The item-CVI (I-CVI), scale-level-CVI, and S-CVI were then computed by summarizing the item responses.[31] Two methods were used here: the Content Validity Average (CVI/Avg) and the Universal Agreement (UA) among experts (S-CVI/UA for both items and scale).[32,34-37]

I-CVI values greater than 0.79 indicated that the item's relevant values between 0.70 and 0.79 showed that the item needed revisions, and if the value was below 0.70, the item was eliminated.[23,31] Similarly, S-CVI is calculated using the number of items in a tool that have achieved a rating of "relevant."[32] S-CVI/UA was calculated by adding all items with I-CVI equal to 1 divided by the total number of items. The S-CVI/Avg was calculated by dividing the sum of the I-CVIs by the total number of items.[32,37] The S-CVI/UA ≥0.80 and an S-CVI/Avg ≥0.90 have excellent content validity.[37,38]

Items essentiality was measured by the Content Validity Ratio (CVR). Independently, each panelist was invited to rate his or her judgment of an item from one to three (1 = non-essential, 2 = useful but not essential, 3 = essential). Then CVR was calculated by this formula (CVR = (Ne–N/2)/(N/2), where Ne is the number of panelists indicating an item as "essential," and N is the total number of panelists. CVR varies between 1 and − 1; a higher score indicates more significant agreement among panel members.[39] The minimum accepted value of CVR is 0.54, as determined by Lawshe's stability for 13 panelists.[40]

The response process, also known as face validity, was assessed by calculating the Face Validity Index (FVI) for item clarity and comprehension, like the Content Validity Index (CVI). Twenty raters were asked to evaluate each item on a 4-point scale, ranging from 1 (not clear) to 4 (very clear). They were also asked to rate the importance of each item using a 4-point Likert scale, where 1 represented "not important" and 4 represented "very important." To determine the impact of each item, an item impact score was calculated using the formula: Impact Score = Frequency (%) × Importance Item score. The frequency referred to the percentage of raters who scored the item as 3 or 4 ('important'), while importance represented the average score based on the Likert scale. Items with an item impact score of ≥1.5 were retained, while those with lower scores were removed.[23,32] After considering expert judgments and feedback from healthcare professionals who acted as raters, the final draft of the IPCA questionnaire included 65 items. Additionally, quantitative assessments of content and face validity, using statistical testing methods such as FVI, Impact score, CVI, and CVR, resulted in a total of 63 items.

For construct validity, factor analysis was conducted to test the instrument's internal validity and remove any item that did not align with the other items to maintain the one with the highest validity. A Principal Component Analysis (PCA) was conducted, and orthogonal rotation (varimax) was used. The Kaiser–Meyer–Olkin (KMO) measure verifies the sampling adequacy for the analysis, and it should be greater than 0.5 for satisfactory factor analysis. In this study, KMO for all variables is equal to 0.798, which is acceptable. Bartlett's test of sphericity (X square) is equal to 2187.35. Bartlett's test indicates the strength of the relationship among variables; the *p*-value equals. 00, which indicates that the correlation between the items was sufficiently large (significant level less than 0.05) for PCA, except for two items [Table 1]. An initial analysis was conducted to obtain eigenvalues for each component in the study data. Table 2 shows the factor analysis for all study components. The PCA resulted in 63 items.

Cronbach's alpha coefficient was used to estimate the reliability and internal consistency of the IPCA.[41,42] The value for the alpha coefficient indicated good internal consistency of the items on the scale. A pilot study was conducted on 30 healthcare professionals (12 midwives, ten maternal nurses, five obstetricians, and three pediatricians), see Figure 2.

Ethical considerations

Ethical approval was obtained from the Ethics and Research Committee and Institutional Review Boards (IRBs) at the School of Nursing at the University of Jordan followed by approval and permission from the Jordanian Research Ethics Committee at the Ministry of Health, code number JREC6952. Ethical approval was obtained from the Ethics and Research Committee and Institutional Review Boards (IRBs) at the School of Nursing at the University of Jordan, code number 1264/2021.

Results

The overall Scale Content Validity Index was (S-CVI/Average) = 0.94 and S-CVI/UA= 0.77. The subscales ranged from 0.81 to 1, and the Universal Scale Content Validity Index (S-CVI/UA) from 0.60 to 1. At the same time, the values of the response process validity or Face Validity Indices (S-FVI/Average) for item clarity were 0.97, and the Universal Index (S-CVI/UA) was 0.81. For the subscales, the S-FVI/Avg range was from 0.93 to 1, and for S-CVI/UA 0.71 to 1 [Table 2].

Qualitative evaluation of the study items resulted in transferring the item "provide the appropriate family planning method" from the counseling section to caring. In addition, two items were added to the subjective norm section: "How do the following people provide pressure and motivation for you to use clinical practice guidelines?" (senior staff, managers) in addition to those previously presented (mothers, supervisors, and my colleagues).

For each quantified validity index (i.e., I-CVI, CVR, and I-FVI), no items were removed according to the impact score process despite having different score values. All item scores were above 1.50,[23,32] and two items were deleted, one from the caring section: taking a blood test for hemoglobin after birth (0.46), below 0.80,[36] and CVR 0.38 below 0.54.[40] The second one from the assessment (assess peripheral pulses for any presence of edema) had a low

Table 1: Summary of content and response process validity

	Content validity		Response process Face validity		Interpretation
Items	**Relevancy I-CVI***	**Essentiality CVR****	**Importance Impact score**	**Clarity I-FVI*****	
Attitude (A)					
A1	1.00	0.85	3.65	1.00	Remained
A2	1.00	1.00	3.85	1.00	Remained
A3	1.00	1.00	3.56	0.95	Remained
A4	1.00	0.85	3.80	1.00	Remained
A5	0.85	0.69	3.55	1.00	Remained
A6	0.85	1.00	4.00	1.00	Remained
Intentions General (IG)					
IG1	1.00	1.00	3.75	1.00	Remained
IG2	1.00	1.00	3.80	1.00	Remained
Intention to Caring (IC)					
IC1	0.77	0.69	2.13	0.75	Revised: I-CVI & I-FVI below 0.80
IC2	1.00	1.00	4.00	1.00	Remained
IC3	1.00	0.85	4.00	1.00	Remained
IC4	0.46	-0.38	2.40	0.80	Rejected/low I-CVI & CVR
IC5	0.77	1.00	1.79	0.70	I-CVI & I-FVI below 0.80
IC6	1.00	0.85	3.90	1.00	Remained
IC7	1.00	1.00	3.90	1.00	Remained
IC8	1.00	1.00	4.00	1.00	Remained
IC9	1.00	0.69	4.00	1.00	Remained
IC10	1.00	1.00	3.85	1.00	Remained
Intention to Assessment (IA)					
IA1	1.00	0.85	3.42	0.90	Remained
IA2	1.00	1.00	4.00	1.00	Remained
IA3	1.00	1.00	3.38	0.90	Remained
IA4	1.00	1.00	3.90	1.00	Remained
IA5	1.00	0.69	3.20	1.00	Remained
IA6	1.00	1.00	3.10	1.00	Remained
IA7	0.38	-0.23	3.15	0.85	Rejected/low I-CVI, CVR
IA8	1.00	1.00	3.85	1.00	Remained
IA9a	1.00	1.00	3.00	1.00	Remained
IA9b	1.00	1.00	3.20	1.00	Remained
IA9c	1.00	1.00	3.00	1.00	Remained
IA9d	0.85	1.00	3.70	1.00	Remained
A9e	0.77	0.69	1.99	0.75	Revised: I-CVI & I-FVI below 0.80
IA 10	1.00	0.846	3.5	1.00	Remained
Intention to Counseling (IS)					
IS1	1.00	1.00	4.00	1.00	Remained
IS2	1.00	1.00	3.70	1.00	Remained
IS3	1.00	1.00	3.75	1.00	Remained
IS4	1.00	1.00	3.75	1.00	Remained
IS5	0.85	1.00	3.90	1.00	Remained
IS6	1.00	1.00	3.95	1.00	Remained
IS7	0.77	1.00	1.79	0.70	I-CVI & I-FVI below 0.80
IS8	1.00	1.00	3.95	1.00	Remained
IS9	1.00	1.00	3.90	1.00	Remained
IS10	1.00	1.00	3.80	1.00	Remained
IS11	1.00	1.00	3.70	1.00	Remained
IS12	1.00	0.85	4.00	1.00	Remained
IS13	1.00	0.85	4.00	1.00	Remained

Contd...

Table 1: Contd...

Items	Content validity		Response process Face validity		Interpretation
	Relevancy I-CVI*	Essentiality CVR**	Importance Impact score	Clarity I-FVI***	
IS14	0.85	1.00	3.40	1.00	Remained
IS15	1.00	1.00	4.00	1.00	Remained
IS16	1.00	1.00	3.80	1.00	Remained
IS17	1.00	0.69	3.60	1.00	Remained
IS18	1.00	1.00	3.04	1.00	Remained
IS19	0.77	0.69	2.13	0.75	I-CVI & I-FVI below 0.80
Subjective Norms (SN)					
SN1	1.00	1.00	3.15	0.85	Remained
SN2	1.00	1.00	3.90	1.00	Remained
SN3	1.00	1.00	3.60	1.00	Remained
SN4	0.85	0.85	3.90	1.00	Remained
SN5	0.85	1.00	3.75	1.00	Remained
Perceived Behavioral Control (PBC)					
PBC1	1.00	1.00	3.90	1.00	Remained
PBC2	1.00	1.00	3.37	1.00	Remained
PBC3	1.00	1.00	3.90	1.00	Remained
PBC4	1.00	0.85	3.15	0.90	Remained
PBC5	1.00	1.00	4.00	1.00	Remained
PBC6	1.00	0.85	4.00	1.00	Remained
PBC7	1.00	1.00	4.00	1.00	Remained
PBC8	1.00	1.00	2.80	0.80	Remained
PBC9	0.85	0.85	4.00	1.00	Remained

* I-CVI: Item-Content Validity Index. **CVR: Content Validity Ratio. ***IFVI: Item-Face Validity Index

Table 2: Content and response process validity scale and subscale indices (63 items)

Subscales	Content validity relevancy (Panel of 13 experts)			Face Validity Item clarity (20 professionals)	
	Items	S-CVI/Avg*	S-CVI/UA**	S-FVI/Avg***	S-FVI/UA#
Attitudes	6	0.95	0.67	0.99	0.83
Intentions	43	0.89	0.78	0.96	0.83
Intention General	2	1.00	1.00	1.00	1.00
Intention Caring	9	0.81	0.70	0.93	0.70
Intention Assessment	13	0.92	0.85	0.93	0.71
Intention Counseling	19	0.90	0.84	0.97	0.90
Subjective Norms	5	0.94	0.60	0.97	0.80
Perceived Behavioral Control	9	0.98	0.89	0.97	0.78

*Scale-Content Validity Index/Average (S-CVI/Avg) 0.94 **Scale-Content Validity Index/Universal (S-CVI/UA) 0.77 ***Scale-Face Validity Index/Average (S-FVI/Avg) 0.97 #Scale-Face Validity Index/Universal (FVI/UA): 0.81

I-CVI of 0.38 and a CVR of -0.23 because it added to the previous item (assess lower extremities for redness, nodular or warm areas, pain discolorations, varicosities, or edema). Furthermore, five items were revised because the I-CVI or I-FVI was between 0.70 and 0.79. [Table 3].

To estimate the instrument reliability and internal consistency of the scale items, Cronbach's alpha coefficient was employed [Table 4].[36] A pilot questionnaire was administered to 30 participants, and the scale exhibited high item consistency. The overall alpha coefficient was calculated to be 0.93, with subscale alpha coefficients ranging from 0.73 (subjective norm) to 0.97 (intention).

Discussion

This study aimed to develop and validate an instrument based on TPB constructs that measured factors influencing adherence to immediate postpartum care guidelines among healthcare professionals by adopting the deductive method for different resources that addressed immediate postpartum care. The current instrument showed high relevancy with 63 items (S-CVI/Ave = 0.94) assessing the psychosocial predictors of healthcare professionals' intention to provide immediate postpartum care in hospitals. In addition, the Face Validity Index value of

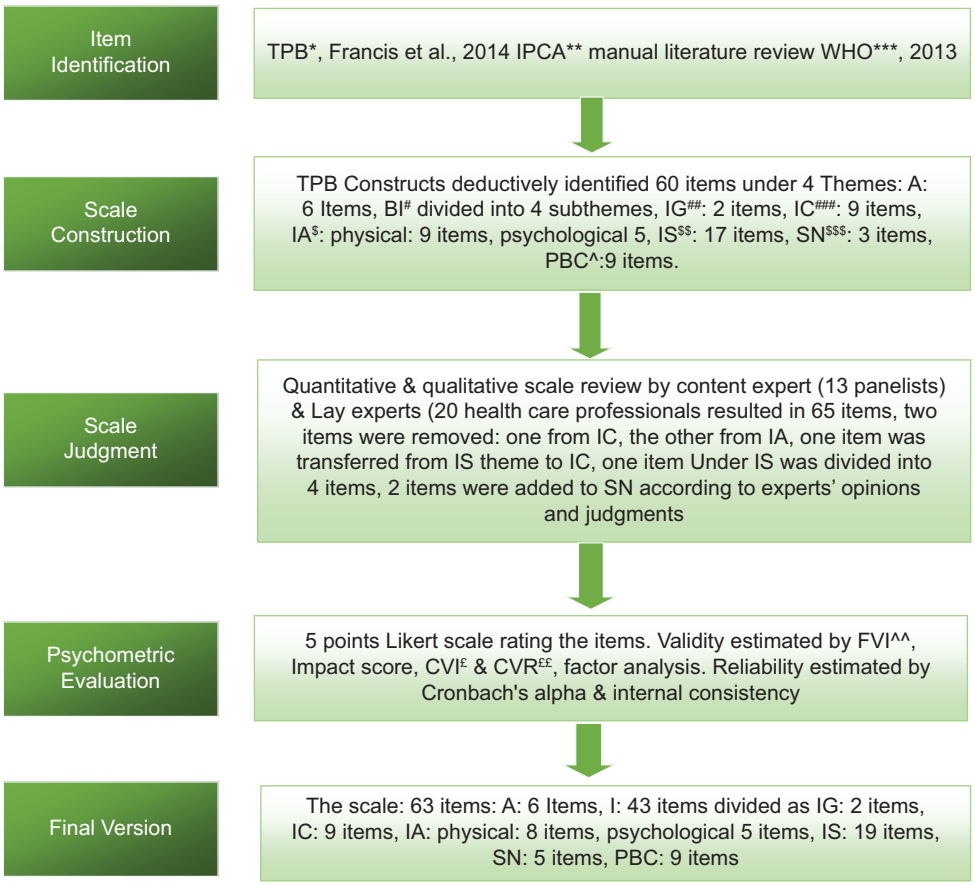

Figure 2: Flowchart of Theory of Planned Behavior and questionnaire development. *TPB: Theory of Planned Behavior. **IPCA: Immediate Postpartum Care Guidelines Adherence. ***WHO: World Health Organization. #BI: Behavioral Intention. ##IG: General Intention. ###IC: Intention of Caring. $IA: Intention of Assessment. $$IS Intention of Counseling. $$$SN: Subjective Norms. ^PBC: Perceived Behavioral Control. ^^FVI: Face Validity Index. £CVI: Content Validity Index. ££CVR: Content Validity Rate

Table 3: Edited items of the questionnaire

Original items	Revised items
IC1*- Take vital signs immediately after delivery. Then every hour… for the next 6 hours if regular Q4 hours during the stay at least 24 hours.	1-Take vital signs immediately after delivery within the first hour of birth
	2- The second blood pressure reading should be taken within 6 hours if normal.
IC5- Perform uterus every hour massage.	IC5- In the case of uterine atony, perform uterine massage every 10–15 minutes for the first hour after birth and every 30 minutes during the second hour. After the first two hours, this massage usually happens every 4–8 hours until discharge.
A9e**- Dealing with mother's relatives nicely.	A9e- Establish rapport with the mother's significant others.
IS7***- Inform the mother to be discharged on iron and folic acid supplementation and to be continued for three months.	IS3- Inform the mother to be discharged on iron supplement
	IS8- Continue iron supplement for three months postpartum
	IS9- Inform mother to be discharged on folic acid supplement
	IS 10- Inform mother to continue folic acid supplement for three months postpartum
IS19-Educate the mother about sexual well-being 2–6 weeks after birth by resuming sexual intercourse.	IS19- Information about sexual well-being 6-7 weeks after birth by the resumption of sexual intercourse with a condom.

* IC: Intention of Caring. **IA: Intention of Assessment. ***IS: Intention of Counseling

0.97 indicates an easily understood questionnaire by respondents.

Reliability testing of the newly built instrument showed an alpha coefficient value of 0.928, indicating high consistency of items,[41,42] and a reliable tool for assessing healthcare professionals' adherence to immediate postpartum care at hospitals during the first 24 hours after birth, the critical stage for mothers and newborns. Thus,

Table 4: Reliability of the subscales according to Theory of Planned Behavior constructs

Theme	No of items	Cronbach's Alpha
Attitude	6	0.97
Intention	43	0.96
Subjective norms	5	0.73
Perceived behavioral control	9	0.84
Whole scale	63	0.93

this study aimed to predict the determinants of healthcare professionals' adherence behaviors. Four themes emerged; attitude (six items) related to behavioral outcomes and evaluation (provide a high quality of care, decrease the mortality rate and postpartum complications, achieve care justice among women, decrease caring costs, and help in complicated referral cases for mother or baby. Behavioral intention (43 items), as stated by the WHO recommendations,[5] is subsumed by four subthemes: assessing guidelines adherence in general (two), physical care (nine), physical assessment (eight), psychosocial assessment (five), counseling (19), and subjective norms (five items). These variables were reported in previous studies.[19,43-45] The last theme was perceived behavioral control related to facilitators or barriers (nine items). Two of them were attributed to personal factors (self-efficiency and internal motivation), three administrative issues (presence of professional educational resources, lack of time, guidelines being easily accessible), two guideline factors (based on empirical evidence, clarity, and understandability), and two patient issues (women's awareness and knowledge), which are like published literature.[26,29]

Using a valid and reliable instrument provides a clear picture of the issues that hinder the adequate quality of care in immediate postpartum settings. One limitation of this study is utilizing a newly developed scale tested in a single context. Although statistically significant values were obtained for the newly developed instrument, it still requires further testing in other studies involving samples from diverse cultural backgrounds to enhance and validate its suitability and stability over time and in other populations. Additionally, the study focused on a limited geographical area. Therefore, the Immediate Postpartum Care Assessment Questionnaire necessitates additional testing in a wider population, various geographical areas, and diverse social contexts.

Conclusion

The IPCAQ is a valid and reliable tool that needs further testing in different populations and qualitative designs to explore the beliefs of healthcare professionals' TPB, which constructs beliefs from viewpoints that are merely subjective.

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Nil.

Conflicts of interest

Nothing to declare.

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