ORIGINAL ARTICLE

Development and Evaluation of the Content and Face Validity for Questionnaire Knowledge, Attitude, And Practice on Breast Cancer Among First Degree Relative Breast Cancer Patients (KAP-BC-FDRQ)

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ABSTRACT

Introduction: This study fills the current research gap on knowledge, attitude, and practice on breast cancer among first-degree relatives by delivering a comprehensively created and developed questionnaire. Objective: To develop and validate questionnaires through content and face validation before proceeding with reliability and construct validity. **Materials and methods:** Refinement based on literature and expert input, divided into three domains, which are Knowledge, Attitude and Practice (KAP). Six experts validated the questionnaire, analysed it using the Item Content Validity Index (I-CVI) method, and modified kappa statistic. Expert panel recommendations and item impact scores are used to second draft a questionnaire and examine the face validity of the questionnaire in 15 subjects using the Item Face Validation Index (I-FVI). **Results:** From 72 to 68 questionnaires, following a content validity analysis, expert evaluation, and I-CVI analysis, certain questionnaires were relocated from their original domain to a new domain. The overall content validity index of the questionnaire using universal agreements (S-SCI/UA) was high, and the average approach (S-CVI/Ave) was 0.90. The average for I-FVI was 1.00. **Conclusion:** The KAP-BC-FDRQ questionnaire is a content and face-valid questionnaire that can be used to assess first-degree relatives of breast cancer patients, and its reliability and construct validity can be evaluated for the final questionnaire.
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Keywords: Content validation, Face validation, Breast cancer, First degree relative, KAP (Knowledge, Attitude, Practice)

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INTRODUCTION

Breast cancer is a disease in which abnormal breast cells grow uncontrollably and create tumors. The tumors can spread throughout the body and cause death if left untreated. Globally, breast cancer caused 685 000 deaths in 2020, according to the World Health Organization (WHO) (1). The most prevalent type of cancer in Malaysia is breast cancer (32.9%), followed by colorectal cancer (11.9%) and ovarian cancer (7.2%) (2).

First-degree relatives, including parents, siblings, and children of breast cancer patients, play a significant role in 5–10% of cases and are a known risk factor for the development of breast cancer (3–5). The BRACA1 and BRACA2 breast cancer genes were also related to a family history of the disease (6). These genetic mutations can be transmitted from generation to generation, increasing the risk of breast cancer in affected families. To reduce risk and improve health outcomes, first-degree relatives of breast cancer patients must have good knowledge, attitudes, and practices (KAP) (7–9). Since this group

has a higher genetic risk of developing breast cancer, being knowledgeable of breast cancer risk and clinical symptoms can help with early detection and increase screening uptake among first degree relatives of breast cancer (10,11). Positive attitudes towards preventive interventions like genetic testing and lifestyle changes encourage proactive health behavior (12,13). In addition, suitable practices like self-breast examinations and following screening recommendations might result in early intervention, which greatly enhances the prognosis(14,15). In general, high-risk people who have good KAP are better equipped to make educated decisions, seek timely care, and adopt practices that lower their risk of breast cancer.

The WHO Global Breast Cancer Initiative seeks to reduce global breast cancer mortality by 2.5% each year between 2020 and 2040, thereby reducing 2.5 million deaths. This involves early detection, early diagnosis, and rigorous treatment (16). Just as the Ministry of Health Malaysia asks to explore more effective and efficient cancer development strategies (17).

The development of this new questionnaire, designed to assess the knowledge, attitude, and practice (KAP) of first-degree relatives of breast cancer patients, marks a significant contribution to breast cancer risk assessment and prevention (18). Prior to this, while many KAP questionnaires existed, none specifically addressed the unique needs of first-degree relatives of breast cancer patients, who face a heightened risk due to genetic factors (10,11,13). Previous tools have provided valuable insights into general awareness, risk perception, and screening behaviors, yet they often failed to capture the specific and nuanced needs of this high-risk group (12,13,19).

Considering this gap, KAP-BC-FDRQ was developed to support prevention initiatives by incorporating a comprehensive set of items that evaluate not only hereditary risk knowledge but also the influence of personal beliefs, cultural factors, and practices. Therefore, having a first-degree relative with breast cancer can serve as an important indicator for healthcare providers to assess an individual's risk and recommend appropriate screening and preventive measures. In this study, we aimed to develop and validate a questionnaire through content and face validation on the KAP on Breast Cancer among First-Degree Relatives of breast cancer patients in Malaysia (KAP-BC-FDRQ) before proceeding with reliability and construct validity.

MATERIALS AND METHODS

Study Design

This research is a part of cross-sectional study undertaken to develop and analyse the validity of the KAP BC FDRQ questionnaire for first degree relative of breast cancer patients in Malaysia. For sampling method of face validation and content validation, convenient sampling was done to select participant to answer content and face validation.

Inclusion and exclusion criteria

Inclusive criteria for this study required the respondent to be a female and first-degree relative of a breast cancer patient, aged 18 years and older, and able to understand Malay and answer the questionnaire. Exclusion criteria disqualify subjects who are breast cancer patients. Additionally, the face validation phase implements these inclusion criteria.

Item development

The KAP BC FDRQ questionnaire was developed in Malay Language and delivered to the first-degree relatives of breast cancer patients in Malaysia. The questionnaire was designed based on a comprehensive literature review and of prior research studies to ensure that it achieves the objective.

The questionnaire was structured into three distinct domains: knowledge, attitude, and practice, specifically targeting a first-degree relative of breast cancer patients. The review's objective was to identify common gaps in knowledge, attitudes, and practices, as well as essential themes, among first degree relatives. This allowed us to identify the important areas for the questionnaire, ensuring that it addressed essential topics such as understanding breast cancer risk factors, screening methods, genetic testing, attitudes towards preventive strategies, and practices such as regular screening and lifestyle choices. We decided on the items for each domain based on their relevance to the target demographic, their frequency of citation in the literature, and the need to fully understand KAP (20–22).

Conducting a thorough literature review involves systematically searching and analysing academic databases like PubMed, Scopus, and Google Scholar to identify relevant theories, existing instruments, and gaps in knowledge related to research topics. Start by defining clear research objectives and developing a list of key concepts and keywords that align with study focus, such as "breast cancer risk," "first-degree relatives," and "KAP." Use these keywords to conduct searches in selected databases, applying filters to refine results by relevance, date, and study type. Review the titles and abstracts to select studies that directly address the research question, and then analyze these studies in detail to understand their methodologies, findings, and limitations. Organize the information into themes that correspond to the domains of questionnaire, critically assess the quality of the literature, and identify areas where further research or instrument development is needed, ensuring that the review is comprehensive and up to date. Expert input and content validation refined the final questionnaire before starting data collection, ensuring it was contextually appropriate and relevant.

The complete steps involve three important steps which are: 1) item development (item generation, content validity and face validity) 2) scale evaluation (reliability and construct validity). This study will only report the method and result of the first step of a newly developed questionnaire which involves item generation, content validity and face validity (23–26).When developing a questionnaire, content validation is used to ensure its accuracy and relevance. Then, face validity is employed to assess the clarity of the questionnaire (27).

Content validity

The content validity index (CVI) is based on an evaluation of the relevance of the questionnaire (25). The content validity survey includes a cover letter and KAP BC FDRQ with clear and unambiguous instructions on how to score each question, along with an explanation of why experts were requested to participate. Six experts were chosen to examine the content validity of this study, including five in public health and one in family medicine (28,29).

An expert reviewed and critiqued the prepared questionnaire to make sure it was a reliable and practical assessment questionnaire. Expert evaluation must be based on extensive knowledge and experience in the field in which the research was carried out.

Content validity analysis

The evaluation of the content validity was performed by asking the same experts to evaluate the relevance of each item using four Likert scales (4 = very relevant, 3 = relevant, 2 = irrelevant, 1 = very irrelevant) (13). For computing the CVI, the relevance rating is categorized as 1 (on a 3 or 4 point relevance scale) or 0 (on a relevance scale of 1 or 2). The rating scores of 3 and 4 are acceptable (25).

CVI is classified into two types: item-level CVI (I-CVI) and scale-level CVI (S-CVI). There are two techniques for calculating the S-CVI: the average of the I-CVI scores for all scale items (S-CVI/Ave) and the proportion of scale items that reach a relevance scale of 3 or 4 by all experts (S-CVI/UA) (25). The CVI should be at least 0.83, and the I-CVI and S-CVI were both at least 80% of the CVI (28). The CVI indices' definitions and formulas are summarized.

$$\text{I-CVI} = \frac{\text{The total number of experts who rated an item as 3 or 4}}{\text{The total number of experts}}$$

$$\text{S-CVI/Ave} = \frac{\text{Sum of I-CVI}}{\text{Number of items in total}}$$

$$\text{S-CVI/UA} = \frac{\text{Number of items rated as relevant by all experts}}{\text{Number of items in total}}$$

Face validity

Face validity was determined after content validity using the revised version of KAP BC FDRQ. Face validity process to validate the revised version questionnaire by an expert review (27,30).

Face validity was assessed with 15 participants who met the inclusion criteria to identify any difficulties, ambiguities, or culturally sensitive issues within the questionnaire (27,31). The questionnaire was administered to participants in person, allowing them to complete it directly under the guidance of the researcher. This is to ensure that the developed questionnaire measures the intended constructs. After face validity was verified, a second version of the questionnaire was produced for Version 2.0 for stage scale evaluation.

Face validity analysis

The face validity index (FVI) was used for this face validity analysis. The clarity of questionnaire items was analysed using FVI. This is conducted for domain of knowledge, attitude, and practice. The items were rated according to a Likert scale ranging from one (i.e., difficult clarity) to four (i.e., easy clarity). For computing the FVI, the clarity rating categorized as 1 (on a 3 or 4 point clarity scale) or 0 (on a clarity scale of 1 or 2). The rating scores of 3 and 4 are acceptable (27,28,32).

I-FVI (item-level face validity index), S-FVI (scale-level face validity index), S-FVI/UA (scale-level face validity index, universal agreement calculation formula), and S-FVI/Ave (scale-level face validity index, averaging calculation formula) were all used to calculate the results. Polit et al. (2006) suggested that the traditional CVI had some components to improve its value. Therefore, the FVI scores are interpreted based on the CVI guidelines. Ratters have more than five. The FVI should be at least 0.83. The acceptable score is at least 80% or higher agreement (16,17,21).

The I-FVI was calculated by dividing the rate of agreement by the total number of items. The ratter of the agreement is a sum from the clarity rating, which means an item rated 3 or 4 would be transformed to clarify ('1') and an item rated 1 or 2 would be transformed to non-clarify ('0') (27,32)

S-FVI/Ave was calculated with two methods. The first method was to get the total I-FVI value and divide it by the number of items. The second method was to get the average value of each ratter based on clarity, which was adapted from the CVI calculation method. The S-FVI/UA was calculated by total acceptance of the number of items that had 100% agreement, which means they were transformed to valid ('1') as a universal agreement (UA), and the item that had not achieved 100% agreement was transformed to nonvalid ('0') and divided by the total number of items in each domain that was adapted from the CVI calculation method (27,33)

Ethical clearance

This study was approved by the Research Ethic Committee, JEPeM USM, Code USM/JEPeM/16110521.

RESULTS

Item Development

A summary of the KAP BC FDRQ questionnaire (Version 1.0), consisting of 72 items, is provided in Appendix 1.

Item Level Content Validity Index (I-CVI)

Following expert examination through content validation, only 68 items remain for the next phase of face validation.

Knowledge domain from 40 items to 37 items. On the relevance validity of I-CVI scores lower than 0.78, three items, K8, K10, and K18, were eliminated, which is I-CVI 0.5 (Table I). Polit et al. (2007) indicate that the I-CVI acceptance values for at least six experts were 0.83. In addition, an expert's comment on these items was so broad as to cause confusion while responding. The calculated S-CVI/Ave values for knowledge are 0.91 and S-CVI/UA is 0.93, which exceeds the minimum value of 0.90 (Table I). Similarly, the current value of S-CVI/UA also reaches the acceptable minimum of 0.80 (25).

Table I: CVI on knowledge relevance.

	Rater 1	Rater 2	Rater 3	Rater 4	Rater 5	Rater 6	Experts in agreement	Items CVI	UA
Knowledge									
K1	1	1	1	1	1	1	6	1.00	1
K2	1	1	1	1	1	1	6	1.00	1
K3	1	1	1	1	1	1	6	1.00	1
K4	1	1	1	1	1	1	6	1.00	1
K5	1	1	1	1	1	1	6	1.00	1
K6	1	1	1	1	1	1	6	1.00	1
K7	1	1	1	1	1	1	6	1.00	1
K8	1	1	1	0	0	0	3	0.50	0
K9	1	1	1	1	1	1	6	1.00	1
K10	1	1	1	0	0	0	3	0.50	0
K11	1	1	1	0	1	1	5	0.83	1
K12	1	1	1	1	1	1	6	1.00	1
K13	1	1	1	1	1	1	6	1.00	1
K14	1	1	1	1	1	1	6	1.00	1
K15	1	1	1	1	1	1	6	1.00	1
K16	1	1	1	1	1	1	6	1.00	1
K17	1	1	1	1	1	0	5	0.83	1
K18	1	1	1	0	0	0	3	0.50	0
K19	1	1	1	1	1	1	6	1.00	1
K20	1	1	1	1	1	1	6	1.00	1

CONTINUE

Table I: CVI on knowledge relevance. (CONT.)

	Rater 1	Rater 2	Rater 3	Rater 4	Rater 5	Rater 6	Experts in agreement	Items CVI	UA
Knowledge									
K21	1	1	1	1	1	1	6	1.00	1
K22	1	1	1	1	0	1	5	0.83	1
K23	1	1	1	1	1	1	6	1.00	1
K24	1	1	1	1	1	1	6	1.00	1
K25	1	1	1	0	1	1	5	0.83	1
K26	1	1	1	1	0	1	5	0.83	1
K27	1	1	1	1	1	1	6	1.00	1
K28	1	1	1	1	1	1	6	1.00	1
K29	1	1	1	1	0	1	5	0.83	1
K30	1	1	1	0	1	1	5	0.83	1
K31	1	1	1	1	0	1	5	0.83	1
K32	1	1	1	1	1	1	6	1.00	1
K33	1	1	1	0	1	1	5	0.83	1
K34	1	1	1	1	1	1	6	1.00	1
K35	1	1	1	1	1	1	6	1.00	1
K36	1	1	1	1	0	1	5	0.83	1
K37	1	1	1	1	0	1	5	0.83	1
K38	1	1	1	1	1	1	6	1.00	1
K39	1	1	1	0	1	1	5	0.83	1
K40	1	1	1	1	1	0	5	0.83	1
							S-CVI /Ave	**0.91**	
Proportion	0.85	1.00	1.00	0.80	0.90	0.90	**S-CVI /UA**		**0.95**

Note. I-CVI, item-level content validity index; scale-level content validity index, universal agreement method (S-CVI/UA) = .95; scale-level content validity index, averaging method (S-CVI/Ave) = .91; average proportion of items judged relevant across the ten experts = .90

In the attitude domain, only one item was eliminated based on the expert panel's recommendation, which is A9 (I-CVI 0.67) in Table II. A total of 19 out of 20 items achieved acceptable universal agreement between experts (S-CVI/UA = 0.95), whereas the S-CVI/Ave number got 0.91 and reached the acceptance value in Table II. Additionally, this item also contains a general explanation that can make the subject's response misleading.

Table II: CVI on attitude relevance.

	Rater 1	Rater 2	Rater 3	Rater 4	Rater 5	Rater 6	Experts in agreement	Items CVI	UA
Attitude									
A1	1	1	1	1	1	0	5	0.83	1
A2	1	1	1	1	1	1	6	1.00	1

CONTINUE

Table II: CVI on attitude relevance. (CONT.)

	Rater 1	Rater 2	Rater 3	Rater 4	Rater 5	Rater 6	Experts in agreement	Items CVI	UA
Attitude									
A3	1	1	1	1	1	1	6	1.00	1
A4	1	1	1	0	1	1	5	0.83	1
A5	1	1	1	1	1	1	6	1.00	1
A6	1	1	1	1	1	1	6	1.00	1
A7	1	1	1	1	1	1	6	1.00	1
A8	1	1	1	1	1	1	6	1.00	1
A9	1	1	1	0	1	0	4	0.67	0
A10	1	1	1	1	1	1	6	1.00	1
A11	1	1	1	1	0	1	5	0.83	1
A12	1	1	1	1	1	1	6	1.00	1
A13	1	1	1	0	1	1	5	0.83	1
A14	1	1	1	1	1	1	6	1.00	1
A15	1	1	1	1	1	1	6	1.00	1
A16	0	1	1	1	1	1	5	0.83	1
A17	1	1	1	0	1	1	5	0.83	1
A18	0	1	1	1	1	1	5	0.83	1
A19	1	1	1	1	0	1	5	0.83	1
A20	0	1	1	1	1	1	5	0.83	1
							S-CVI/Ave	**0.91**	
Proportion	0.85	1.00	1.00	0.80	0.90	0.90	**S-CVI/UA**		**0.95**

Note. I-CVI, item-level content validity index; scale-level content validity index, universal agreement method (S-CVI/UA) = .95; scale-level content validity index, averaging method (S-CVI/Ave) = .91; average proportion of items judged relevant across the ten experts = .91

The CVI for the practice domain has obtained an acceptance value of I-CVI 0.83 and above. Before analysis using the CVI approach, there were a total of 12 items. A total of all items achieved acceptable universal agreement between experts (S-CVI/UA = 1.00) and (S-CVI/Ave is 0.94) in Table III. After an experts meeting and discussion, five items in this domain were rearranged to reflect domain attitude, which are items K11, K12, K13, K14, and K15 in Table IV.

Table III: CVI on practice relevance.

	Rater 1	Rater 2	Rater 3	Rater 4	Rater 5	Rater 6	Experts in agreement	Items CVI	UA
Practice									
P1	1	1	1	1	1	1	6	1.00	1
P2	1	1	1	1	1	1	6	1.00	1
P3	1	1	1	1	1	1	6	1.00	1
P4	1	1	1	0	1	1	5	0.83	1
P5	1	1	1	1	1	1	6	1.00	1

CONTINUE

Table III: CVI on practice relevance. (CONT.)

	Rater 1	Rater 2	Rater 3	Rater 4	Rater 5	Rater 6	Experts in agreement	Items CVI	UA
Practice									
P6	1	1	1	1	1	1	6	1.00	1
P7	1	1	1	0	1	1	5	0.83	1
P8	1	1	1	0	1	1	5	0.83	1
P9	1	1	1	1	1	1	6	1.00	1
P10	1	1	1	0	1	1	5	0.83	1
P11	1	1	1	1	1	1	6	1.00	1
P12	1	1	1	1	1	1	6	1.00	1
							S-CVI /Ave	**0.94**	
Proportion	0.85	1.00	1.00	0.80	0.90	0.90	**S-CVI /UA**		**1.00**

Note. I-CVI, item-level content validity index; scale-level content validity index, universal agreement method (S-CVI/UA) = 1.00; scale-level content validity index, averaging method (S-CVI/Ave) = .94; average proportion of items judged relevant across the ten experts = .94

Table IV: Questionnaire revisions.

Section	Initial items	Amendment	Justification	Final items
I: Knowledge	40 items	•Three items were eliminated. (Item K8, K10, K18)	• Most of the panel of experts stated that they were quite difficult and looked like memory test questions rather than testing on the understanding of the NCP itself.	37 items
II: Attitudes	20 items	• One item was eliminated (Item A9) • Item A11 was restructured. Before: *'I think with early detection breast cancer can be cured'* After: *'I think detection of early-stage breast cancer can be cured'*	• Panel expert stated that the item was unclear statement. • Restructured to clear the sentence item A11	19 items
III: Practices	19 items	• 5 items move to domain attitude (item P15-P20) • Item P9 was restructured. Before: *'I lack the information to carry out early breast cancer screening'* After: *'I lack information about early breast cancer screening.'* • Deleted item P12 and P15 and remain item A15 and A4 - Item P12 and A15 have similar meaning - Item P15 and A4 have similar meaning	• Not addressed the practice domain •Restructured to clear the question item P9 • They were redundant with the previous items.	12 items

Item-level Face Validity Index (I-FVI)

The 68-item KAP BC FDRQ questionnaire was distributed in hard copy to 15 subjects who were first-degree relatives of breast cancer patients for the face validity study (27). All participants in the pilot testing completed the questionnaire in full. The subjects reported that the questions were easy to understand and that the time required to complete the questionnaire, approximately 15–20 minutes, was adequate.

For face validation, the Item-Level Face Validity Index (I-FVI) was used to assess clarity. The domain for the 37 knowledge items, as shown in Table V, indicated a perfect I-FVI value of 1.00 for all items. Similarly, the 19 attitude items, as presented in Table VI, each achieved an I-FVI value of 1.00. The 12 practice items, detailed in Table VII, also showed an I-FVI value of 1.00. Both the Scale-Level Face Validity Index using the Universal Agreement (S-FVI/UA) and the Average method (S-FVI/Ave) yielded a value of 1.00. At this stage, all subjects confirmed that the questionnaire items were simple, clear, and aligned with the objectives.

Table V: FVI on knowledge by 15 respondents: items rated as 3 or 4 on clarity scale.

Domain	Categories	Item No.	Item Description	Respondent Agreement	I-FVI	Interpretation
Knowledge	Breast cancer risk factor	**A woman is more likely to get breast cancer if...**				
		K1	Age is increasing	15	1.00	Appropriate
		K2	Breastfeeding	15	1.00	Appropriate
		K3	Having a relationship with a breast cancer patient in the family	15	1.00	Appropriate
		K4	Giving birth to the first child after the age of 30	15	1.00	Appropriate
		K5	Never gave birth to a child	15	1.00	Appropriate
		K6	Overweight	15	1.00	Appropriate
		K7	First menstruation before the age of 12	15	1.00	Appropriate
		K8	Take oral contraceptive pills	15	1.00	Appropriate
		K9	Smokes	15	1.00	Appropriate
	Screening method for breast cancer	**The following are early detection methods for breast cancer**				
		K10	Breast self-examination	15	1.00	Appropriate
		K11	Clinical breast examination	15	1.00	Appropriate
		K12	Mammogram screening	15	1.00	Appropriate
		K13	Ultrasound examination	15	1.00	Appropriate
		K14	Magnetic resonance imaging (MRI)	15	1.00	Appropriate
		K15	Chest X-ray	15	1.00	Appropriate
	Treatment for breast cancer	**The following are treatments for breast cancer**				
		K16	Breast surgery	15	1.00	Appropriate
		K17	Chemotherapy	15	1.00	Appropriate
		K18	Radiotherapy	15	1.00	Appropriate
		K19	Traditional and Complementary Treatments • Traditional Malay Medicine • Traditional Chinese Medicine • Traditional Indian Medicine • Homeopathy • Chiropractic • Osteopathy • Islamic medical practice	15	1.00	Appropriate
		K20	Hormone replacement therapy	15	1.00	Appropriate
	Sign and symptoms of breast cancer	**The following are some accurate facts on breast cancer**				
		K21	Cancer is most common in women	15	1.00	Appropriate
		K22	It often starts with a painless lump in the breast	15	1.00	Appropriate
		K23	Early breast cancer screening will result in effective treatment	15	1.00	Appropriate
		K24	Breast cancer patients can improve their survival rate if they receive treatment at an early stage	15	1.00	Appropriate
		K25	Breast cancer can be inherited	15	1.00	Appropriate
		K26	A change in the shape of the breast is one of the symptoms of breast cancer	15	1.00	Appropriate

CONTINUE

Table V: FVI on knowledge by 15 respondents: items rated as 3 or 4 on clarity scale. (CONT.)

Domain	Categories	Item No.	Item Description	Respondent Agreement	I-FVI	Interpretation
Knowledge	Sign and symptoms of breast cancer	K27	A change in breast size is one of the symptoms of breast cancer	15	1.00	Appropriate
		K28	Breast cancer patients will definitely feel pain in the breast	15	1.00	Appropriate
		K29	Discharge of fluid from the nipple	15	1.00	Appropriate
		K30	Changes in skin color on the breast	15	1.00	Appropriate
		K31	Bleeding nipples	15	1.00	Appropriate
		K32	Sunken nipples	15	1.00	Appropriate
		K33	The occurrence of a change in the position of the breast nipple from the original, ie upwards or downwards	15	1.00	Appropriate
	Awareness breast cancer	**Following are questions about your knowledge on breast cancer screening**				
		K34	Did you know there are free screenings for early breast cancer screening?	15	1.00	Appropriate
		K35	Did you know how to do early screening for breast cancer?	15	1.00	Appropriate
		K36	Did people over the age of 40 only need to undergo an early breast cancer screening test?	15	1.00	Appropriate
		K37	Did breast cancer a death disease?	15	1.00	Appropriate

Note. I-FVI, item-level face validity index

Table VI: FVI on attitude by 15 respondents: items rated as 3 or 4 on clarity scale.

Item No.	Item Description Attitude	Respondent Agreement	I-FVI	Interpretation
	The following is about you			
A1	I am at risk of getting breast cancer	15	1.00	Appropriate
A2	I should have an early breast cancer screening	15	1.00	Appropriate
A3	I was embarrassed to have an early breast cancer screening	15	1.00	Appropriate
A4	I don't have time to go for a breast cancer screening.	15	1.00	Appropriate
A5	I think early breast cancer screening can lead to death	15	1.00	Appropriate
A6	I think breast cancer treatment in the hospital is not effective	15	1.00	Appropriate
A7	I think the traditional treatment is more effective in treating breast cancer	15	1.00	Appropriate
A8	I think that many women in Malaysia die from breast cancer because they are late in getting early treatment in the hospital	15	1.00	Appropriate
A9	I think breast cancer cannot be cured	15	1.00	Appropriate
A10	I think detection of early-stage breast cancer can be cured	15	1.00	Appropriate
A11	I think mammograms are very painful	15	1.00	Appropriate
A12	A mammogram is unnecessary because I don't have breast cancer.	15	1.00	Appropriate
A13	I'm scared of early screening for breast cancer because I'm concerned about receiving a positive test result.	15	1.00	Appropriate
A14	I don't do breast cancer screenings unless I feel pain in my breast	15	1.00	Appropriate
A15	I feel that early physical screening of the breast does not provide any health benefit	15	1.00	Appropriate
A16	I am worried of the effects of x-rays during the initial breast cancer screening	15	1.00	Appropriate
A17	I find it difficult to allocate time for breast cancer screening	15	1.00	Appropriate
A18	I lack information about early screening for breast cancer	15	1.00	Appropriate
A19	I'm afraid early breast screening assessment are painful	15	1.00	Appropriate

Note. I-FVI, item-level face validity index

Table VII: FVI on practice by 15 respondents: items rated as 3 or 4 on clarity scale.

Item No	Practice	Respondent Agreement	I-FVI	Interpretation
	The information below relates to you			
P1	I did a breast self-examination	15	1.00	Appropriate
P2	I go to a clinic or hospital for a clinical breast examination for early breast cancer screening	15	1.00	Appropriate
P3	I had a mammography checked	15	1.00	Appropriate

CONTINUE

Table VII: FVI on practice by 15 respondents: items rated as 3 or 4 on clarity scale. (CONT.)

Item No	Practice	Respondent Agreement	I-FVI	Interpretation
	The information below relates to you			
P4	I have had a breast ultrasound examination	15	1.00	Appropriate
P5	I exercise moderately for 30 minutes every day to help prevent breast cancer.	15	1.00	Appropriate
P6	I eat a lot of vegetables and fruits to prevent breast cancer	15	1.00	Appropriate
P7	I make sure I get enough sleep every day	15	1.00	Appropriate
P8	I do not consume alcohol	15	1.00	Appropriate
P9	It takes too long to get a doctor's appointment for an early breast cancer screening test	15	1.00	Appropriate
P10	I don't want to get a mammogram until it's recommended by a doctor	15	1.00	Appropriate
P11	I wasn't given enough information by the doctor about the mammography procedure.	15	1.00	Appropriate
P12	My place of residence is far from the early breast screening test service.	15	1.00	Appropriate

Note. I-FVI, item-level face validity index

DISCUSSION

The KAP BC FDRQ conceptual framework identified three domains: knowledge, attitude, and practice towards first-degree relatives of breast cancer patients. Version 1.0 of the questionnaire initially comprised 72 items: 40 knowledge items, 20 attitude items, and 12 practice items. After content validity, the questionnaire was refined, resulting in Version 2.0, which included 68 items: 37 knowledge items, 19 attitude items, and 12 practice items. Following content validation, these 68 items were advanced to the next stage for face validation. The face validations. All items in Version 2.0 were retained following face validation with 15 subjects.

A thorough literature review revealed that most studies, have primarily focused on items related to risk factors, early diagnosis, symptoms, and breast cancer diagnosis within their knowledge domains(11,34). Our study has expanded upon these existing frameworks by not only incorporating these four essential categories but also include understanding the risk factors associated with breast cancer, the methods for screening and diagnosis, available treatment options, the signs and symptoms of the disease, and the level of awareness among the population. In addition, this research also examined attitude and practice domains. The attitude domain explores individuals' perceptions, beliefs, and feelings towards breast cancer, including their emotional responses to risk, screening, and treatment. The practice domain focuses on the actual behaviors and actions taken by individuals in relation to breast cancer prevention, early detection, and treatment adherence. By studying these domains, the research aims to provide a comprehensive understanding of the factors influencing breast cancer outcomes for first degree relatives.

Although a significant proportion of first-degree relatives are aware of their heightened risk of breast cancer, their understanding of the specific factors contributing to this risk, such as family history patterns and the benefits of genetic counselling, remains limited (11,35). Similarly, while first-degree relatives recognize the importance of mammography and genetic testing, their attitudes are often influenced by personal beliefs, cultural factors, and the perceived stigma associated with a potential diagnosis (14). These findings highlight the need for targeted educational interventions that address both the knowledge gaps and the psychosocial barriers affecting at-risk populations.

Content validity is the degree to which the items of an assessment questionnaire are relevant and indicative of the intended construct for a particular assessment purpose. Following a review with the panel of experts, it was determined that items P15 and A4 have the same meaning; hence, the expert chose to retain item A4. In the domain of attitude, item P12 has the same meaning as item A15 in the domain of practice. Therefore, an expert retains the A15 item, which is mainly related to attitude. This is shown in Table 4.
Item A11 and P9 are rewritten as new sentences to ensure that the questions are clear. In domain practice, items P11 through P15 are relocated to domain attitude. These are shown in Table 4. This is because the items are more closely related to attitudes towards breast cancer screening.

According to the results of the CVI evaluation, three knowledge items with an I-CVI < 0.83 were eliminated, while only one was an attitude item (1,2). Since the I-CVI indicates the agreement between experts for each item, the S-CVI measures the agreement between experts for all items. The overall content validity index of the questionnaire using universal agreements (S-CVI/UA) was high, and the average approach (S-CVI/Ave) was 0.90. In conclusion, based on the agreement of the experts, all CVI score values indicated that the questionnaire's validity was considered acceptable 1.0 (25).

Face validity can be determined using either qualitative or quantitative techniques. In this study, we focused on quantitative based on Polit et.al (2006) suggested that several components be added to the traditional CVI to

enhance its value.

These subjects were carefully selected based on specific inclusion criteria to ensure they accurately represented the target population. Their demographic characteristics, such as age, gender and first degree relative of breast cancer patient, were considered to ensure a diverse and representative sample. Throughout the face validation stage, their ability to provide meaningful feedback on the clarity, relevance, and cultural sensitivity of the questionnaire was a critical factor in their selection. This ensured that the validation process yielded comprehensive insights, allowing for the refinement of the questionnaire to better suit the intended population. This conclusion is also based on the subjects' responses and the low percentage of missing data. Based on these findings, the research team opted to keep the items for further evaluation in the following stages.

In the result domain, knowledge, attitude, and practice achieved an acceptable value of I-FVI 1.0, which is minimal (I-FVI ≥ 0.83) (3). The validity of having a psychological test with strong face validity is related to the quality of the item in each domain and the experiences of the subjects. In data analysis, the values of S-FVI/Ave and S-FVI/UA are achieving a satisfactory level of clarity in process validity. This indicates that they find the topic comprehensible, clear, and easy to understand. If the item does not achieve an acceptable standard, the subject may be confused about what you are trying to measure and/or frustrated that they were struggling to answer items.

CONCLUSION

The processes of questionnaire development, content validity, and face validity are time-consuming and repetitive steps. The validity of the instrument is dependent on the content experts and subjects evaluating the instrument's items. An evaluation of the content and face validity of the KAP BC FDRQ produced a questionnaire version suitable for the next phase of questionnaire validation, exploratory factor analysis (EFA) and confirmatory factor analysis (CFA), which will confirm its structural integrity and accuracy. This assessment ensures the questionnaire's psychometric validity and reliability, which are essential for effective in the management of breast cancer risk among first-degree relatives. This method improves the quality of research and provides guidance for policy, education, and practice.

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