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Research article

Consensus views on an advanced breast cancer education curriculum for cancer nurses: A Delphi study

Amanda Drury [a,b,*], Celia Diez de Los Rios la Serna [c], Gülcan Bağçivan [d], Maura Dowling [e], Grigorios Kotronoulas [f], Amanda Shewbridge [g], Sarah Sheehan [a], Sema Erdem [h], Violet Aroyo [h], Theresa Wiseman [i]

[a] School of Nursing, Midwifery and Health Systems, University College Dublin, Belfield, Dublin 4, Ireland
[b] School of Nursing, Psychotherapy and Community Health, Dublin City University, Glasnevin, Dublin 9, Ireland
[c] School of Nursing, Faculty of Medicine and Health Sciences, Bellvitge Campus, Barcelona University, Feixa Llarga, 08907-L'Hospitalet de Llobregat, Barcelona, Catalonia, Spain
[d] School of Nursing, Koc University, Istanbul, Turkey
[e] School of Nursing and Midwifery, National University of Ireland, Galway, Ireland
[f] School of Medicine, Dentistry and Nursing, University of Glasgow, Glasgow, UK
[g] Breast Cancer Now, Fifth Floor, Ibex House, 42-47 Minories, London EC3N 1DY, UK
[h] Europa Donna, Turkey
[i] The Royal Marsden NHS Foundation Trust, London, UK

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ABSTRACT

Background: Specialist nursing care is a core indicator of quality care for people living with advanced breast cancer. However, access to and quality of nurse education programmes in advanced breast cancer is variable.
Objectives: This study aims to define the topics for inclusion in an international curriculum for an advanced breast cancer education programme.
Methods: A modified four-round Delphi study was undertaken with experts by profession and experience in advanced breast cancer. Thirty-four topics related to advanced breast cancer and six online teaching and learning methods were pre-selected following a systematic review. Between September 2021 and March 2022, the expert panel determined the importance of topics for inclusion in the education programme. Consensus was defined by at least 80 % agreement on the highest three points on a 9-point Likert scale.
Results: A total of 31 experts participated in rounds 1–3 of this study, and 156 experts by profession and experience participated in an additional fourth round, including people living with advanced breast cancer ($n = 72$, 46 %), healthcare professionals ($n = 46$, 29 %), family members or caregivers of a person diagnosed with advanced breast cancer ($n = 30$, 19 %) and advocacy professionals working in the area of advanced breast cancer ($n = 8$, 5 %). In round 4, 36 topics and five of six learning methods reached consensus.
Conclusions: The results of this study provide a framework to develop education programmes in advanced breast cancer, defining the essential elements of curriculum content for such programmes. The results highlight the need for advanced breast cancer education programmes to use multiple teaching and learning methods to promote nurses' understanding of person-centred supportive care and the physical, psychosocial and spiritual issues experienced by people living with advanced breast cancer.

1. Introduction

Breast cancer is the most commonly diagnosed cancer globally. For every person diagnosed with cancer, 1 in 4 are diagnosed with breast cancer (Sung et al., 2021). In particular, Northern and Western Europe has recorded some of the highest incidences of breast cancer globally (Dafni et al., 2019). Of people presenting with a breast cancer diagnosis, 5–10 % present with advanced or metastatic disease. Furthermore, 30 % of people who present with early breast cancer later develop metastatic breast cancer (Harding et al., 2013; Hartmann et al., 2014).

* Corresponding author at: School of Nursing, Psychotherapy and Community Health, Dublin City University, Glasnevin, Dublin 9, Ireland.
E-mail address: amanda.drury@dcu.ie (A. Drury).

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People diagnosed with advanced breast cancer experience significant symptoms and unmet information needs that adversely affect their quality of life (Bochenek-Cibor et al., 2020; Harding et al., 2013; Reed et al., 2012). Access to specialised cancer care can support enhanced management of physical symptoms and is associated with improved psychosocial well-being, including lower rates of anxiety and depression and greater satisfaction with quality of care (Brown et al., 2021; Eicher et al., 2006). However, despite evidence to suggest improved outcomes for people living with advanced breast cancer who have access to specialised nursing care, less than one-third receive specialised care (Breast Cancer Now, 2019). Furthermore, only 55 % of European countries currently have access to specialised breast cancer units, with a poor distribution of services within those countries (Bochenek-Cibor et al., 2020). Specialist breast care nurse roles are essential for high-quality care for people living with advanced breast cancer (Biganzoli et al., 2017; Brown et al., 2021; Cardoso et al., 2020). However, there are significant disparities in access to specialist breast cancer nursing roles, even in countries where specialist breast cancer units exist, owing to variability in the recognition of specialist cancer nursing roles and access to education underpinning the development of these roles (Charalambous et al., 2018; Kelly et al., 2020; Reed et al., 2010; Sharp et al., 2020).

While there are standards and competencies for nursing in the areas of breast cancer, few structured curricula focus on advanced breast cancer specifically and comprehensively (Breast Cancer Now, 2020; Vila et al., 2017). A recent systematic review has highlighted the limited number of postgraduate educational programmes relating to advanced breast cancer care; this review synthesised seven thematic areas representing the standards and competencies related to advanced breast cancer education (Table 1) (Drury et al., 2022). However, within the postgraduate education programmes identified by Drury et al. (2022), few provided detailed information on the curriculum of the programme; none consistently aligned with existing standards for breast cancer education, and most were delivered in face-to-face formats, limiting their accessibility. Furthermore, no existing programmes included consultation with people living with or affected by advanced breast cancer (Drury et al., 2022). Given geographical and linguistic disparities in access to education programmes (Drury et al., 2022; Kelly et al., 2020), there is a need for a comprehensive and accessible education programme to provide specialised training to breast cancer nurses. Therefore the aim of this research is to obtain consensus on the essential topics for an international curriculum for an advanced breast cancer education programme for nurses (ABC4Nurses) from a diverse group of people who are experts in advanced breast cancer by experience and profession, via a modified Delphi technique.

2. Methods

A Delphi study solicits the opinions of an expert panel, including experts by experience or profession, to provide their views on a particular issue or concept to reach consensus on priorities for, or definitions of a concept of interest (Barrett and Heale, 2020; McPherson et al., 2018). This Delphi study was conducted between October 2021 and January 2022, consensus was achieved via repeated voting by an expert panel over consecutive rounds. After each round, the results of the previous round were presented to the expert panel before progressing to subsequent rounds, enabling participants to reflect on trends in expert views and adjust their responses if they wish (Avella, 2016). This study was initially designed as a 3-round Delphi study, which sought to recruit a diverse sample of participants, including people living with advanced breast cancer. However, following the initial recruitment process, shortcomings were identified in the diversity of participants recruited, and an additional fourth, cross-sectional round was undertaken, which included the translation of the questionnaire into fifteen languages (Fig. 1). While this does not reflect traditional Delphi methodology, there is no standard definition of a 'modified' Delphi. Therefore, the meaning of 'modified' in the context of this study, and the rationale for the modified approach adopted is clearly articulated within the recruitment and data collection sections of this manuscript (Jünger et al., 2017). Ethical approval for the study was obtained from the University College Dublin Health Sciences Research Ethics Committee (Reference: LS-21-60-Drury).

2.1. Development and pilot of the initial questionnaire

In preparation for curriculum development and this Delphi study, a systematic review was undertaken to determine the availability, scope and outcomes of educational programmes related to advanced breast cancer for nurses (Drury et al., 2022). This review identified the content and competencies of educational programmes related to advanced breast cancer, and the results formed the basis for the initial draft of the ABC4Nurses curriculum (Table 1). The systematic review identified 34 topics, synthesised into seven domains related to advanced breast cancer and six teaching and learning methods for online learning. Results of the systematic review informed the development of the initial Delphi questionnaire, which sought to determine what topics should be included in the ABC4Nurses curriculum. During the questionnaire development process, the research team were consulted in the drafting, revision and refinement of the Delphi questionnaire. The research team comprises key stakeholders with expertise in advanced breast cancer, including healthcare professionals, advocacy professionals, academics and experts by experience. The questionnaire underwent minor revisions to ensure clarity and accessibility of language used to define the topics based on feedback from all stakeholders. The initial Delphi questionnaire was subsequently piloted with ten clinical and academic experts in breast cancer nursing, advocacy and education and two patient research partners. Content validity was assessed by experts; no further revisions were recommended following the pilot.

2.2. Sample

While Delphi studies have been used for decades, there remains

Table 1
Thematic areas derived from the synthesis of standards of practice and competences for care of people living with advanced breast cancer (adapted from Drury et al. (2022)).

Thematic standard and competencies	Sources
The background and significance of advanced breast cancer	Breast Cancer Now (2020); Royal College of Nursing (2019); Vila et al. (2017)
Treatment for advanced breast cancer	Breast Cancer Now (2020); Royal College of Nursing (2019); Vila et al. (2017)
Supportive, palliative and end of life-care	Breast Cancer Now (2020); Royal College of Nursing (2019); Vila et al. (2017); Yates et al. (2007)
Communication skills, cultural awareness, emotional awareness and advocacy skills	Breast Cancer Now (2020); Royal College of Nursing (2019); Vila et al. (2017); Yates et al. (2007)
Multidisciplinary/Interdisciplinary approaches to care,	Breast Cancer Now (2020); Royal College of Nursing (2019); Vila et al. (2017); Yates et al. (2007)
Clinical leadership	Vila et al. (2017); Yates et al. (2007)
Self-care	Breast Cancer Now (2020); Vila et al. (2017)

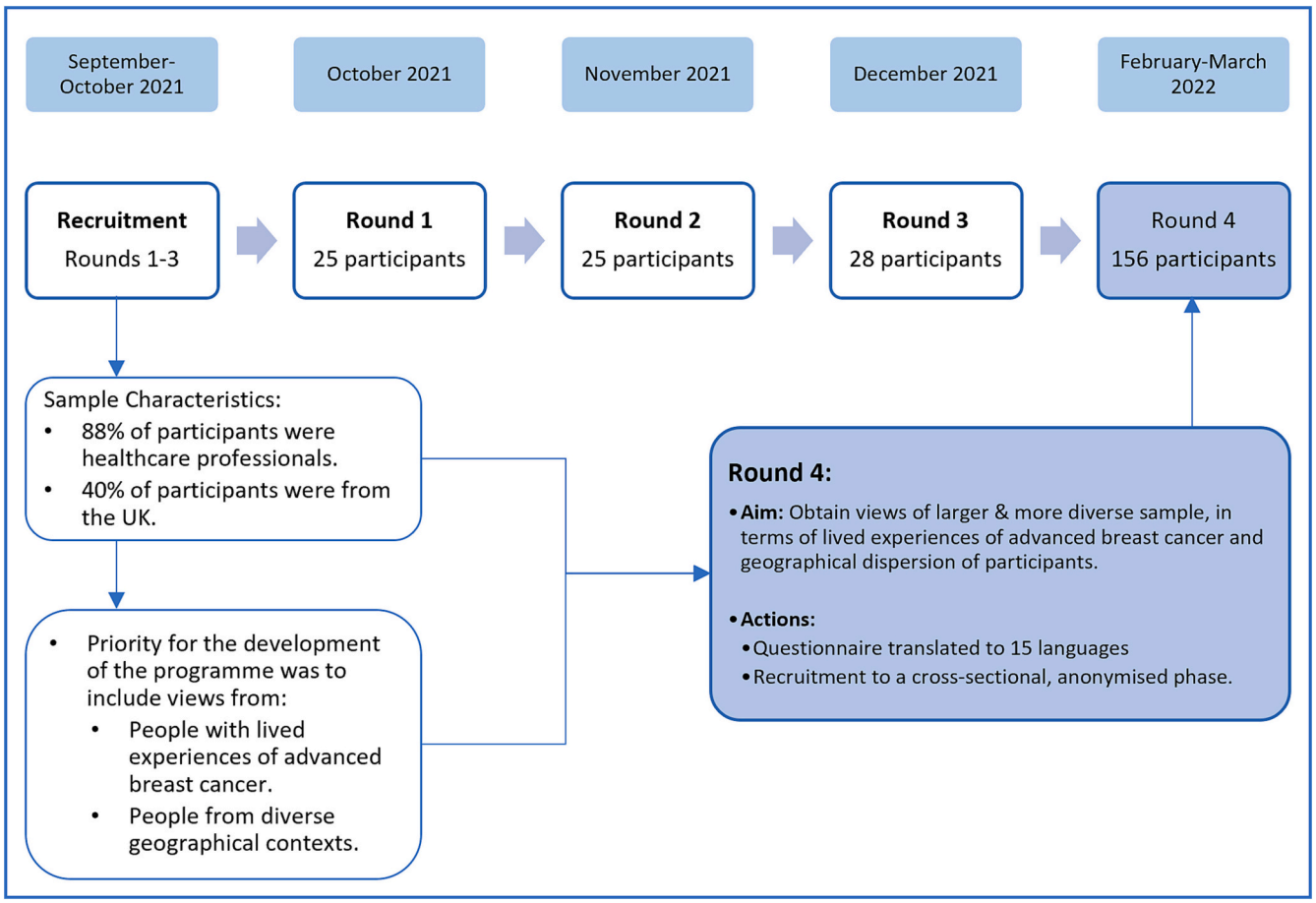


Fig. 1. Study design.

limited consensus on optimal sample size. The minimum sample size for a Delphi expert panel ranges from as low as three to fifteen participants (Boulkedid et al., 2011; Hsu and Sandford, 2007; Vogel et al., 2019). To ensure the Delphi technique is effective in achieving consensus, participants must be chosen based on their willingness to engage in the process and their experience and knowledge of the topic under study. Furthermore, heterogeneity in the expert panel, reflecting the diversity of stakeholders affected by the subject, can enrich the Delphi procedure and, ultimately, the impact of the product or outcomes of the Delphi process (Boulkedid et al., 2011). This study therefore set out to recruit a diverse panel of experts by practice and experience. The inclusion criteria for this study required participants to self-identify as an expert in advanced breast cancer by practice or personal experience, and included:

- People with a diagnosis of advanced or advanced or metastatic breast cancer.
- Family members or caregivers of a person who has had a diagnosis of advanced or metastatic breast cancer.
- Health professionals with experience caring for people living with advanced or metastatic breast cancer.
- Researchers with experience in the field of advanced or metastatic breast cancer.
- Advocacy professionals with experience in advanced or metastatic breast cancer.

The study did not impose exclusion criteria on participation based on geography; however, as the first three rounds of the study were conducted in English, participants were required to be able to read and write in English for these rounds.

2.3. *Data collection – rounds 1–3*

The study design initially comprised of a three-round Delphi. The questionnaire in rounds 1, 2 and 3 included three sections. The first section collected sample characteristics, including country of residence and personal or professional area of expertise. The second and third sections of the questionnaire invited the panel of experts to independently rank 34 topics across six domains related to advanced breast cancer and six online teaching and learning methods. The first-round questionnaire also included two open-text items allowing participants to propose additional topics or teaching methods. Recommendations regarding additional topics were presented in subsequent rounds. Where recommendations for additional topics overlapped with existing topics or highlighted potential misunderstandings of topics, information regarding the specific recommendation or clarification, and how they related to the existing topic were included alongside the original item in rounds 2 and 3.

In rounds 1 and 2, each item in sections 2 and 3 of the questionnaire were ranked on a 9-point Likert scale, where 1–3 = Not important, 4–6 = unsure, and 7–9 = important. Consensus was indicated where >80 % of participants agreed an item should be included (i.e. a response of 7, 8 or 9). Consensus disagreement was defined where >80 % of participants indicated an item was not important for inclusion (i.e. a response of 1, 2 or 3), and was removed from the subsequent rounds. In round 2, participants were invited to re-rate the importance of items that achieved consensus agreement or did not reach consensus for inclusion or exclusion after round 1. In round 3, participants were asked to indicate whether items from round 2 that reached consensus for inclusion and items that continued to lack consensus for inclusion or exclusion should be definitively included in the ABC4Nurses curriculum by responding

"yes" or "no" to each topic or teaching method. In Rounds 2 and 3, the level of agreement reported by the expert panel from the previous round was presented for each item.

2.4. Recruitment – rounds 1–3

Participants were recruited to round 1 via an advertisement on the social media platforms Twitter and Facebook between September and October 2021, which included a link to the participant information leaflet. This advertisement was reshared by academic and advocacy organisations involved in advanced breast cancer advocacy and research via both social media platforms and organisational newsletters. At the end of the participant information leaflet, participants were directed to express their interest in participating by completing the study consent form. To ensure responses were pseudonymised, participants were invited to self-generate a study identifier, which was used in all rounds of the Delphi study to link responses. Those who expressed interest in participating in the study were invited to participate in each Delphi round in October, November and December 2021, respectively.

The time commitment required for involvement in a Delphi study is a recognised challenge for the recruitment and retention of participants, in addition to questionnaires with more items and larger panels (Gargon et al., 2019; Hall et al., 2018). Within this study, recruitment to the first three rounds of the study provided clear information on the dates that questionnaires for each round would be disseminated and the timeframe for response (14 days). To enhance retention during each round, reminder emails were sent on Day 10 and Day 13 for each round, highlighting the approaching deadline for response. The turnaround between the end of each round and the commencement of the subsequent round was kept to a minimum (7 days). The results of each phase were integrated into the questionnaire to ensure ease of reading, reference and response. The invitation to participate in each round updated participants on the response to the previous round, and the number of items that had and had not reached consensus. The use of a self-generated identifier within each questionnaire allowed participants to participate confidentially in each round of the questionnaire.

2.5. Data collection and rationale – round 4

At the end of the recruitment process for the first three rounds, the panel of experts were primarily healthcare professionals involved in the care of people living with advanced breast cancer ($n = 28$, 90 %) and included only one participant who was living with advanced breast cancer (3 %). The remaining participants identified themselves as researchers in the field of advanced breast cancer (n = 2, 7 %). A priority for the development of the ABC4Nurses programme was that the views of people living with advanced breast cancer and their caregivers would inform the development of the programme. However, as the questionnaire was presented in English, this created a barrier to participants who may not be able to read and write in English. To address this limitation, a decision was taken to run a fourth cross-sectional Delphi round. The specific objective of this round was to obtain the views of a larger and more diverse sample, in terms of the lived experience of advanced breast cancer and the geographical dispersion of participants.

In round 4, the questionnaire was translated into 15 European languages. Forward translations were undertaken in Qualtrics, via Google translate. Back translation and correction of errors in the questionnaire were subsequently undertaken by oncology nurse experts working in clinical and academic settings who were fluent in the language of translation and English. Within this process, translators were requested to ensure use of plain and accessible language for the translated questionnaires. An amendment to the ethical approval for this study, explaining the rationale for this modification was sought and granted by the University College Dublin Health Sciences Research Ethics Committee (Reference: LS-21-60-Drury).

2.6. Recruitment – round 4

In February 2022, recruitment to the fourth round of the questionnaire commenced; as this questionnaire was anonymous, no identifying information was collected. The questionnaire was structured in the same manner as the round 1 questionnaire and included items proposed for inclusion in round 2. The round 4 questionnaire presented the results of the 3-round Delphi process, including the level of agreement achieved for each item in round 3. In the recruitment process for round 4, the participant information leaflet explicitly stated that this was a cross-sectional and anonymous questionnaire; therefore, no personal information was requested from participants to ensure anonymity. Similar to rounds 1–3, participants were recruited via social media platforms and organisational newsletters of advocacy organisations involved in advanced breast cancer advocacy and research. Within the request to advocacy organisations to support recruitment to the fourth round of the study, we highlighted the characteristics of the sample recruited during rounds 1–3, and emphasised the objective to recruit a more diverse sample representing people with personal experience of advanced breast cancer and wider geographical distribution of participants. Participant information materials and advertisements for round 4 were translated and also identified the languages in which the questionnaire was available.

3. Data analysis

Descriptive statistics, including frequencies and proportions, were used to characterise the sample in relation to their demographic characteristics and summarise the level of agreement for each topic item within each round of the Delphi. The relevance of each topic and priority for retention was determined by the proportion of the participants who rated each topic as important. Participants were advised in each round that topics were deemed important for inclusion where >80 % of participants scored a topic 7, 8 or 9 on Likert scale responses (Rounds 1 and 2) or voted yes to include the topic in the ABC4Nurses programme (Rounds 3 and 4).

4. Patient and public involvement

Patient and public involvement was an integral part of the design and outcomes of the study. The research team undertaking this study include two patient research partners, who were involved in the conceptualisation and design of this study, and the development of the research funding application, study protocol, and conduct of all phases of the study. Within this phase of the study, the patient research partners were involved in the preparation of the data collection tools, providing feedback on the content and understandability of the questionnaire. The patient research partners were actively involved in the analysis and interpretation of the study results and have been involved in the drafting and revision of this manuscript, and related dissemination activities, including conference presentations.

5. Results

5.1. Sample characteristics

In total, 32 people expressed interest in participating in the initial Delphi study, and 31 responded to one or more rounds (Response Rate: 97 %). Nineteen participants responded to all three rounds of the Delphi (61 %); nine participants responded to two rounds (29 %), and three participants responded to one round only (10 %), of whom two responded to the first round only, and one responded to the final round only. Twenty-five participants responded to rounds 1 (78 %) and 2 (78 %), and 28 responded to round 3 (88 %). While six participants who expressed interest did not respond to the first round, five completed round 2 and round 3, and one completed round 3 only. Five participants

Table 2
Demographic characteristics of sample.

	Round 1 (*n* = 25)		Round 2 (*n* = 25)		Round 3 (*n* = 28)		Round 4 (*n* = 156)	
	n	%	n	%	n	%	n	%
Personal/professional background								
A health professional with experience looking after people living with advanced or metastatic breast cancer	22	88 %	24	96 %	25	89 %	46	29 %
A person who has a diagnosis of advanced or advanced or metastatic breast cancer	1	4 %	1	4 %	1	4 %	72	46 %
A researcher with experience in the field of advanced or metastatic breast cancer	2	8 %	0	0 %	2	7 %	0	0 %
A family member or caregiver of a person who has had a diagnosis of advanced or metastatic breast cancer	0	0 %	0	0 %	0	0 %	30	19 %
An advocacy professional with experience in advanced or metastatic breast cancer	0	0 %	0	0 %	0	0 %	8	5 %
Country of residence/practice								
United Kingdom	10	40 %	8	32 %	11	39 %	26	17 %
Turkey	2	8 %	2	8 %	2	7 %	53	34 %
United States of America	2	8 %	2	8 %	2	7 %	0	0 %
Ireland	2	8 %	2	8 %	1	4 %	9	6 %
Belgium	1	4 %	1	4 %	1	4 %	9	6 %
Spain	1	4 %	2	8 %	3	11 %	10	6 %
Finland	1	4 %	1	4 %	1	4 %	0	0 %
Croatia	1	4 %	2	8 %	2	7 %	1	1 %
Netherlands	1	4 %	1	4 %	1	4 %	3	2 %
Italy	1	4 %	1	4 %	1	4 %	3	2 %
Estonia	1	4 %	1	4 %	1	4 %	0	0 %
Switzerland	1	4 %	1	4 %	1	4 %	0	0 %
Cyprus	1	4 %	1	4 %	1	4 %	0	0 %
Argentina	0	0 %	0	0 %	0	0 %	1	1 %
Australia	0	0 %	0	0 %	0	0 %	10	6 %
Brazil	0	0 %	0	0 %	0	0 %	1	1 %
Canada	0	0 %	0	0 %	0	0 %	5	3 %
Czech Republic	0	0 %	0	0 %	0	0 %	5	3 %
Greece	0	0 %	0	0 %	0	0 %	7	4 %
Jordan	0	0 %	0	0 %	0	0 %	1	1 %
Kenya	0	0 %	0	0 %	0	0 %	1	1 %
Malta	0	0 %	0	0 %	0	0 %	1	1 %
New Zealand	0	0 %	0	0 %	0	0 %	3	2 %
Slovenia	0	0 %	0	0 %	0	0 %	4	3 %
Nigeria	0	0 %	0	0 %	0	0 %	1	1 %
Portugal	0	0 %	0	0 %	0	0 %	1	1 %
Germany	0	0 %	0	0 %	0	0 %	1	1 %
Languages used to complete Round 4 questionnaire								
English	–	–	–	–	–	–	56	36 %
Turkish	–	–	–	–	–	–	54	35 %
Spanish	–	–	–	–	–	–	11	7 %
Netherlands	–	–	–	–	–	–	11	7 %
Greek	–	–	–	–	–	–	7	4 %
Czech	–	–	–	–	–	–	2	1 %
Croatian	–	–	–	–	–	–	4	3 %
Italian	–	–	–	–	–	–	3	2 %
Portugal	–	–	–	–	–	–	3	2 %
German	–	–	–	–	–	–	1	1 %
French	–	–	–	–	–	–	1	1 %

who completed round 1 did not complete round 2; of these, two did not complete any further rounds (40 %), while the remaining three completed the third round following invitation (60 %).

The demographic characteristics of participants from rounds 1, 2 and 3 of the Delphi are presented in Table 2. As previously highlighted, healthcare professionals constituted the majority of the sample in the initial rounds (88–96 %). One person living with advanced or metastatic breast cancer completed all of the first three rounds of the Delphi, while those who self-identified as researchers in the area of advanced breast cancer completed rounds 1 and 3 only. In all three rounds, participants were primarily resident in the United Kingdom (32–40 %) or Spain (4–11 %).

The fourth, cross-sectional round of the Delphi questionnaire was translated into 15 languages, including English. A total of 253 questionnaires were returned, of which 156 were completed in full (61 %). Questionnaires with missing data were excluded from the analysis. Within this fourth round, participants were predominantly people living with a diagnosis of advanced breast cancer (n = 72, 46 %). The remaining participants were healthcare professionals (n = 46, 29 %), family members or caregivers of a person diagnosed with advanced breast cancer (n = 30, 19 %) and advocacy professionals working in the area of advanced breast cancer (n = 8, 5 %). The fourth round of the questionnaire achieved greater diversity in the countries where participants resided, with most participants from Turkey (n = 53, 34 %), followed by the UK (n = 26, 17 %). Questionnaires were completed in eleven of the fifteen available languages, with most being completed in English (n = 56, 36 %) or Turkish (n = 54, 35 %) (Table 2).

5.2. Delphi results

Table 3 shows a summary of the Delphi item responses for each of the seven standards and competencies thematic areas or learning method domains. The number of statements achieving consensus improved for each domain from round 1 to round 3 (Table 3).

Table 3
Summary of grouped Delphi statements by domain.

	Number of statements in each domain				Proportion of statements where consensus was achieved							
Round	1	2	3	4	1[a]		2[a]		3[b]		4[b]	
Statement domains	n	n	n	n	n	%	n	%	n	%	n	%
Background and significance of advanced breast cancer	9	9	9	9	7	78 %	7	78 %	8	89 %	9	100 %
Advanced breast cancer treatment	5	6	6	6	4	80 %	4	67 %	5	83 %	6	100 %
Supportive, palliative and end of life care for advanced breast cancer	8	9	9	9	8	100 %	8	89 %	9	100 %	9	100 %
Practical skills for nurses caring for people living with advanced breast cancer	6	6	6	6	6	100 %	6	100 %	6	100 %	6	100 %
Multidisciplinary approaches to care	5	5	5	5	5	100 %	5	100 %	5	100 %	5	100 %
Self-care for specialist breast cancer nurses	1	1	1	1	1	100 %	1	100 %	1	100 %	1	100 %
Methods of Teaching and Learning	6	6	6	6	5	83 %	6	100 %	6	100 %	5	83 %
Total	40	42	42	42	36	90 %	37	88 %	40	95 %	41	98 %

[a] Consensus was achieved when 80 % of participants rated an item as important (a response of 7, 8 or 9 on the Likert Scale).
[b] Consensus was achieved when 80 % of participants voted "yes" that the item was important for inclusion.

5.2.1. Round 1 (n = 25)

In round 1, consensus was achieved for 36 of 40 items presented (90 %) (Table 3). Across the seven domains presented in round 1, consensus was achieved for all items in the domains "supportive, palliative and end of life care for advanced breast cancer", "practical skills for nurses caring for people living with advanced breast cancer", "multidisciplinary approaches to care", and "self-care for specialist breast cancer nurses". The domains with the lowest level of consensus in round 1 were "background and significance of advanced breast cancer", where seven of nine items achieved consensus (78 %); "advanced breast cancer treatment", where four of five items achieved consensus (80 %) and "methods of teaching and learning", where five of six items achieved consensus (83 %) (Table 3).

Of the 34 education topics presented in the Round 1 questionnaire, 32 items reached the threshold for retention in round 1, rated by 25 participants. Three items, "the incidence of advanced breast cancer," "screening and breast awareness", and "inequalities in breast cancer care and treatment", did not reach consensus, with 28 %, 36 % and 24 % of participants unsure whether these topics should be included in the ABC4Nurses curriculum respectively (Table 4). Eight participants recommended additional topics that should be included in the ABC4Nurses curriculum. The role of complementary therapies and survivorship were generated based on the recommendations of two participants. Seven participants recommended seventeen additional items that were assimilated under existing topics (Table 5). Eleven (65 %) of the proposed topics related to physical, psychological and social aspects of care, and aligned with topics in the domain "supportive, palliative and end of life care for advanced breast cancer" (Table 5).

Six methods of teaching and learning for an online educational programme on advanced breast cancer were presented to participants. All teaching and learning methods except online lectures achieved consensus at the end of round 1; 24 % were unsure or disagreed that online lectures were an appropriate means of educating nurses about advanced breast cancer (Table 4). Seven participants recommended three additional methods of teaching and learning for an online educational programme in advanced breast cancer, which were combined with online lectures (webinars, asynchronous lectures, case studies), and educational resources (gamification in learning and discussion boards; journal club). Two participants recommended the inclusion of patient and caregiver experiences in the programme, which were incorporated in the method "patient and caregiver perspectives and experiences of care".

5.2.2. Round 2 (n = 25)

At the end of Round 1, the topics were revised to include 36 topics across six modules and six teaching and learning methods, which were rated by 25 participants (Table 4). At the end of round 2, consensus was achieved for 37 of the 42 items presented (88 %) (Table 3). Across the seven domains presented in round 2, consensus was consistent with round 1, with all items in the domains "practical skills for nurses caring for people living with advanced breast cancer", "multidisciplinary approaches to care", and "self-care for specialist breast cancer nurses" achieving consensus. Similarly, the number of items achieving consensus in the domain "background and significance of advanced breast cancer" was consistent with round 1, with seven items (78 %) achieving consensus. The number of items achieving consensus in the domain "methods of teaching and learning" increased from 83 % in round 1 to 100 % in round 2. In two domains, the number of items achieving consensus reduced between round 1 and round 2. Four of six items (67 %) in the domain "advanced breast cancer treatment" achieved consensus at round 2, compared to 80 % of items achieving consensus at round 1. Eight of nine items (89 %) in the domain "supportive, palliative and end of life care for advanced breast cancer" achieved consensus in round 2, compared to 100 % in round 1. However, new items were added to both of these domains between rounds 1 and 2 (Table 3).

Of the 36 education topics presented in the Round 2 questionnaire, 31 achieved consensus, and five topics did not reach consensus. Three items from the previous rounds that remained without consensus were "the incidence of advanced breast cancer" (76 %), "screening and breast awareness" (72 %), and "inequalities in breast cancer care and treatment" (76 %). Both "the incidence of advanced breast cancer" and "screening and breast awareness" demonstrated trends toward consensus agreement, with two and three participants, respectively, reporting agreement with their inclusion in the programme for the first time in round two. Two new items introduced in round two failed to reach consensus agreement or disagreement, with >20 % of participants unsure if "the role of survivorship or living well with advanced cancer for individuals living with advanced breast cancer" and "the role of complementary therapies in advanced breast cancer" should be included as topics in the programme. All teaching and learning methods reached consensus for inclusion, including online lectures, which did not reach consensus in round 1 (Table 4).

5.2.3. Round 3 (n = 28)

At the end of round 3, consensus was achieved for 40 of 42 items presented (95 %) (Table 3). By round 3, 100 % consensus was achieved for five domains. Consensus on all topics was maintained from round 2 to round 3 in the domains "practical skills for nurses caring for people living with advanced breast cancer", "multidisciplinary approaches to care", "self-care for specialist breast cancer nurses", and "methods of teaching and learning". Across the remaining domains, the number of items reaching consensus rose from rounds 2 to 3 in the domains "background and significance of advanced breast cancer" (from 78 % to 89 %), "advanced breast cancer treatment" (from 68 % to 83 %) and "supportive, palliative and end of life care for advanced breast cancer" (from 89 % to 100 %) (Table 4). At the end of round three, two of 36 education topics (6 %) failed to meet consensus for inclusion, "screening

Table 4
Delphi results rounds 1–3.

Module/Topic	Round 1 ($n = 25$)						Round 2 ($n = 25$)						Round 3 ($n = 28$)			
	Agree		Unsure		Disagree		Agree		Unsure		Disagree		Include		Exclude	
	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n
Background and significance of advanced breast cancer																
The risk factors for advanced breast cancer	80 %	20	16 %	4	4 %	1	88 %	22	12 %	3	0 %	0	96 %	27	4 %	1
The incidence of advanced breast cancer	68 %	17	28 %	7	4 %	1	76 %	19	24 %	6	0 %	0	86 %	24	14 %	4
The physical/biological processes of advanced breast cancer	92 %	23	8 %	2	0 %	0	96 %	24	4 %	1	0 %	0	100 %	28	0 %	0
Types of breast cancer, including genetic mutations	100 %	25	0 %	0	0 %	0	96 %	24	4 %	1	0 %	0	100 %	28	0 %	0
Specific sites of metastases with advanced breast cancer	100 %	25	0 %	0	0 %	0	100 %	25	0 %	0	0 %	0	96 %	27	4 %	1
Screening and breast awareness	60 %	15	36 %	9	4 %	1	72 %	18	28 %	7	0 %	0	75 %	21	25 %	7
Emergency conditions related to advanced breast cancer	100 %	25	0 %	0	0 %	0	100 %	25	0 %	0	0 %	0	100 %	28	0 %	0
Diagnosis, staging and grading	92 %	23	8 %	2	0 %	0	96 %	24	4 %	1	0 %	0	96 %	27	4 %	1
National/International standards of care, policy and requirements for specialised breast cancer units	96 %	24	4 %	1	0 %	0	96 %	24	4 %	1	0 %	0	100 %	28	0 %	0
Advanced breast cancer treatment																
Factors that influence cancer treatment choices in advanced breast cancer	96 %	24	4 %	1	0 %	0	96 %	24	4 %	1	0 %	0	100 %	28	0 %	0
Treatment options for advanced breast cancer and its treatment	96 %	24	4 %	1	0 %	0	100 %	25	0 %	0	0 %	0	100 %	28	0 %	0
Role of clinical trials in advanced breast cancer	100 %	25	0 %	0	0 %	0	100 %	25	0 %	0	0 %	0	96 %	27	4 %	1
Inequalities in breast cancer care and treatment	76 %	19	24 %	6	0 %	0	76 %	19	24 %	6	0 %	0	71 %	20	29 %	8
Ethics and informed decision-making	92 %	23	8 %	2	0 %	0	96 %	24	4 %	1	0 %	0	100 %	28	0 %	0
The role of complementary therapies in advanced breast cancer	–	–	–	–	–	–	76 %	19	24 %	6	0 %	0	86 %	24	14 %	4
Supportive, palliative and end of life care for advanced breast cancer																
Nurses' role in supportive care for advanced breast cancer	96 %	24	4 %	1	0 %	0	96 %	24	4 %	1	0 %	0	100 %	28	0 %	0
Holistic assessment of treatment and disease-related symptoms for advanced breast cancer	92 %	23	8 %	2	0 %	0	96 %	24	4 %	1	0 %	0	100 %	28	0 %	0
Person-centred supportive care interventions for symptom management in advanced breast cancer	92 %	23	8 %	2	0 %	0	100 %	25	0 %	0	0 %	0	100 %	28	0 %	0
Supporting self-management skills of people living with advanced breast cancer	92 %	23	8 %	2	0 %	0	100 %	25	0 %	0	0 %	0	100 %	28	0 %	0
Physical, psychological, social and spiritual implications of living with advanced breast cancer	100 %	25	0 %	0	0 %	0	100 %	25	0 %	0	0 %	0	100 %	28	0 %	0
Impact of an advanced breast cancer diagnosis on the family, children and informal caregivers of people living with cancer	100 %	25	0 %	0	0 %	0	100 %	25	0 %	0	0 %	0	100 %	28	0 %	0
Specialist and non-specialist palliative care for advanced breast cancer	88 %	22	12 %	3	0 %	0	96 %	24	4 %	1	0 %	0	96 %	27	4 %	1
End of life care	84 %	21	16 %	4	0 %	0	96 %	24	4 %	1	0 %	0	93 %	26	7 %	2
The role of survivorship or living well with advanced cancer for individuals living with advanced breast cancer	–	–	–	–	–	–	76 %	19	24 %	6	0 %	0	93 %	26	7 %	2
Practical skills for nurses caring for people living with advanced breast cancer																
Communication with people with cancer	96 %	24	4 %	1	0 %	0	100 %	25	0 %	0	0 %	0	100 %	28	0 %	0
Communication with family members and informal caregivers of people with cancer	96 %	24	4 %	1	0 %	0	100 %	25	0 %	0	0 %	0	96 %	27	4 %	1
Cultural awareness and the impact of cultural beliefs on coping and treatment decision-making	96 %	24	4 %	1	0 %	0	100 %	25	0 %	0	0 %	0	100 %	28	0 %	0
Emotional awareness and managing challenging situations	100 %	25	0 %	0	0 %	0	96 %	24	4 %	1	0 %	0	100 %	28	0 %	0
Information provision and education	88 %	22	12 %	3	0 %	0	100 %	25	0 %	0	0 %	0	100 %	28	0 %	0
Supporting decision-making and advocacy	92 %	23	8 %	2	0 %	0	100 %	25	0 %	0	0 %	0	100 %	28	0 %	0

(*continued on next page*)

Table 4 (*continued*)

Module/Topic	Round 1 ($n = 25$)						Round 2 ($n = 25$)						Round 3 ($n = 28$)			
	Agree		Unsure		Disagree		Agree		Unsure		Disagree		Include		Exclude	
	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n
Multidisciplinary approaches to care																
Introduction to inter-disciplinary/multi-disciplinary/collaborative care	92 %	23	8 %	2	0 %	0	100 %	25	0 %	0	0 %	0	100 %	28	0 %	0
Nurses' role within the advanced breast cancer multidisciplinary team	88 %	22	12 %	3	0 %	0	100 %	25	0 %	0	0 %	0	100 %	28	0 %	0
Communication and collaborative care planning, implementation and evaluation	100 %	25	0 %	0	0 %	0	100 %	25	0 %	0	0 %	0	96 %	27	4 %	1
Support services for people living with advanced breast cancer	92 %	23	8 %	2	0 %	0	100 %	25	0 %	0	0 %	0	100 %	28	0 %	0
Support services for family members and informal caregivers of people living with advanced breast cancer	92 %	23	8 %	2	0 %	0	96 %	24	4 %	1	0 %	0	96 %	27	4 %	1
Self-care for specialist breast cancer nurses																
Coping with the emotional demands of caring for people with advanced breast cancer	92 %	23	8 %	2	0 %	0	100 %	25	0 %	0	0 %	0	96 %	27	4 %	1
Methods of teaching and learning																
Online lectures	76 %	19	20 %	5	4 %	1	84 %	21	16 %	4	0 %	0	100 %	28	0 %	0
Group and clinical case discussion	96 %	24	4 %	1	0 %	0	100 %	25	0 %	0	0 %	0	100 %	28	0 %	0
Problem solving/problem-based learning	96 %	24	4 %	1	0 %	0	100 %	25	0 %	0	0 %	0	100 %	28	0 %	0
Patient and caregiver perspectives and experiences of care	96 %	24	4 %	1	0 %	0	100 %	25	0 %	0	0 %	0	96 %	27	4 %	1
Reflective practice	88 %	22	12 %	3	0 %	0	88 %	22	12 %	3	0 %	0	89 %	25	11 %	3
Educational resources	92 %	23	8 %	2	0 %	0	96 %	24	4 %	1	0 %	0	96 %	27	4 %	1

and breast awareness" and "inequities in breast cancer care and treatment", where 25 % ($n = 7$) and 29 % ($n = 8$) of participants indicated they should not be included in the programme (Table 4). Consistent with round 2, all teaching and learning methods maintained consensus at the end of round 3 (Table 4).

5.2.4. Round 4 ($n = 156$)

In Round 4, participants were presented with the results of round 3 of the Delphi; the questionnaire was based on the round 1 questionnaire, and included the additional items and recommended topics proposed by participants in round 1.

In round 4, a higher proportion of items reached consensus compared to round 3 overall (41 of 42 items, 98 %) (Table 3). There was consistency in the domains which achieved 100 % consensus, "supportive, palliative and end of life care for advanced breast cancer", "practical skills for nurses caring for people living with advanced breast cancer", "multidisciplinary approaches to care", and "self-care for specialist breast cancer nurses" between rounds 3 and 4. Two further domains achieved higher levels of consensus in round 4 compared to round 3, achieving 100 % consensus, "background and significance of advanced breast cancer" (89 % in round 3; 100 % in round 4) and "advanced breast cancer treatment" (83 % in round 3; 100 % in round 4). "Methods of teaching and learning" was the only domain where fewer items achieved consensus in round 4 (83 %) compared to round 3 (100 %) (Table 3).

Considering the whole sample of round 4 participants ($n = 156$), all 36 education topics presented in round four reached consensus for inclusion in the programme, with ≥80 % agreement (Table 6). The highest priority education topics identified in round 4 were "ethics and informed decision-making" (97 %, $n = 152$), "the physical/biological processes of advanced breast cancer" (96 %, $n = 150$), "nurses' role in supportive care for advanced breast cancer" (96 %, n = 150), "holistic assessment of treatment and disease-related symptoms for advanced breast cancer" (96 %, n = 150), "communication with people with cancer" (96 %, $n =$ 149), and "the risk factors for advanced breast cancer" (96 %, n = 149).

Within subgroups of the sample, there were some groups where consensus was not reached. Those who identified as a person living with advanced breast cancer demonstrated lower levels of agreement with the inclusion of "specialist and non-specialist palliative care for advanced breast cancer" ($n = 57$, 79 %). One-quarter of advocacy professionals ($n = 2$) did not agree that "inequalities in breast cancer care and treatment" should be included in the programme. A higher number of items did not reach consensus agreement for inclusion in the programme among those who identified as family members or caregivers of a person living with advanced breast cancer, including:

- diagnosis, staging and grading of breast cancer ($n = 19$, 63 % agreed),
- the role of complementary therapies in advanced breast cancer ($n =$ 22, 73 % agreed),
- the impact of an advanced breast cancer diagnosis on the family, children and informal caregivers of people living with cancer ($n =$ 23, 77 % agreed),
- communication with family members and informal caregivers of people with cancer ($n = 22$, 73 % agreed),
- support services for family members and informal caregivers of people living with advanced breast cancer ($n = 22$, 73 % agreed).

Of the six methods of teaching and learning presented in round 4, one item did not meet consensus for use in the programme, reflective practice ($n = 39$, 25 % disagreed). There was consistency in the consensus disagreement for the inclusion of reflective practice across all sub-groups except advocacy professions, of which 88 % ($n = 7$) believed reflective practice should be included as a teaching and learning method in the programme. While online lectures achieved consensus for inclusion overall, consensus was not reached among subgroups of people who identified as people with advanced breast cancer ($n = 55$, 76 % agreed)

Table 5
Summary of Topics Proposed by Participants in rounds 1 and 4.

Module	Topic	Topics proposed at the end of Round 1	Topics proposed at the end of Round 4
Background and significance of advanced breast cancer	The incidence of advanced breast cancer	–	The incidence of male breast cancer ($n = 1$)
Advanced breast cancer treatment	Treatment options for advanced breast cancer and its treatment	Strategies to remain up to date with emerging treatment options ($n = 1$)	Strategies to remain up to date with emerging treatment options ($n = 1$)
	The role of complementary therapies in advanced breast cancer	Understanding the potential applications of complementary therapies ($n = 2$)	–
Supportive, palliative and end of life care for advanced breast cancer	Nurses' role in supportive care for advanced breast cancer	Optimising therapeutic relationships ($n = 1$)	Therapeutic relationships ($n = 1$) Self-recognition of the value of cancer nurses' role ($n = 2$)
	Holistic assessment of treatment and disease-related symptoms for advanced breast cancer	Assessing psychological distress ($n = 1$) Patient-reported outcome measures ($n = 1$)	–
	Person-centred supportive care interventions for symptom management in advanced breast cancer	–	Wound care ($n = 2$) Person-centred care ($n = 2$) Continuity of care ($n = 1$) Symptom management ($n = 1$)
	Supporting self-management skills of people living with advanced breast cancer	Empowering people with advanced breast cancer to optimise self-care strategies ($n = 1$)	–
	Physical, psychological, social and spiritual implications of living with advanced breast cancer	Sexuality ($n = 1$) Adjustment to a diagnosis of advanced breast cancer ($n = 1$)	Symptom Management ($n = 1$) Financial impact of cancer ($n = 1$) Sexuality ($n = 2$) Age-related implications of advanced breast cancer ($n = 1$)
	Impact of an advanced breast cancer diagnosis on the family, children and informal caregivers of people living with cancer	Understanding the impact of advanced breast cancer on spousal relationships ($n = 1$) Understanding the impact of advanced breast cancer on social relationships ($n = 1$)	Genetic implications for family members ($n = 1$) Impact of treatment on caregivers ($n = 1$)
	Specialist and non-specialist palliative care for advanced breast cancer	Understanding palliative care and supportive care ($n = 2$)	Palliative care communication ($n = 1$) Preferences for quality of life during treatment ($n = 1$) Future planning/advance directives ($n = 1$)
	End of life care	Addressing the needs of people at the end of life ($n = 1$)	End of life care ($n = 1$)
	The role of survivorship or living well with advanced cancer for individuals living with advanced breast cancer	Survivorship ($n = 1$)	Lifestyle ($n = 2$) Nutrition ($n = 2$) Cancer prevention ($n = 1$)
Practical skills for nurses caring for people living with advanced breast cancer	Communication with family members and informal caregivers of people with cancer	–	Communication with children ($n = 1$)
	Emotional awareness and managing challenging situations	Managing psychological crises ($n = 1$)	Nurses' interactions with the person with advanced breast cancer ($n = 2$)
	Information provision and education	–	Providing information and education to people living with advanced breast cancer ($n = 2$)
	Supporting decision-making and advocacy	–	Acting as an advocate for people living with advanced breast cancer ($n = 1$)
Multidisciplinary approaches to care	Introduction to inter-disciplinary/multi-disciplinary/collaborative care	–	Working with members of the multidisciplinary team ($n = 1$)
	Support services for family members and informal caregivers of people living with advanced breast cancer	Understanding how to identify appropriate local services for family members of people with advanced breast cancer ($n = 1$)	Support and education for caregivers ($n = 1$)
Self-care for specialist breast cancer nurses	Coping with the emotional demands of caring for people with advanced breast cancer	–	Self-care ($n = 1$) Management of role demands ($n = 3$)

and family members and caregivers of people living with advanced breast cancer ($n = 23$, 77 % agreed).

At the end of round 4, 22 participants made 39 suggestions for additional topics, all of which were incorporated into existing topics (Table 5). Additional topics proposed in round 4 were primarily related to person-centred supportive care interventions for symptom management in advanced breast cancer ($n = 6$), physical, psychological, social and spiritual implications of living with advanced breast cancer ($n = 5$), and the role of survivorship or living well with advanced cancer for individuals living with advanced breast cancer ($n = 5$). Fifteen participants made recommendations for 17 methods of teaching. Most recommendations were incorporated into educational resources (n = 7), including online videos, conference materials, and the use of social media to support learning. The remaining were categorised under online lectures, including webinars ($n = 5$), patient and caregiver perspectives and experiences of care ($n = 2$) and problem-solving/problem-based learning ($n = 3$).

At the end of Round 4, all 36 topics were retained for inclusion in the ABC4Nurses programme, and five teaching and learning methods were determined for the programme.

6. Discussion

This study was designed to develop a comprehensive curriculum for an online education programme in advanced breast cancer, responding to an identified gap in curriculum development specific to advanced breast cancer. Within existing standards and competencies for breast cancer, none have explicitly involved people living with advanced breast cancer and their caregivers in setting standards and competencies, or developing programmes (Drury et al., 2022). Following a modified Delphi approach, an expert panel of people living with advanced breast cancer, family members, caregivers, healthcare professionals, advocacy professionals and researchers working in the area of advanced breast cancer reached consensus on the topics that cancer nurses working in the area of advanced breast cancer must be educated, increasing the applicability of our findings for cancer nurse education.

Table 6
Round 4 Delphi results.

Module/Topic	Person with advanced breast cancer (n = 72)				Healthcare professional (n = 46)				Advocacy professional (n = 8)				Family members (n = 30)				Total (n = 156)			
	Yes		No		Yes		No		Yes		No		Yes		No		Yes		No	
	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n
Background and significance of advanced breast cancer																				
The risk factors for advanced breast cancer	96 %	69	4 %	3	96 %	44	4 %	2	100 %	8	0 %	0	93 %	28	7 %	2	96 %	149	4 %	7
The incidence of advanced breast cancer	89 %	64	11 %	8	98 %	45	2 %	1	88 %	7	13 %	1	90 %	27	10 %	3	92 %	143	8 %	13
The physical/biological processes of advanced breast cancer	93 %	67	7 %	5	100 %	46	0 %	0	100 %	8	0 %	0	97 %	29	3 %	1	96 %	150	4 %	6
Types of breast cancer, including genetic mutations	88 %	63	13 %	9	98 %	45	2 %	1	100 %	8	0 %	0	83 %	25	17 %	5	90 %	141	10 %	15
Specific sites of metastases with advanced breast cancer	89 %	64	11 %	8	100 %	46	0 %	0	100 %	8	0 %	0	87 %	26	13 %	4	92 %	144	8 %	12
Screening and breast awareness	89 %	64	11 %	8	89 %	41	11 %	5	88 %	7	13 %	1	80 %	24	20 %	6	87 %	136	13 %	20
Emergency conditions related to advanced breast cancer	93 %	67	7 %	5	98 %	45	2 %	1	100 %	8	0 %	0	80 %	24	20 %	6	92 %	144	8 %	12
Diagnosis, staging and grading	83 %	60	17 %	12	100 %	46	0 %	0	100 %	8	0 %	0	63 %	19	37 %	11	85 %	133	15 %	23
National/International standards of care, policy and requirements for specialised breast cancer units	82 %	59	18 %	13	96 %	44	4 %	2	88 %	7	13 %	1	87 %	26	13 %	4	87 %	136	13 %	20
Advanced breast cancer treatment																				
Factors that influence cancer treatment choices in advanced breast cancer	90 %	65	10 %	7	100 %	46	0 %	0	100 %	8	0 %	0	93 %	28	7 %	2	94 %	147	6 %	9
Treatment options for advanced breast cancer and its treatment	89 %	64	11 %	8	100 %	46	0 %	0	100 %	8	0 %	0	87 %	26	13 %	4	92 %	144	8 %	12
Role of clinical trials in advanced breast cancer	86 %	62	14 %	10	93 %	43	7 %	3	88 %	7	13 %	1	80 %	24	20 %	6	87 %	136	13 %	20
Inequalities in breast cancer care and treatment	85 %	61	15 %	11	85 %	39	15 %	7	75 %	6	25 %	2	93 %	28	7 %	2	86 %	134	14 %	22
Ethics and informed decision-making	99 %	71	1 %	1	96 %	44	4 %	2	100 %	8	0 %	0	97 %	29	3 %	1	97 %	152	3 %	4
The role of complementary therapies in advanced breast cancer	93 %	67	7 %	5	100 %	46	0 %	0	88 %	7	13 %	1	73 %	22	27 %	8	91 %	142	9 %	14
Supportive, palliative and end of life care for advanced breast cancer																				
Nurses' role in supportive care for advanced breast cancer	96 %	69	4 %	3	98 %	45	2 %	1	100 %	8	0 %	0	93 %	28	7 %	2	96 %	150	4 %	6
Holistic assessment of treatment and disease-related symptoms for advanced breast cancer	94 %	68	6 %	4	100 %	46	0 %	0	100 %	8	0 %	0	93 %	28	7 %	2	96 %	150	4 %	6
Person-centred supportive care interventions for symptom management in advanced breast cancer	97 %	70	3 %	2	98 %	45	2 %	1	88 %	7	13 %	1	87 %	26	13 %	4	95 %	148	5 %	8
Supporting self-management skills of people living with advanced breast cancer	96 %	69	4 %	3	98 %	45	2 %	1	100 %	8	0 %	0	87 %	26	13 %	4	95 %	148	5 %	8
Physical, psychological, social and spiritual implications of living with advanced breast cancer	94 %	68	6 %	4	98 %	45	2 %	1	88 %	7	13 %	1	87 %	26	13 %	4	94 %	146	6 %	10
Impact of an advanced breast cancer diagnosis on the family, children and informal caregivers of people living with cancer	82 %	59	18 %	13	100 %	46	0 %	0	88 %	7	13 %	1	77 %	23	23 %	7	87 %	135	13 %	21
Specialist and non-specialist palliative care for advanced breast cancer	79 %	57	21 %	15	93 %	43	7 %	3	100 %	8	0 %	0	83 %	25	17 %	5	85 %	133	15 %	23
End of life care	85 %	61	15 %	11	93 %	43	7 %	3	100 %	8	0 %	0	80 %	24	20 %	6	87 %	136	13 %	20
The role of survivorship or living well with advanced cancer for individuals living with advanced breast cancer	82 %	59	18 %	13	96 %	44	4 %	2	88 %	7	13 %	1	87 %	26	13 %	4	87 %	136	13 %	20
Practical skills for nurses caring for people living with advanced breast cancer																				
Communication with people with cancer	94 %	68	6 %	4	98 %	45	2 %	1	88 %	7	13 %	1	97 %	29	3 %	1	96 %	149	4 %	7

(*continued on next page*)

Table 6 (*continued*)

Module/Topic	Person with advanced breast cancer (n = 72)				Healthcare professional (n = 46)				Advocacy professional (n = 8)				Family members (n = 30)				Total (n = 156)			
	Yes		No		Yes		No		Yes		No		Yes		No		Yes		No	
	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n
Communication with family members and informal caregivers of people with cancer	86 %	62	14 %	10	93 %	43	7 %	3	100 %	8	0 %	0	73 %	22	27 %	8	87 %	135	13 %	21
Cultural awareness and the impact of cultural beliefs on coping and treatment decision-making	89 %	64	11 %	8	96 %	44	4 %	2	88 %	7	13 %	1	90 %	27	10 %	3	91 %	142	9 %	14
Emotional awareness and managing challenging situations	92 %	66	8 %	6	96 %	44	4 %	2	100 %	8	0 %	0	93 %	28	7 %	2	94 %	146	6 %	10
Information provision and education	93 %	67	7 %	5	93 %	43	7 %	3	88 %	7	13 %	1	90 %	27	10 %	3	92 %	144	8 %	12
Supporting decision-making and advocacy	85 %	61	15 %	11	93 %	43	7 %	3	100 %	8	0 %	0	83 %	25	17 %	5	88 %	137	12 %	19
Multidisciplinary approaches to care																				
Introduction to inter-disciplinary/ multi-disciplinary/collaborative care	96 %	69	4 %	3	93 %	43	7 %	3	88 %	7	13 %	1	93 %	28	7 %	2	94 %	147	6 %	9
Nurses' role within the advanced breast cancer multidisciplinary team	90 %	65	10 %	7	96 %	44	4 %	2	88 %	7	13 %	1	97 %	29	3 %	1	93 %	145	7 %	11
Communication and collaborative care planning, implementation and evaluation	96 %	69	4 %	3	96 %	44	4 %	2	100 %	8	0 %	0	90 %	27	10 %	3	95 %	148	5 %	8
Support services for people living with advanced breast cancer	92 %	66	8 %	6	98 %	45	2 %	1	88 %	7	13 %	1	80 %	24	20 %	6	91 %	142	9 %	14
Support services for family members and informal caregivers of people living with advanced breast cancer	85 %	61	15 %	11	93 %	43	7 %	3	100 %	8	0 %	0	73 %	22	27 %	8	86 %	134	14 %	22
Self-care for specialist breast cancer nurses																				
Coping with the emotional demands of caring for people with advanced breast cancer	93 %	67	7 %	5	93 %	43	7 %	3	88 %	7	13 %	1	83 %	25	17 %	5	91 %	142	9 %	14
Methods of teaching and Learning																				
Online lectures	76 %	55	24 %	17	89 %	41	11 %	5	88 %	7	13 %	1	77 %	23	23 %	7	81 %	126	19 %	30
Group and clinical case discussion	88 %	63	13 %	9	98 %	45	2 %	1	100 %	8	0 %	0	80 %	24	20 %	6	90 %	140	10 %	16
Problem solving/problem-based learning	94 %	68	6 %	4	98 %	45	2 %	1	100 %	8	0 %	0	90 %	27	10 %	3	95 %	148	5 %	8
Patient and caregiver perspectives and experiences of care	93 %	67	7 %	5	89 %	41	11 %	5	100 %	8	0 %	0	83 %	25	17 %	5	90 %	141	10 %	15
Reflective practice	78 %	56	22 %	16	76 %	35	24 %	11	88 %	7	13 %	1	63 %	19	37 %	11	75 %	117	25 %	39
Educational resources	86 %	62	14 %	10	91 %	42	9 %	4	100 %	8	0 %	0	80 %	24	20 %	6	87 %	136	13 %	20

While participants of round 4 were not involved in the consensus-building exercise from rounds 1 to 3, the consistency in consensus for the inclusion of the majority of topics across all six educational domains, and all but one item in the methods of teaching and learning domain provide credible evidence for the inclusion of topics within an international curriculum for advanced breast cancer.

People living with advanced breast cancer and their families experience complex needs associated with the effects of treatment and psychosocial consequences of the diagnosis (Au et al., 2013; Ecclestone et al., 2016; Fallowfield et al., 2021; Kadravello et al., 2021). Open text responses in rounds one and four of this study provided insight into priority areas for nursing education in advanced breast cancer, most notably, equipping nurses to provide person-centred supportive care and to address physical, psychological, social and spiritual issues which people living with advanced breast cancer may experience. The topics included in this curriculum broadly reflect existing standards for nursing education and competencies in advanced breast cancer (Breast Cancer Now, 2020; Vila et al., 2017). However, a particular strength of this curriculum is the systematic approach to its development, underpinned by a systematic review of existing evidence (Drury et al., 2022), and validation and revision of the proposed curriculum through consultation with a diverse panel of stakeholders in the area of advanced breast cancer, responding to limitations of similar programmes in this field.

Policy and advocacy work over the past five years has highlighted disparities in access to specialist breast cancer care and services globally, which has the potential to impact the health outcomes of people living with advanced breast cancer (Biganzoli et al., 2017; Bochenek-Cibor et al., 2020; Breast Cancer Now, 2019; Brown et al., 2021; Cardoso et al., 2017). Furthermore, there is extensive evidence that demographic and geographic factors may influence the staging of cancer at diagnosis, access to standardised care and treatment, and survival outcomes associated with breast cancer (Banham et al., 2019; de Oliveira et al., 2021; Mobley et al., 2021; Williams and Thompson, 2017; Zhang et al., 2020). It is therefore of interest that within the early rounds of the Delphi study, that cancer screening, breast awareness and inequalities in breast cancer care did not achieve consensus among the expert panel,

albeit that experts within these rounds were primarily healthcare professionals. By comparison, in round four, which included greater representation of people living with advanced breast cancer, and a panel from more diverse backgrounds, these items achieved a convincing level of consensus at 92 %, 87 % and 86 %, respectively.

While the initial Delphi rounds demonstrated consistent consensus for reflective practice as a teaching and learning method in the ABC4Nurses education programme, it is of interest that in round four, this was the only item that did not reach consensus for inclusion. The potential value for reflective practice and writing is well-established in nursing (Cabral and Baptista, 2019; Contreras et al., 2020). Reflective writing can support the development of critical thinking, communication and decision-making skills and support person-centredness in nursing care (Davies, 1995; Durgahee, 1996; Mahlanze and Sibiya, 2017). While reflective practice is a common method of teaching and learning in healthcare education and practice, evidence suggests that as many as 40 % of nursing students do not identify any benefits of reflective practice (Mahlanze and Sibiya, 2017), potentially fostering apathy toward reflective practice at a formative point in nursing students' careers (Page and Meerabeau, 2000). Several factors may influence interest in and acceptance of reflective practice, including years of experience, cultures surrounding reflective practice, structures and resources to support reflective practice, and understanding of approaches to reflective practice (Fragkos, 2016; Mann et al., 2009). Owing to the nature of this Delphi study, it is not possible to determine participants' experiences or understanding of reflective practice, which may have influenced levels of consensus related to this item, which represents a limitation of this study.

Involving people who have been recipients of healthcare and affected by health issues can be an enriching learning experience for students, fostering empathy and understanding of the needs and values of healthcare service users (Suikkala et al., 2018). The involvement of patient and caregiver perspectives and experiences of care in teaching achieved consistently high levels of consensus across all four rounds, with the highest consensus ratings from people living with advanced breast cancer, healthcare professionals and advocacy professionals in round four. While patient and caregiver views will be an integral component of the ABC4Nurses education programme, a significant objective of this Delphi study was to obtain consensus from a diverse and representative panel of experts by experience and profession in advanced breast cancer. While a multi-national team undertook this study, a significant limitation of the proposal was the recruitment of individuals who were able to read and write in English for rounds 1–3. Language is a recognised barrier in healthcare and healthcare research, contributing to inequities in health policies and health service delivery (Al Shamsi et al., 2020; Squires et al., 2020). The conduct of multilingual research studies requires significant resources to ensure rigour and accuracy in the translation and interpretation of data collection tools and data in both quantitative and qualitative research (Lee et al., 2014; Squires, 2009). While the advent of translation software has addressed some of the resourcing challenges associated with multilingual research, it is not without limitations, and human resources are required to ensure the accuracy of translations. Given the limited resources and voluntary capacity of those who supported translations within this project, it was only possible to translate the final, fourth-round questionnaire. Therefore, a limitation of this study is the exclusion of non-English speakers from the first three rounds of the study and the absence of a complete consensus-building process among people who completed Round 4 of the Delphi. Nevertheless, the diversity of experience and geographical representation achieved within the fourth round of the Delphi study represents a strength of this research.

While the Bologna Declaration set a directive for coherent, comparable and compatible education standards across European countries, there remain challenges in the implementation of this vision in undergraduate and postgraduate programmes. Specific challenges include varying efforts to harmonise nursing curricula, variability in the length and credits of programmes between countries, and inconsistencies in the nature of postgraduate programmes between counties (Palese et al., 2014). In the context of this study, variance in the availability and scope of postgraduate education and recognition of these qualifications between European countries is of particular importance and represents a potential barrier to specialist education (Kelly et al., 2020). Therefore, the development of the ABC4Nurses programme as an open-source, online and multi-lingual continuing professional development programme, delivered via a pan-European body for cancer nurses has the potential to enhance the accessibility of education to nurses who need it most.

6.1. Limitations

Limitations of this study included recruitment and retention, particularly of people living with advanced breast cancer, and people from multilingual backgrounds; limited demographic characterisation of participants in each round; and the openness of inclusion criteria to allow participants to self-determine their expertise in advanced breast cancer. While 31 of 32 participants (97 %) who consented to participate in this study responded to one or more rounds, just 19 participants responded to all three rounds (61 %). Furthermore, within the initial three rounds, participants were predominantly from a single country (UK). Participants in round 4 were more diverse in terms of language, lived experience of breast cancer diagnosis, and countries of residence. However, participants of round 4 only had one opportunity to rate each item, and recommendations provided in open text items in round 4 were not subject to a ranking process. While the presentation of results from round 3 allowed participants of round 4 to consider their responses in the context of the previous round, it may also have introduced response bias in round 4.

Further limitations of this study lie in the recruitment method and method of administering the Delphi study. The use of social media and online newsletters may have inadvertently excluded people who do not use these platforms, and this may be reflected in the sample composition during rounds 1–3. While there was greater uptake of the round 4 questionnaire among expert groups who were underrepresented in previous rounds, it is not possible to determine if increased participation by people living with advanced breast cancer in round 4 was a result of lowering the commitment required to a single round, providing an anonymised route to participation, or providing access to translated materials.

Recognising the challenges of the technical and clinical language which were the subject of this Delphi, questionnaires were developed in consultation with patient representatives in English. Furthermore, the translation processes for the round 4 questionnaire placed emphasis on plain language translations. However, as translations were verified by oncology nurses, this may have influenced the accessibility of language used in the translated questionnaires. Due to the design of round 4, it is not possible to ascertain participants' comprehension of questionnaire items; this may have influenced why some topics and learning techniques did or did not achieve consensus. In addition, differences in cultural perceptions and acceptance of some topics and learning techniques may have also influenced responses to certain items, for example, inequalities in breast cancer and reflective practice.

7. Conclusions and implications for practice

This Delphi study aimed to obtain consensus on the curricular content and methods of teaching and learning for an online nurse education programme in advanced breast cancer. Identification of the topics and teaching and learning methods relevant to the education of nurses in the area of advanced breast cancer has implications for the development of future programmes in this area. While this study is subject to limitations, the results of rounds 3 and 4 of this Delphi study demonstrate consistency in consensus between experts by profession and experts by

experience to ensure nurses involved in the care of people living with advanced breast cancer are educated on the background and significance of the disease, current treatments, supportive, palliative and end of life care, practical skills, multidisciplinary working and self-care. In addition, the results of this study demonstrate consensus on the use of multiple methods of teaching and learning, and involvement of people living with advanced breast cancer in education to enhance nurses' knowledge and understanding of individuals' needs with respect to person-centred supportive care.

The results of this study provide a framework for the development of future programmes in advanced breast cancer, defining the essential elements of curriculum content for such programmes. The consensus-building activities undertaken within this study were conducted in the context of developing an online educational programme. The adaptation of the curricular content and methods of teaching and learning identified in this study will require tailoring and validation to ensure the needs of the target audiences and stakeholders are addressed, including students, cancer care services, and bodies providing oversight for the regulation, registration and standards of practice for registered nurses.

CRediT authorship contribution statement

AD, CDR, GB, MD, GK, AS, SE, VA, TW contributed to the concept and design of this study. AD and CDR prepared the study protocol. AD lead data collection and analysis of the data. All authors (AD, CDR, GB, MD, GK, AS, SS, SE, VA, TW) were involved in interpreting the results of data analysis. AD and SS prepared the initial draft of the manuscript and all remaining authors (CDR, GB, MD, GK, AS, SE, VA, TW) critically reviewed and approved the paper. AD is guarantor.

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Declaration of competing interest

The authors declare no conflict of interest.

Data availability

The datasets generated during and/or analysed during the current study are available from the corresponding author upon reasonable request.

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