Development and psychometric testing of two Cancer Nurse Self-Assessment Tools for Early and Metastatic Breast Cancer

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BACKGROUND

- Breast cancer (BC) nurses provide clinical and supportive care to meet the complex needs of people diagnosed with BC.
- Patient care needs differ depending on a diagnosis of early or metastatic disease, thus required nursing skills also differ.
- As treatment options continually change, nurses need to engage in continuing professional development to maintain currency of practice.
- Thus, there is a need to identify nurse's skill levels and learning needs to ensure current and future education is fit for purpose.

AIM

To develop and psychometrically test two self-assessment tools specifically for nurses providing care to people with BC.

1. Cancer Nurse Self-Assessment Tool for early breast cancer (CaN-SAT-eBC)
2. Cancer Nurse Self-Assessment Tool for metastatic breast cancer (CaN-SAT-mBC)

CaN-SAT	Number of items	
Element of practice	**eBC**	**mBC**
Integration and use of a BCN model of care	3	3
BCN's role in the multidisciplinary team meeting	6	5
Diagnostics (pathology and imaging)	8	8
Chemotherapy	11	11
Immunotherapy	9	9
Targeted therapies	8	8
Radiotherapy	5	5
Endocrine therapies	8	8
Breast surgery (breast reconstruction options – eBC only)	7	6
Supportive care and promoting wellness/living well	9	6
Clinical trials	8	9
Familial breast cancer and genetics	7	7
Complementary and alternative medicines	6	5
Bone Health	5	5
Fertility preservation, menopause, and sexual health	11	12
Lymphoedema	6	10
Communication skills	3	3
BCN self-care and clinical supervision	3	3
Lines of Treatment for mBC	N/A	4
Management of common symptoms	N/A	5
Palliative Care	N/A	9
Voluntary Assisted Dying	N/A	4
Total	**118**	**145**

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The development and validation of each tool was conducted in three phases:

Phase 1: Instrument Development

Participants: An expert working party consisting of highly experienced BC nurses and nursing educators was formed to develop each tool.

Method: The team identified the key elements of nursing practice required to provide comprehensive supportive care to those diagnosed with BC.

RESULTS

Current literature and international guidelines for the management of breast cancer were reviewed[3,4,5,6,7]

Evidence was combined with practical knowledge and experience of the expert working group, as well as consultation with medical and nursing experts in BC.

The initial number of elements of practice was 18 for CaN-SAT-eBC and 22 for CaN-SAT-mBC.

Phase 2: Content Validation

The Content Validation Index (CVI)[1] was used to assess the relevance and clarity of each item on the two tools.

Participants: 6 expert nurse educators and 6 expert BC nurses were invited to join an expert panel to review the content of each tool.

Method: The Item-CVI was calculated as the number of experts rating as either 3 or 4, divided by the number of experts. When items did not achieve I-CVI of at least 0.78, the items were revised and re-reviewed by the experts[1]

RESULTS

10 experts were involved in the CaN-SAT-eBC and 12 experts for CaN-SAT-mBC.

Each tool underwent two rounds of CVI judgements. For the eBC tool, in the first round 3 items were removed and 5 items revised. In the second round, one item was removed, and 2 items revised. For the mBC tool, in the first round 3 items were removed and 5 items revised. In the second round, all items obtained an I-CVI between 0.83 and 1.0 with no further revisions.

Phase 3: Reliability and Construct Validity

Internal consistency was evaluated using Cronbach alpha coefficients and construct validity was tested using principal component analysis (PCA) and oblique promax rotation.

Participants: Pilot psychometric testing was conducted in a cohort of McGrath Foundation specialised BC nurses who were sent an online survey to complete both tools.

Method: A Cronbach's alpha coefficient value over 0.70 is considered good reliability2. For construct validity, any item with a communality < 0.4, or cross-loading between different components would be flagged for deletion or revision.

RESULTS

From the nurse cohort, n=184 and n=140 completed the survey for the CaN-SAT-eBC and CaN-SAT-mBC tool, respectively.

The Cronbach's alpha coefficients for all elements were between 0.83 - 0.98 indicating high internal consistency. The exploratory factor analysis supported the hypothesis that the structure of most elements was unidimensional. The PCA in the 'Diagnostics' element for eBC tool suggested a two-component structure representing basic nursing tasks and more advanced practice.

CONCLUSION

- The two CaN-SATs are comprehensive, validated and reliable tools which can be used for skill self-assessment for nurses in relation to breast cancer care.
- The CaN-SATs have been incorporated into the McGrath Foundation Education Program at three levels: 1. To identify individual learning needs; 2. To identify common learning needs across the whole nurse cohort; 3. For annual evaluation of education.
- Work has now commenced on a CaN-SAT for nurses providing care to people with any type of cancer.