A study on Development and Implementation of the Psychophysiological Well-being Assessment Tool based on Roy's Adaptation Model for breast cancer patients

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Abstract

Breast cancer is a major health burden among Indian females in their young age. As the females came to know the disease is already in advance stage. To get rid from the complications they have to undergo for mastectomy and after mastectomy they have disturbed Psychophysiological Wellbeing. In the present methodological study researcher has developed Psychophysiological Wellbeing Assessment Tool (PWAT) based on Roy's Adaptation Model after three rounds of item analysis and Delphi survey with experts of different fields of nursing to assess their Psychophysiological wellbeing. After the finalization of PWAT it was implemented on 200 post mastectomy breast cancer patients who were under radiation therapy or chemotherapy and selected by Non- probability purposive sampling technique, in Rajinra Hospital Patiala. Data was collected and analyzed by using descriptive and inferential statistics. Common consensus of experts was obtained from 72 pooled items to final version of PWAT with 38 items. The reliability of instrument was estimated by using split half Chronbachs alpha which was r=0.87. Statistically all the items of PWAT were found inter correlated and were compatible to each other. The mean score range of physiological well-being was 57.40 as compared to mean score range of the psychological well-being of breast cancer patients was 83.17.There was positive correlation (0.347) between physiological wellbeing and psychological wellbeing at the level of 0.001. Thus it was statistically evident that if physiological well-being score increased then psychological wellbeing score also increased. Thus it may be concluded that if the nurses would be equipped with PWAT, they will do quick assessment of psychophysiological wellbeing of post mastectomy breast cancer patients. Their timely intervention will help in decreasing re-hospitalizations of patients and help in cost containment for the health care industry which is the essence of quality care management.

Keywords: breast cancer, psychophysiological wellbeing, Roy's Adaptation Model, Psychophysiological Wellbeing Assessment Tool, Post mastectomy.

Introduction

As it is well known that breast cancer is very prevalent in females in the present scenario. It is the most usually occurring female disease in the world (globally) with an age standardized rate (ASR) of 39 per 100,000. It is the second driving reason for death in women worldwide and also in India.[1]

It is estimated that worldwide over 508 000 women died in 2011 due to breast cancer (Global Health Estimates, WHO 2013). The highest incidence of breast cancer is in Northern America and Oceania; and the lowest incidence in Asia and Africa.[2]

In India, we are now witnessing more and more numbers of patients being diagnosed with breast cancer to be in the younger age groups (in their thirties and forties). Following figure shows the incidence of breast cancer. The blue color represents the incidence 25 years back, and maroon color represents the situation today.[3] **(Fig. 1)**

In metro cities like Mumbai, Delhi, Bengaluru, Bhopal, Kolkata, Chennai, Ahmedabad etc. breast cancer accounts for 25% to 32% of all female cancers.[3]

In Patiala district breast cancer constitutes one fourth, 24.7% of all cancers among females. According to a report released in tribune march 8, 2016 female breast cancer incidence rate of 37.5 per 1 lakh population, the highest in the country. [4]

In Patiala out of the total 4,312 patients were screened at the Radiography department of the Rajindra hospital, Patiala till October 2016, 2,953 were women being diagnosed with breast and cervical cancer. The numbers of women diagnosed with breast cancer in 2015 were 240.[4]

When a woman suffers from this dreadful disease she will definitely have her physiological and psychological status disturbed due to the fear of loss of her breast. So at that time it is very essential for a nurse to have the knowledge of the concepts of RAM (Rosy Adaptation Modal) to address adaptation as well as she must know that what she can do for her physiological and psychological well-being.

Understanding Roy's theory is extremely significant for nurses because it helps them to promote a client's adjustment to challenges related to health and illness and enhances adaptation for individuals and groups in the two adaptive modes, thus contributing to health.[5]

The main focus of RAM is to maintain the Psycho physiological wellbeing.

Need of the study

The need of the study will be based on this thought that when Post Mastectomy breast cancer patients would visit in Radiotherapy or Chemotherapy departments, they might definitely meet the challenges of disturbed physiological wellbeing and psychological wellbeing. There would be no tool to assess their physiological wellbeing and psychological wellbeing. The proposed study would focus on the tool development (Psycho physiological Wellbeing Assessment Tool) which will able to do in-depth exploration of their disturbed physiological wellbeing and psychological wellbeing. This study would also attempt to find the relationship between Physiological wellbeing and Psychological wellbeing. It will definitely help the authorities to find the ways to meet the challenges faced by breast cancer patients that require a new understanding of psycho physiological aspects among doctors, nurses, radiotherapist and other paramedical staff.

Psycho physiological Wellbeing Assessment Tool (PWAT) based on Roy Adaptation Model would evaluate the patients in physiologic mode and Psychological mode including self-concept mode, role function mode and interdependence mode and will offer the guidelines to nurses in developing the nursing process which includes first level assessment, second level assessment, diagnosis, goal setting, intervention and evaluation that aim to provide holistic care to increase compliance and life expectancy.[6]

Purpose of the study

The purpose of the study was to develop the psychophysiological wellbeing assessment tool (PWAT) and to assess the psychophysiological wellbeing of post mastectomy breast cancer patients by implementation of developed PWAT so as to take timely interventions to prevent further complications.

Objectives

General objective:

1. To develop the Psychophysiological Well-being Assessment Tool (PWAT) to assess the psychophysiological well-being of post mastectomy breast cancer patients.

    2.   To implement PWAT on breast cancer post mastectomy   patients to assess their psychophysiological well-being.

Specific objectives:

1. To assess the psychophysiological well-being of breast cancer patients by Psychophysiological Well-being Assessment Tool (PWAT).
2. To assess the physiological well-being of breast cancer patients by Psychophysiological Well-being Assessment Tool (PWAT).
3. To assess the psychological well-being of breast cancer patients by Psychophysiological Well-being Assessment Tool (PWAT).
4. To compare and establish the relationship between physiological well-being and psychological well-being of breast cancer patients by Psychophysiological Well-being Assessment Tool (PWAT).
5. To assess the psychological well-being of breast cancer patients in self-concept mode, role function mode and interdependence mode by Psychophysiological Well-being Assessment Tool (PWAT).
6. To establish the relationship among self-concept mode, role function mode and interdependence mode of psychological well-being of breast cancer patients by Psychophysiological Well-being Assessment Tool (PWAT).
7. To find the association of Psychophysiological well-being of breast cancer patients with demographic variables.
8. To find the association of physiological well-being of breast cancer patients with demographic variables.
9. To establish the association of psychological well-being of breast cancer patients with demographic variables.
10. To find the association of self-concept mode, role function mode and interdependence mode of psychological well-being of breast cancer patients with demographic variables.

Material and methods

Research design: Methodological- study design

Research Setting: - Rajindra   hospital, Patiala of Punjab.

Population: - The population of the study was patients suffering from breast cancer.

Sample and Sample size: Sample was 200 post mastectomy breast cancer patients who were under radiation therapy or chemotherapy or both.

Sampling technique: Subjects were selected by Non- probability purposive sampling technique.

Method of data collection:

Data was collected from breast cancer patients through paper pencil method or structured interview.

Results

Preliminary preparation of Psychophyological Well –being Assessment Tool (PWAT) was done in two phases. These are item analysis and validation by Delphi panel. Critical review of literature was done to develop the PWAT for post mastectomy breast cancer patients. Preliminary PWAT -1was prepared with 72 items. It was based on two modes of RAM (physiological mode and psychological mode) to get the detailed information about the psychophysiological well-being of breast cancer patients.

First   try out was done of PWAT- I on 10 breast cancer post mastectomy patients in Radiotherapy Department, Rajindra Hospital, Patiala to check the difficulty index of items and reliability of PWAT-I. Item analysis was done to assess the quality of the individual items and PWAT-I as a whole. Reliability statistics showed r=.941.The 5 items were expressed incompatible having mean value 2.5 or less than 2.5 had been excluded from the PWAT.PWAT-1 was prepared with 67 items. The Modified Delphi Technique was adopted to validate the 1st draft of PWAT. All the panelists were requested to give their valuable suggestions pertaining to the content, accuracy of information, the item order i.e. organization and sequence of the items. The suggestions given by panelists were incorporated; changes were also made in the sequence of items as advised by the experts. Many items were modified, clubbed and deleted. New items were added to generate the second draft of the tool. After first Delphi

survey, PWAT-II was prepared with 52 items which were categorized under 2 subheadings: Physiological well-being (item no. 1-20) and Psychological wellbeing (item no. 21-52). Same process of item analysis and validation by Delphi panel was repeated in 2nd and 3rd try out. **In 2nd try out** ten **(**10) items were expressed difficult and incompatible. These were 03 items from physiological mode, 07 items from psychological mode. Reliability statistics of PWAT-II showed r=.78.PWAT-II was prepared with 42 items. In Expert's opinion two items were deleted, one item added. 41 items were finalized for PWAT-III which were categorized under 2 subheadings: Physiological wellbeing (1-18) and   psychological wellbeing (19-41). **In 3rd try-out** of item analysis each item was expressed very good item except 03 items having zero variance so removed from the scale. The PWAT was prepared with 38 items. Reliability statistics of PWAT-III showed r=.73.PWAT was sent to experts for 3rd Delphi round. At this point, no suggestion was given by any panelist.

 Preliminary draft of psychophysiological well-being assessment tool was prepared and total 38 items were categorized under 2 areas; physiological well-being (Item no.1-16) psychological wellbeing (item no.17-38).Under the psychological wellbeing there were three modes: Self- concept mode (item no17-27.), role function mode (item no.28-32) and interdependence mode (item no. 33-38).

  It was decided to scale each item on five point scale with a view to getting more exact responses from breast cancer patients. The five point likert scale which includes:-1. Never 2.Rarely 3. Sometimes 4. Often 5. Always. In case of the item depicting 1st scoring key (never), five marks were given for patient psychophysiological wellbeing. If patient puts a tick ($\sqrt{}$) in the column of (rarely) four marks, three, two and one score to be given if she puts the tick mark in the column of sometimes, often, and always respectively. The maximum possible scores on the psychophysiological wellbeing tool would be "190" and the least possible score would be 38. The patients from this tool will get scores for their wellbeing between these two limits.

So, greater the score, higher is the physiological and psychological well-being of the breast cancer patients.

Pilot study was conducted to test the feasibility and reliability of preliminary draft of PWAT on post mastectomy breast cancer 20 patients who were under radiation therapy or chemotherapy or both. The cronbach's alpha of the PWAT was found 0.87 with split half (odd- even) correlation was 0.84 which indicated the high reliability and internal consistency of tool. (Ideally Cronbach's alpha coefficient should be > 0.70). Tool was also found feasible in terms of time, availability of subjects, facilities, equipments, money and ethical considerations.

When the tool was implemented on post mastectomy breast cancer 200 patients who were under radiation therapy or chemotherapy or both, the findings were as follows:-

Out of 200 breast cancer post mastectomy patients, 133(66.5%) were having very good psychophysiological wellbeing whereas28 (14%) were having good,26 (13%) of them having excellent wellbeing and remaining 13 (6.5%) patients with average psychophysiological wellbeing and finally it was good to state that no one was there with poor psychophysiological wellbeing as depicted in (**Table: 1).**

In terms of physiological wellbeing of breast cancer patients maximum 104(52%) were having very good physiological wellbeing whereas 64 (32%) were having good physiologicalwellbeing,31 (15.5%) of them having excellent physiological wellbeing and only 01(0.5%) patient with average physiological wellbeing and   finally it was good to state that no one was there with poor physiological wellbeing. (**Table: 2).**

 In terms of **Psychological well-being of breast cancer patients** maximum 94(47%) were having very good psychological wellbeing whereas 68 (34%) were having excellent psychological wellbeing, 23(11.5%) patient with average psychological

wellbeing and remaining 15 (7.5%) of them having good psychological wellbeing and only   finally it was good to state that no one was there with poor psychological wellbeing. (**Table: 3).**

The mean range of the physiological well-being of breast cancer patients was 57.40 with its standard deviation of 8.51 and median 56.The mean range of the psychological well-being of breast cancer patients was 83.17 with its standard deviation of 16.248 and median 39.There is positive correlation (0.347 the level of 0.01) between physiological wellbeing and psychological wellbeing. Thus it is statistically evident that if physiological well-being score increases then psychological wellbeing score also increases. (**Table: 4).**

- Under self-concept mode of psychological wellbeing of post mastectomy patients under radiation and chemotherapy was that maximum 101(50.5%) were having very good self-concept about them.
- Under role function mode of psychological wellbeing of post mastectomy patients under radiation and chemotherapy maximum 134 (67%) were performing their role excellent in home, office etc.
- Under interdependence mode of psychological wellbeing of post mastectomy patients under radiation and chemotherapy maximum 117(58.5%) were independently performing their role excellent in home, office etc.
- Significant association of psycho physiological well-being of post mastectomy breast cancer patients was found with following demographic variables such as Age($\chi2$=48.746), Marital status ($\chi2$=24.998) Education level ($\chi2$=34.268), Occupation ($\chi2$=18.521), Type of family($\chi2$=21.783), Parity status($\chi2$=24.988), Stage of cancer when diagnosed($\chi2$=38.132), Post mastectomy treatment given to the patient($\chi2$=42.420), Duration of illness($\chi2$=56.841), and any family history of breast cancer($\chi2$=8.450) at the level of 0.05.
- Significant association of physiological well-being of post mastectomy breast cancer patients was found with following demographic variables such as Family income per month($\chi2$=18.837), Stage of cancer when diagnosed($\chi2$=28.777).
- Significant association of psychological well-being of post mastectomy breast cancer patients was found with following demographic variables such as age ($\chi2$=28.382), Marital status ($\chi2$=20.248) education level ($\chi2$=39.424), type of family($\chi2$=18.226), family income ($\chi2$=17.547), parity status ($\chi2$=28.715), post mastectomy treatment given to the patient($\chi2$=20.971), duration of illness($\chi2$=36.992)

Following data reveals the significant association of self concept mode, role function mode and interdependence mode of psychological well-being of post mastectomy breast cancer patients with following   demographic variables

- Significant association of self concept mode of psychological well-being of post mastectomy breast cancer patients was found with following demographic variables such as age($\chi2$=23.384), education level ($\chi2$=31.288), type of family($\chi2$=16.682), parity status($\chi2$=24.640), post mastectomy treatment given to the patient($\chi2$=43.020), duration of illness($\chi2$=20.207).

- Significant association of role function mode of psychological well-being of post mastectomy breast cancer patients was found with following demographic variables such as age($\chi2$=60.606), education level ($\chi2$= 49.741), type of family($\chi2$=13.454), parity status($\chi2$=66.109), post mastectomy treatment given to the patient($\chi2$=68.171), stage of cancer when diagnosed($\chi2$=16.919), duration of illness($\chi2$=29.735)

- Significant association of interdependence mode of psychological well-being of post mastectomy breast cancer patients was found with following demographic variables such as age ($\chi2$=59.037), education level ($\chi2$=47.185),occupation

($\chi 2$=28.356), type of family ($\chi 2$=0.005), parity status ($\chi 2$=45.074), post mastectomy treatment given to the patient($\chi 2$=74.101),duration of illness($\chi 2$=53.226)

Discussion

This methodological study had been conducted on 200 post mastectomy breast cancer patients who were under radiation therapy or chemotherapy or both, the findings revealed that patients with breast cancer have better psychological wellbeing than physiological wellbeing. So the nursing interventions should be focused on mainly counseling sessions with post mastectomy breast cancer patients. There should be counselors who have got expertise to understand the patient in physiological mode as well as in psychological mode. They should be sufficiently expert in resolving their problems. During the conduction of study following weaknesses and strengths the researcher found:-

 The strength of the study is its design that is methodological design. Each phase of tool development was passed through the phases of item analysis and expert opinions of Delphi panel. Weak items were removed in every phase. So the researcher developed the valid and reliable tool. Other strength is that during data collection researcher used the pen pencil method for literate people and structured interview technique for illiterate people to collect the data. So she was able to collect the covert information that the patient did not reveal by words.

The limitation of this research was the small sample size. It is recommended that similar studies replicate with larger sample size and long-term follow-ups. Second, participants of this study were all from North region particularly of Punjab. This limited geographic area may represent a source of bias in researcher's scale development and may have led researcher to exclude pertinent items from the scale. Another one is that in this study researcher has implemented the developed tool to find out the psychophysiological status of post mastectomy breast cancer patients but In fact, there is a need for more specialized interventions to achieve more changes in modes, particularly in psychological mode. These patients need more attention to their psychological needs which were beyond the capacity of the researcher considering the term of study.

Conclusion

So it can be concluded from the whole study that breast cancer females who are under radiation or chemotherapy or both were having healthier psychological wellbeing rather than physiological well-being. So by using this PWAT nurses can detect the weak area of wellbeing of the breast cancer patients and focus their interventions towards that to build them healthy physiologically and psychologically.

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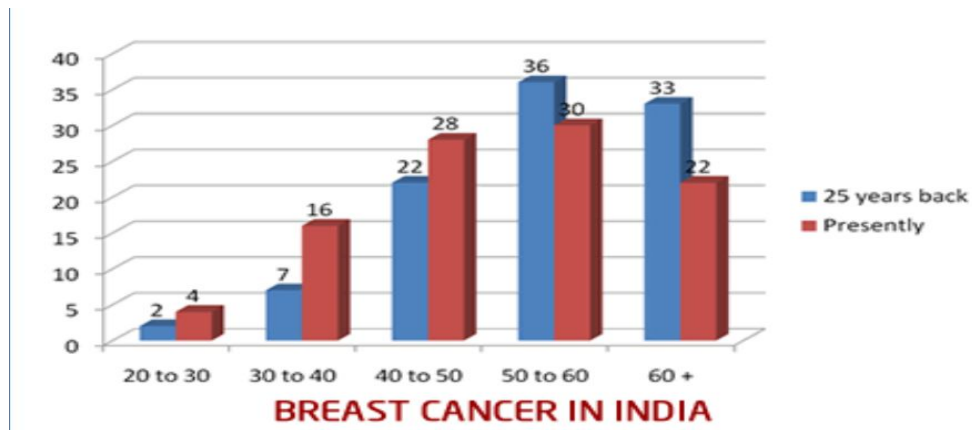   https://nurseslabs.com/sister-callista-roys-adaptation-model/

Fig. 1:- breast cancer in India

Table: 1 Psychophysiological well-being of breast cancer patients

N=200

Psycho physiological well-being			
Level	**Range of Score**	**Percentage (%)**	**Frequency(f)**
Poor	38-68	0%	0
Average	69-99	6.5%	13
Good	100-130	14%	28
Very Good	131-161	66.5%	133
Excellent	≥162	13%	26

Maximum sore= 190
Minimum score=38

Table: 2 Physiological well-being of breast cancer patients by psychophysiological well-being assessment tool (PWAT)

N=200

Physiological Well-Being			
Level	**Range of Score**	**Percentage (%)**	**Frequency(f)**
Poor	16-29	0%	0
Average	30-43	0.5%	1
Good	44-56	32%	64
Very Good	57-70	52%	104
Excellent	≥71	15.5%	31

Maximum sore= 80
Minimum score=16

Table: 3 Psychological well-being of breast cancer patients by psychophysiological well-being assessment tool (PWAT)

			N=200
Psychological Well-Being			
Level	**Range of Score**	**Percentage (%)**	**Frequency(f)**
Poor	22-40	0%	0
Average	41-59	11.5%	23
Good	60-78	7.5%	15
Very Good	79-97	47%	94
Excellent	≥ 98	34%	68

Maximum score= 110, Minimum score=22

Table:4 Comparative Mean and Relationship between the Physiological well-being and Psychological well-being of breast cancer patients by Psychophysiological Well-being Assessment Tool (PWAT)

			N=200
Variables	**Mean**	**SD**	**r**
Physiological Well-Being	57.40	8.51	0.347*
Psychological Well-Being	83.17	16.25	
			$p<0.001$