RESEARCH ARTICLE

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Quality of Life of Nepalese Women Post Mastectomy

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Abstract

Introduction: Worldwide breast cancer is the common invasive cancer among the females. The quality of life of women after treatment, which is often a mastectomy, is frequently decreased. **Objective:** To determine the life quality of Nepalese women post mastectomy. **Materials and Methods:** One hundred seven women after a mastectomy were selected and interviewed by using the European Organization for Research and Treatment of Cancer-Quality of Life Questionnaire and its Breast Specific Module to assess women's quality of life. **Result:** The study findings revealed a good score on global health status/quality of life. The respondents performed well on functional and symptom scales. In the Breast Specific Module, all respondents performed poor regarding sexual function and sexual enjoyment. Global Health Status was found useful among the women involved in service/business/agriculture and the survivors using breast prosthesis. In Breast Specific Module, systemic therapy side effects showed strong statistical associations with age, marital status, occupation, education, use of breast prosthesis and co-morbidity. Body image was highly significant with age, occupation, education, use of breast prosthesis and co-morbidity. **Conclusion:** Based on the study findings, counseling, and a structured educational programme is recommended to improve the QOL of women after a mastectomy.

Keywords: Breast cancer- EORTC- quality of life- mastectomy- nursing

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Introduction

Worldwide breast cancer is the common cancer among female with an estimation of 1.7 million new cases (Ferlay et al., 2013). Less developed regions report more cases (883,000) of breast cancer than the more developed (794,000) with the incidence rate variance four times across the world regions (World Health Organisation, 2012).

The American Cancer Society (ACS) report published in 2014 mentioned that "in the USA one in eight women is affected by breast cancer, and in the year 2014, 40,000 deaths were from breast cancer". Breast cancer deaths in women are second to lung cancer (American Cancer Society, 2015). The favorable conditions for survivors of breast cancer reduces mortality rates in developed regions even in high incidence regions (World Health Organisation, 2012).

In Nepal, cancer registration data is created from the multi-hospital based report that presented the overall percentage of breast cancer is 15.7% which is leading cancers among women of Nepal (Pradhananga et al., 2009). The trend of breast cancer in Nepal is still increasing (Jha et al., 2010), and has been forecasted as rise further (Sathian et al., 2010). Mammography is a diagnostic test for early detection of breast cancer, but access is limited in Nepal by Siddhartha et al., (2008). However, patients who are self–presenting with breast disease to the hospital are increasing (Sharma et al., 2005; Singh and Sayami, 2009).

Nepal has a multidisciplinary approach for the treatment of patients with breast cancer (Singh and Sayami, 2009). Sharma et al., (2005), and Bhattacharya and Adhikary (2006) reported, "the usual modes of treatment for patients with breast cancer in Nepal are surgery, radiotherapy, chemotherapy and endocrine therapy". Late stage diagnosis of breast cancer is common in Nepal. However, the advanced treatment approaches are improving the chances of survival in Nepal (Khan et al., 2003; Sharma et al., 2005). Longer survival is the current treatment priority at present. National Cancer Institute (NCI) stated that "survivorship focuses on the health and life of a person with cancer post treatment until the end of life" (National Cancer Institute, n.d.). To improve the survivorship patients have to face aggressive treatment plans which affect the physical, psychosocial and economic aspects and creating a negative impact on quality life of patients (Manandhar et al., 2014).

The effect of a mastectomy often resulted in mood disorders, depression, anxiety, anger, fear related to the

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body image which significantly reduces the quality of life (QOL) (Kissane et al., 1998; Shimozuma et al., 1999). Results from different studies reported that the women who had a mastectomy had a significantly lower QOL in comparison with the women with breast conserving surgery (Engel et al., 2004; Morasso et al., 2001; Shimozuma et al., 1999).

QOL is a multi-dimensional concept. Comparison of the QOL of survivors of a mastectomy with the general population indicates the QOL of survivors long-term and a follow-up study on QOL in different periods of time might not impact every domain. Some domains show better scores and others show worse scores (Bulotiene et al., 2007; Chang et al., 2007; Peukmann et al., 2007; Saleha et al., 2012). It is the time for Nepal to initiate studies on QOL so that healthcare providers may understand the survivor's problems in an efficient way. There is no data available on the QOL post mastectomy in Nepal. The QOL post mastectomy in women was the focus of this study with the aim of investigating the global health status, functional status and symptoms aspects, demographic characteristics and associated factors in women after mastectomy. To achieve the aim this study was guided by the following research questions:

- What are the demographic and medical characteristics of the women after mastectomy?
- What is the QOL after mastectomy?
- Are there any associations between the respondent's characteristics and the quality of life domains?

Conceptual Framework

The stress-appraisal model was used to identify factors that may account for variance in the quality of life of women after mastectomy. This model was adapted from the theoretical work of Lazarus and Folkman (1984) for women after mastectomy. Lazarus and Folkman (1984) defined stress as "a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well being". Folkman and Lazarus (1984) defined coping in terms of the "cognitive and behavioral efforts someone makes to manage (master, reduce or tolerate) a troubled person-environment relationship". According to the theoretical model shown in Figure 1, there were personal factors, and illness-related factors in antecedent variables and in mediating variables there was appraisal of illness, uncertainty, and hopelessness that may directly or indirectly affect women's quality of life.

Materials and Methods

Study design and area

A descriptive cross-sectional study was used to assess the QOL and to determine the socio-demographic and medical characteristics associated with the QOL in women post mastectomy. This study was conducted at Kathmandu valley and Bhaktapur Cancer Hospital (BCH), Bhaktapur, Nepal. It is one of the cancer care referral centers in Nepal. The study population included women after mastectomy attending outpatient departments of BCH. As the study population was women six months post mastectomy data collection in the hospital setting was difficult. So, the additional data was collected door to door by the researcher among the women after mastectomy, who attended the clinic for follow-up in the same center and residing in Kathmandu valley.

Study Population and Eligibility

The study population was the number of women visiting the outpatient department of BCH six months after mastectomy, which were 146 in average of one month. The sample size of 107 was calculated on the basis of an estimate of 50% prevalence of outcome good global QOL (Manandhar et al., 2014) and a precision of 5% for a 95% confidence interval. Inclusion criteria included women aged 20 years and above after six months of mastectomy and who were willing and gave voluntary consent to participate. Those who had a history of psychiatric disorder or suffering from neurological disorder were excluded from the study.

Sampling Procedure

Purposive sampling technique was adopted. Respondents included sixty-seven women after a mastectomy attending the outpatient departments of BCH and forty respondents residing in Kathmandu valley.

Data Collection and Ethical Approval

Data collection was started after getting ethical clearance and an approval letter from the Institutional Review Board, Institute of Medicine and Nursing Campus Maharajgunj and the administrative board of BCH. Data was collected from February 2016 to March 2016. The study objectives were explained to the respondents and then written informed consent was obtained before data collection.

Research Instruments

The research instrument was divided into four parts. The first section included ten questions which was interviewed by the researcher and filled in the form at the same time to collect information about socio-demographic characteristics such as age, marital status, occupation, education, family history of cancer and use of breast prosthesis. The second section consisted six questions about medical characteristics: the stage of breast cancer, type of treatment, and co-morbidity. This section was completed with the medical record form. No questions from this section were asked to the respondents. The third section consisted of European Organization for Research and Treatment of Cancer Core Questionnaire + breast module (EORTC QLQC30/+ BR23) version 3.0 (Sprangers et al., 1996). Permission was obtained from EORTC QLQ group before using this tool and translated it into Nepali language. As stated in EORTC QLQ C-30 consists "30 items including five functional scales items (physical, role, cognitive, emotional and social); three symptom scales items (fatigue, pain, nausea and vomiting); a global health status/QOL scale; and six single items scale (dyspnea, insomnia, appetite loss, constipation, diarrhea and financial difficulties). The breast cancer module (BR23) includes 23-items:

two multi-item functional scales items (body image and sexual functioning), three symptom scales items (systemic side effects, breast symptoms, and arm symptoms), and three single item scales on sexual enjoyment, future perspectives, and upset by hair loss" (Fayers et al., 2001).

The scoring manual suggested by EORTC group is "items were scored on 4-point Likert scales ranging from 1 (not at all), 2 (a little), 3 (quite a bit) and 4 (very much). Except for the global health subscale, which was scored on a modified 7-point linear analog scale. After gathering the information from respondents, the raw score was calculated and then transferred to 0-100 scales according to the guideline of EORTC scoring manual. The higher score reflects, the better QOL or high level of functioning. However, in contrast, the symptom scales were inverse with the higher scores indicative of a high level of symptoms or a poor QOL". The score of 33 and less for the GQOL and functional scale, with score of 66 or more on symptom scale (Sprangers et al., 1996) reflects a problematic group (Alawadi and Ohaeri, 2009).

Validity and Reliability of the Instrument

The EORTC QLQ was translated into the Nepali language and validated in a study by Manandhar et al., (2014). The internal consistency of the questionnaire was based on the recommended Cronbach's alpha value of >0.7. Cronbach's alpha value for the items of the QLQ - C30 was 0.993, and for the elements of the BR -23, it was 0.748.

Data Analysis Procedure

Data were analyzed by SPSS version 16.0. Descriptive statistics was used to present socio-demographic, medical characteristics and the other main variables of the study. The multi-item scales of EORTC QLQ C30 and all subscales of BR23 were analyzed for the relationship. Mann-Whitney U test was applied to determine the associations between independent and dependent variables. There was significant association if $P < 0.05$.

Results

Socio-demographic and medical characteristics

The mean age of the respondents was 47.88+ 9.76. The majority (86.9%) was married, and 84.1% of them were living in a nuclear family. Regarding occupation of the respondents, 59.8% of them were homemakers. Among them 40.2% were illiterate, 7.5% had a family history of cancer, and only 31.8% were using breast prosthesis (Table 1). The majority of the respondents had stage IIa breast cancer (50.5%), and 30.8% were in stage IIb. All the respondents had undergone surgery and chemotherapy. Co-morbidity was present in 16.8%, among them, 50% of them had hypertension, and 38.8% of them had diabetes.

QOL Scores

The respondent's mean score of Global QOL (GQOL) was 79.43±11.86. The mean score of functional scale (C-30) ranges from 90.21±6.09 to 100±0, with the highest level of social function. Among the majority of respondents, (98 out of 107) showed the problem in sexual

Table 1. Socio- Demographic Characteristic of the Respondents n=107

Socio-demographic Characteristics	Number	Percentage
Age		
< 48	59	55.1
> 49	48	44.9
Mean±SD	47.88±9.76	
Marital status		
Married	93	86.9
Widow	10	9.3
Single	4	3.7
Family type		
Nuclear	90	84.1
Joint	17	15.9
Occupation		
Homemaker	64	59.8
Service	26	24.3
Business	14	13.1
Agriculture	3	2.8
Education		
Illiterate	43	40.2
Literate	64	59.8
Education level (n=64)		
Primary level	7	10.9
Secondary level	22	34.4
Higher secondary level	20	31.2
Graduate (Bachelor level and above)	15	23.4
Family history of cancer		
Cancer present	8	7.5
Cancer absent	99	92.5
Use of breast prosthesis		
Using breast prosthesis	34	31.8
Not using breast prosthesis	73	68.2
Types of prosthesis using (n=34)		
Sponge	24	70.6
Cloth	7	20.6
Silicon	3	8.8
Stage of cancer		
Stage IIa	54	50.5
Stage IIb	33	30.8
Stage IIIa	13	12.1
Stage IIIb	1	0.9
Stage IIIc	6	5.6
Type of treatment received (multiple response)		
Surgery	107	100
Chemotherapy	107	100
Radiotherapy	83	77.6
Hormonal therapy	83	77.6
Presence of comorbidity (n=18)		
Hypertension	9	50
Diabetes	7	38.8
Diabetes and hypertension	2	11.1

Table 2. Scores of the Respondents on Various Items of QLQ C30 and BR23 Scale

Variables	No of items	N	Poor <33.3	Average 33.3-66.6	Good >66.6	Mean	SD
Global Health Status/QOL							
Global health status/QOL	2	107	0	0	107	79.43	11.86
C-30 Functional Scales							
Physical functioning	5	107	0	0	107	90.21	6.09
Role functioning	2	107	0	0	107	98.28	5.08
Emotional functioning	4	107	0	0	107	93.06	6.21
Cognitive functioning	2	107	0	0	107	97.19	6.26
Social functioning	2	107	0	0	107	100	0
BR-23 Functional Scales							
Body image	4	107	0	14	93	74.62	15.35
Sexual functioning	2	107	98	9	0	2.95	9.38
Sexual enjoyment	1	12	0	10	2	27.77	12.97
Future perspective	1	107	0	0	107	80.36	16.48

functioning scale. However, performance was beyond average in symptom scales, and the most experienced symptom was appetite loss and upset by hair loss (Table 2 and Table 3).

Association between respondent's characteristics and QLQ scale

The global health status showed significant association with occupation (P = 0.033) and use of breast prosthesis (P =0.018). Similarly, physical functioning is statistically significant with the marital status of respondents (P = 0.007) and occupation (P=0.013). Role functioning was not associated with any of the independent variables. However, emotional functioning had a significant association with age (P= 0.000), education level (P = 0.008) and co-morbidity (P=0.000), and cognitive functioning had a significant association with educational attainment (P=0.002), use of prosthesis (P = 0.040) and co-morbidity (P = 0.041). Among the analyzed scales of BR -23, body image had a significant association with age (P = 0.000), occupation (P=0.003), education (P = 0.000), use of prosthesis (P = 0.000), and co-morbidity (P= 0.000), whereas sexual functioning had a significant association with age (P=0.000) only. Future perspective had a significant association with age (P= 0.000), education (P = 0.012) and co-morbidity (P = 0.000). Similarly systemic therapy side effect had a significant association with age (P = 0.000), marital status (P = 0.007), occupation (P = 0.008), education (P = 0.001), use of prosthesis (P = 0.014), and co-morbidity (P= 0.033) (Table 4).

Discussion

EORTC C-30 and BR-23 was used to measure the QOL after mastectomy in women. A similar tool was used to assess the QOL of women with breast cancer in Kuwait (Alawadi and Ohaeri, 2009) and Korea (Ahn et al., 2007). They had defined the problematic group at the cut-off level of 33% for the functional scales and 66% for the

Table 3. Scores of the Respondents on Symptoms Scales of QLQ C30 and BR23 Scale

Variables	No of items	N	Good <33.3	Average 33.3 -66.6	Poor >66.6	Mean	SD
C-30 Symptom Scales							
Fatigue	3	107	103	4	0	12.37	9.32
Nausea/Vomiting	2	107	107	0	0	0.46	2.76
Pain	2	107	106	1	0	7.47	8.63
Dyspnoea	1	107	104	3	0	0.93	6.2
Insomnia	1	107	91	16	0	4.98	11.94
Appetite loss	1	107	86	21	0	6.54	13.29
Constipation	1	107	104	3	0	0.93	5.52
Diarrhea	1	107	103	4	0	1.24	6.35
Financial difficulties	1	107	104	3	0	0.93	5.52
BR-23 Symptom Scales							
Systemic therapy side effects	7	107	107	0	0	7.07	5.91
Breast symptoms	4	107	106	1	0	12.69	6.6
Arm symptoms	3	107	106	1	0	10.87	8.1
Upset by hair loss	1	50	32	18	0	12.66	17.67

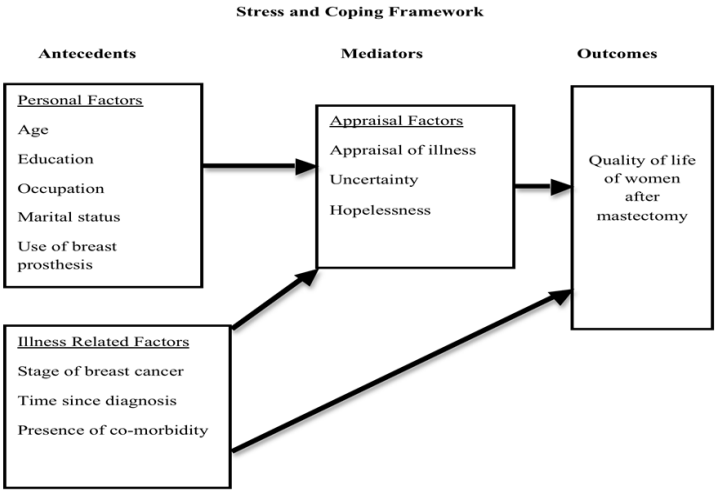

Figure 1. Conceptual Framework of QOL of Women Post Mastectomy Stress and Coping Framework

symptom scales. In the present study, respondents perform better in the functional domain of cancer-specific QOL than in functional domains of breast cancer-specific QOL scales. Unlike in the Kuwait study (Alawadi and Ohaeri, 2009) which reported that patients performed poorly to average in functional and symptom domain of QLQ C-30,

Table 4. Associations between Respondent's Characteristics and QLQ C-30 and BR-23

Characteristics	GHS	PF	RF	EF	CF	BI	SF	FU	ST
Age									
< 48 years	83.33 (83.33 - 66.66)	86.66 (100 -86.66)	100 (100 -100)	91.66 (91.66 -91.66)	100 (100 -100)	66.66 (75-66.66)	0	66.66 (100-66.66)	4.66 (9.66-0)
> 49 years	79.16 (83.33 - 66.66)	86.66 (93.33 -86.66)	100 (100 -100)	100 (100 -91.66)	100 (100 -100)	79.16 (100-66.66)	0	100 (100-66.66)	9.66 (14.33-4.66)
†P-value	0.136	0.066	0.207	0.000*	0.182	0.000*	0.033*	0.000*	0.000*
Marital status									
Unmarried	83.33 (95.83 - 83.33)	100 (100 - 94.99)	NA	91.66 (97.91- 85.41)	NA	62.5 (87.49-43.74)	NA	83.33 (100-66.66)	2.22 (4.66-0)
Married	83.33 (83.33 - 66.66)	86.66 (93.33 -86.66)	NA	91.66 (100-91.66)	NA	66.66 (83.33-66.66)	NA	66.66 (100-66.66)	4.66 (9.66-4.66)
†P-value	0.145	0.007*		0.604		0.33		0.714	0.007*
Occupation									
Homemaker	75 (83.33 - 66.66)	86.66 (86.66-86.66)	100 (100-100)	91.66 (100-91.66)	100 (100-100)	75 (100-66.66)	0	66.66 (100-66.66)	9.66 (9.66-4.66)
Service/Business/Agriculture	83.33 (91.66 – 66.66)	93.33 (100-86.66)	100 (100-100)	91.66 (91.66-91.66)	100 (100-100)	66.66 (75-66.66)	0	66.66 (100-66.66)	4.66 (4.66-0)
†P-value	0.033*	0.013*	0.307	0.027	0.241	0.003*	0.079	0.283	0.008*
Education									
Illiterate	75 (83.33 - 66.66)	86.66 (93.33-86.66)	100 (100-100)	100 (100-91.66)	100 (100-83.33)	75 (100-66.66)	0	100 (100-66.66)	9.66 (14.33-4.66)
Literate	83.33 (83.33 - 66.66)	86.66 (100-86.66)	100 (100-100)	91.66 (91.66-91.66)	100 (100-100)	66.66 (75-66.66)	0	66.66 (100-66.66)	4.66 (9.66-0)
†P-value	0.114	0.066	0.096	0.008*	0.002*	0.000*	0.158	0.012*	0.001*
Prosthesis Use									
Using breast prosthesis	83.33 (100 – 72.91)	86.66 (93.33-86.66)	100 (100-100)	91.66 (91.66-91.66)	100 (100-100)	66.66 (75-58.33)	0	66.66 (100-66.66)	4.66 (4.66-0)
Not using breast prosthesis	75 (83.33 - 66.66)	86.66 (96.66-86.66)	100 (100-100)	91.66 (100-91.66)	100 (100-100)	75 (100-66.66)	0	66.66 (100-66.66)	9.66 (11.99-4.66)
†P-value	0.018*	0.513	0.09	0.095	0.040*	0.000*	0.05	0.095	0.014*
Co-morbidity									
Present	83.33 (93.74 - 66.66)	86.66 (93.33-86.66)	100 (100-100)	100 (100-100)	100 (100-83.33)	100 (100-72.91)	0	100 (100-100)	9.66 (14.33-4.66)
Absent	83.33 (83.33 - 66.66)	86.66 (96.66-86.66)	100 (100-100)	91.66 (100-91.66)	100 (100-100)	66.66 (75-66.66)	0	66.66 (100-66.66)	4.66 (9.66-2.33)
†P-value	0.607	0.477	0.33	0.000*	0.041*	0.000*	0.541	0.000*	0.033*

Scores presented were median score and parentheses indicate minimum-maximum score; †, Mann-Whitney U test; GHS, global health status; PF, physical functioning; RF, role functioning; EF, emotional functioning; CF, cognitive functioning; BI, body image; SF, sexual functioning; FU, future perspective; ST, systemic therapy side effects; NA, not applicable

in the functional scales of BR-23, the majority of subjects performed healthy functioning. They performed poorest in physical function and had an acceptable level of cognitive and social functioning.

A related study done in Germany (Hartl et al., 2003) reported that mean scores for QOL scales are 67.8, for functional scales (all > 60) were above average, and showed a low degree of symptoms in the symptom scales. These study results were nearly similar to the outcome of the present study with the QOL score of 79.43 ± 11.86 and functional scale all >60. A similar study conducted in Nepal (Manandhar et al., 2014) suggested that patients performed much worse on symptoms scales. In contrast, women after mastectomy in the present study had a lower level of symptoms. Perhaps most patients were interviewed at the time of follow-up. Chemotherapy was completed before the interview, and few of them were undergoing radiotherapy. So they might have experienced fewer side effects related to chemotherapy and radiotherapy by the time they were interviewed, and their symptoms would have already subsided or managed.

In the present study, women performed well to poorly on breast cancer-specific functional scales (mean range 22.39 ± 80.36) and performed poorly on sexual functioning (90.7% score with a mean of 22.39 ± 14.89). Perhaps, women in Nepal do not talk freely and openly about their sexual life so it could be misinterpreted that performance was poor in these domains. Besides, age also played its part as 44.9% of the respondents were in premenopausal or menopausal age so the lack of interest in sex could also be because of age factor than disease or treatment factor. Though, the researcher had tried her best to provide an environment conducive for them to talk about their private life as well without hesitation.

In this present study, the age of respondents shows no association with their overall QOL. However, findings of studies done in Korea (Lee et al., 2011) and Lebanon (Park et al., 2011) revealed that younger age women had overall better QOL and better global health status. One report suggested that older patients showed better functioning than younger persons (Alawadi and Ohaeri, 2009). Women below forty years were more concerned about their body image than above forty years women in the present study, which is similar to the study conducted in Germany (Hartl et al., 2003), this finding is similar to the present study finding.

The finding of this study shows that married women predominate over the single are consistent with the result of other studies conducted in Nepal (Bhattacharya and Adhikary, 2006), India (Pandey et al., 2005), Spain (Moro-Valdezate et al., 2014), Lebanon (Abu-Saad Huijer and Abboud, 2012) and USA (Janz et al., 2005). Unmarried women perform better on physical functioning than those who were married. This result is similar to many studies that concluded with the findings that being single is related to better QOL (Abu-Saad Huijer and Abboud, 2012; Janz et al., 2005; Meneseset al., 2012; Moro-Valdezate et al., 2014).

Women who were involved in service/business have the better overall QOL, physical functioning, and perception about their body image. This result is consistent with a previous a study in Nepal (Manandhar et al., 2014). Some authors accounted that occupation was ascertained to have an association with physical function and overall QOL, (Pandey et al., 2005) while some authors contradicted by stating that there is no significance of occupation being associated with any scales scores (Alawadi and Ohaeri, 2009).

Many studies consistently found better education to be a significant predictor of better QOL (Abu-Saad Huijer and Abboud, 2012; Pandey et al., 2005; Schou, et al., 2005). The outcome of this study also indicates that literate respondents tend to show better cognitive functioning than those less educated. However illiterate respondents perform better on emotional functioning, body image, and future perspective. The probable explanation for this can be that illiteracy might have lead to ignorance. Some authors disagreed any effect of education on QOL (Moro-Valdezate et al., 2014) while some have opposing results, which identified that higher education as a predictor of poorer perception of QOL (Meneses et al., 2012).

In this study, only 31.8% were using different types of breast prosthesis (silicon, sponge, cloth). However in Western countries, up to 90% of women use external breast prosthesis, in China, 60% of patients wear breast prosthesis after mastectomy (Liang and Xu, 2015). Women who were using breast prosthesis reported good global health status, better perception of body image in comparison to those who were not using any breast prosthesis. This result is supported by the study done in China, (Kubonet al., 2012) the findings show that wearing external breast prosthesis increase feeling of being feminine, attractive and a good QOL.

Studies done in Korea, (Ahn et al., 2007) and the USA (Vacek et al., 2003) reported that co-morbidity has an adverse impact on overall QOL. A bibliographic review revealed that any physical and psychological co-morbidity has a negative impact on physical and emotional QOL among patients with breast cancer (Montazeri, 2008).

Similar to the present study that respondent who had a co-morbidity show poor emotional functioning and was found that presence of chronic disease had an association with emotional function, cognitive function, body image and future perspective.

In summary, the profile of scale scores for QLQ-C30 indicated that Nepalese women had good global QOL and functional scores and less symptoms experienced for most scales. This could be because the respondents were interviewed after six months of post mastectomy. A longitudinal study is needed to confirm these findings. For the breast specific scale BR-23, Nepalese women seem to have poor functioning and performed poor on sexual functioning scale. Age is a crucial factor for sexual functioning; the present study enrolled 44.9% aged above 49 years, which is menopause age for Nepalese women (Rajbhandari et al., 2017). In view of this further cohort and comparative studies are recommended. Similarly, women using breast prosthesis had good QOL and better body image perception than non-users. Our general experience is that women post mastectomy do not receive any formal education and counseling on the nature of

illness and rehabilitation. Therefore, the findings of the study suggest that there is a great need of formal education system and counseling is needed immediately after diagnosis of breast cancer and continue during the follow up to improve the quality of life of women post mastectomy.

The present study findings are limited by the cross-sectional study design based on a purposive sampling method with women post mastectomy in BCH. Therefore, the findings of the study could not be generalized to the whole population. In addition, there was a lack of baseline QOL assessment prior to the diagnosis of breast cancer. Further studies should be conducted using larger sample size using random sampling method with comparison of score with follow-up at different point of time, between premenopausal and postmenopausal group as it plays an important role in quality of life of patients with breast cancer.

In conclusion, the QOL post mastectomy in women tends to be good on global health status, functional scale and symptom scales of core cancer scales. However, the respondents showed problems in breast cancer specific QOL scales. Based on the study findings counseling, and a structured educational program is recommended to improve the QOL of women post mastectomy. Health personnel should focus on factors affecting multiple domains to improve the QOL in women post mastectomy.

Statement of conflict of interest

The authors declare that they have no any conflicts of interest to disclose.

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