ORIGINAL ARTICLE

Effect of Out of Pocket Cost on Following Mammography Screening

SHAIQ HUSSAIN[1], PIRYA NANGDEV[2], BHAGWAN DAS[3], KAILASH KUMAR DASEJA[4], SUSHMA QADIR[5], ANEEL KUMAR[6]
[1]Assistant Professor, Department of Radiology, Pir Abdul Qadir Shah Jeelani Institute of Medical Sciences, Gambat
[2]Lecturer, Department of Anatomy, Bilawal Medical College/Liaquat University of Medical & Health Sciences, Jamshoro
[3,4]Assistant Professor` of Radiology, Chandka Medical College Hospital @ Shaheed Mohtarma Benazir Bhutto Medical University Larkana
[5]Senior Registrar, Department of Radiology, Isra University & Hospital, Hyderabad
[6]Radiologist, Department of Radiology, Jinnah Postgraduate Medical Centre, Karachi
Correspondence to Dr. Shaiq Hussain, E-mail: shaique55@gmail.com Cell: +923337129744

ABSTRACT

Aim: To analyze the effect of out of pocket cost on subsequent mammography screening.
Study design: Retrospective observational study
Place and duration of study: Department of Radiology, Pir Abdul Qadir Shah Jeelani Institute of Medical Sciences, Gambat from 1st April 2021 to 31st March 2022.
Methodology: One hundred female patients having ages 40-65 years with health insurances were followed from their baseline mammography screening up to their 12-36 months screening was enrolled. The clinical recorded, adjusted clinical group and other related information were documents.
Results: 69% supported by a low deductible health policy while 31% were supported with a high deductible health policy The Adjusted Clinical Group score showed 74% within 0.3 scoring. For baseline mammography a decreased by 3.4% up to 12-24 months time was noticed.
Conclusion: Out pocket cost has a significant effect of decreasing patient's number for subsequent mammography screening.
Keywords: Breast carcinoma, Mammography, Screening

INTRODUCTION

Breast cancer is one of the deadliest cancers which cause number of causalities, annually. According to recent surveys, is regarded as second leading cause of women mortalities worldwide[1–3]. It also many times leads to metastasis and spread to the other organs as well. Estimates proved that, approximately 5-10% of breast cancer patients had already developed metastasis at the time of diagnosis[4–7]. Mortality rate associated with breast cancer has significantly reduced over past years due to improved health care system, targeted treatment options and early methods of diagnosis[8] but this becomes possible at high costs both for patients and the society.

Present treatment method and available medication of breast cancer is out of reach for many patients especially for the people of developing world[9-12]. Five years' data from years 2000-2006 highlights that, per patient mean cost for chemotherapy for the period of 18 months was approximately $128500[13]. Such high amount adversely effects on the treatment of the patient and escalating the chances of mortality particularly in eastern world. Good and substantial health plans are the utmost need for cancer patients.

The present study was to examine the health services, insurance trends and arrangements, money spending by women with newly diagnosed metastatic cancer and total health service expenditures by breast cancer women. This study also sought to compare variation in money expenditure, low and high deductible health plan effect before and after the incident of metastatic breast cancer.

MATERIALS AND METHODS

This retrospective observational study was conducted at Department of Radiology, Pir Abdul Qadir Shah Jeelani Institute of Medical Sciences, Gambat from 1st April 2021 to 31st March 2022. The study was conducted with a follow up of each case until second mammographic screening. The information was collected from individuals who underwent mammography. Their demographic details as well as in or out patient status, health care claims of pharmacy were documented. The inclusions criteria adapted enrolment of females within 40-65 years of age with health insurances, who initially got screened through out of pocket (OOP) while were under a subsequent screening plan after 12-36

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months' time. Those women who were paid by health insurance system and not through OOP were excluded from the study. OOP were scrutinized and quantified prior imaging. The sample size was taken as 100 which were generated by the prevalence of mammography as 10-16% with a 7% margin of error and 95% confidence interval. Patients were scored according to their Adjusted Clinical Group (ACG) which was determined on their clinical, aging, staging of cancer and morbidity status. Statistical Analysis was generated through SPSS version 26.0 which applied odd ratio stats for analyses of data. p value <0.001 was taken as significant.

RESULTS

Sixty nine percent supported by a low deductible health policy while 31% were supported with a high deductible health policy. Not to mention the cost of mammography was paid by their own pocket and was further processed for reimbursement scenario based. Majority of the patients were from low socioeconomic groups which could not afford health insurances with high deductible amounts. The ACG score showed 74% within 0.3 scoring (Table 1).

After the OOP payment for baseline mammography screening test the follow up screening frequency decreased by 3.4% up to 12-24 months time while with an increase in mammography prices the likelihood of screening further decreases to 1.8 points. The follow up test at >24 moth's decreased by 2.6% with higher price change causing further reduction in cases by a CI value of -0.024 to -0.003 (Table 2).

Table 1: Distribution of stage, age, socioeconomic status and ACG score among various health insurance cases (n=100)

Variable	n	Low-Deductible HP	High-Deductible HP
Female	100	69 (69%)	31 (31%)
Stage			
Terminal Stage 4	2 (2%)	2 (100%)	-
Stage 0-3	98 (98%)	97 (98.9%)	1 (1.1%)
Age (years)			
40 - 49	35 (35%)	27 (77.1%)	8 (32.9%)
50- 64	65 (65%)	55 (84.6%)	10 (15.4%)
Socioeconomic status (SES)			
High SES	30 (30%)	19 (63.3%)	11 (36.7%)
Low SES	70 (70%)	50 (71.4%)	20 (28.6%)
ACG score			
> 3.0	26 (26%)	13 (50%)	13 (50%)
0 - 3.0	74 (74%)	56 (75.6%)	18 (24.4%)

The effect of out of pocket cost on subsequent mammography screening was seen as overall decrease up to 6% among various cases, resulting in lower screening follow-up cases on either 12-24 months or at 24-36 months respectively (Fig. 1)

Table 2: Association of Follow up screening reduction effect with OOP cost

Follow up Screening	Rate of Mammography 95% CI	Rate of Mammography 95% CI year price increase	P value
12 months-24 months	3.4 (1.1-4.8)	1.8(0.8-3.1)	<0.001
>24 months	2.6(0.9-4.1)	-0.015(-0.024 to -0.003)	<0.001

Fig. 1: Decrease in follow up cases of mammography screening
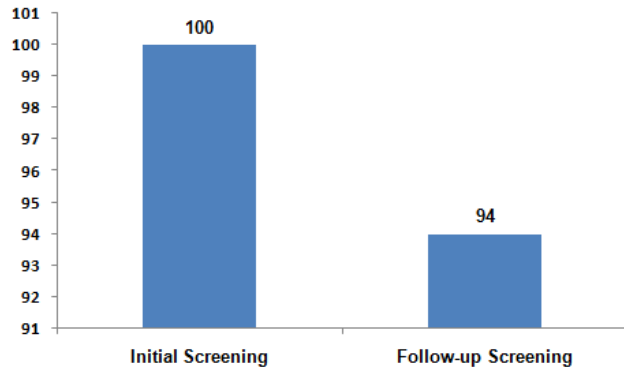
DISCUSSION

The breast cancer seriously effect health of millions of women worldwide. It risks escalates multiple folds in higher age women (women with age greater than >40)[14,15]. It is considered as one of the leading cause of women death all over the globe. International data proved that, white people were more to this disease followed by Asian[16]. Mammography is one of the most widely used detection method used for the evaluation and diagnosis of breast cancer. Due to high cost of this scan, women of low income countries not regularly get this test especially after the age of 40. It badly impacts on their overall well-being and health and worsens already present condition[17-19].

In the present study, metastatic breast cancer insured women was enrolled who had low deductible health plan (LDHP) and high deductible health plan (HDHP) and its effect on mammography or on the treatment of cancer was compared. Study results proved that, LDHP women suffered adversely and did not show follow-up due to limited resources and finances. Higher frequency of breast cancer was observed in LDHP group.

Special intention towards this matter should be paid and it's the hour of need to form and develop effective health care policies and low cost diagnostic method for the early evaluation and diagnosis of this deadly disease. Early recognition by warning signs and symptoms and cheap diagnostic method is the only possible solution to combat with this high cause of mortalities of women, globally.

CONCLUSION

Out pocket cost has a significant effect of decreasing patient's number for subsequent mammography screening.
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