

## Role of Low Education and Socioeconomic Status as a Cause in Locally Advanced Breast Carcinoma: A Tertiary Care Centre Experience

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### Abstract

*Background:* Breast cancer is a common cancer among women in Kerala. Though the state has high literacy rate, still many breast cancer patients are being diagnosed in a later stage as locally advanced breast cancer mainly due to delayed diagnosis. *Aims:* To find out any relation between low education and low socioeconomic status with delayed diagnosis resulting in locally advanced breast carcinoma. *Settings and Design:* We conducted a comparative study between locally advanced and early breast carcinoma patients admitted in general surgery ward in Govt. TD Medical College, Alappuzha for two years to know if low education and socio economic status is a reason for delayed presentation resulting in locally advanced breast carcinoma. *Materials and Methods:* We collected data from July 2014 to June 2016 by personal interview with locally advanced and early breast cancer patients admitted in general surgery ward of Govt. TD Medical College, Alappuzha. Thus obtained data was used to analyse our aims. *Results and Conclusion:* We had total 100 patients, 50 with locally advanced and 50 with early breast carcinoma in two year study period. Our study shows that low education and socioeconomic status is associated with delayed presentation leading to delayed diagnosis resulting in locally advanced pattern of breast carcinoma.

**Keywords:** Low Education and Socioeconomic Status; Delayed Diagnosis; Locally Advanced Breast Carcinoma.

### Introduction

Kerala is a state with one among the highest literacy rate in India. Breast cancer is a common cancer among women in Kerala. Still many patients are diagnosed late as locally advanced breast cancer. We conducted a comparative study between locally advanced and early breast carcinoma patients admitted in general surgery ward in a tertiary care hospital in Kerala for two years to identify any relation between low educational and socio economic status with delayed diagnosis resulting in locally advanced breast carcinoma.

### Methods

We conducted this study in a tertiary care hospital in Kerala from July 2014 to June 2016. All breast carcinoma patients who presented to the hospital were examined clinically and appropriate staging investigations were done. Accordingly the patients were assigned in to early breast carcinoma group, locally advanced breast carcinoma group or metastatic breast carcinoma group. We included all those female patients with locally advanced and early breast carcinoma who were admitted in general surgery ward and were willing to participate in the study. We have excluded all those patients with locally advanced and early breast carcinoma who were not willing to participate in the study, metastatic breast carcinoma group and those male patients with carcinoma breast.

The patients who satisfied inclusion criteria were interviewed personally. Education status was assessed by grouping patients in to illiterate, primary school education, secondary school education, high school education, predegree and graduation groups.

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Occupation wise patients were separated in to housewife, daily wage worker (unskilled worker) and professionals (skilled and semiskilled workers). Economic status was assessed using the government of Kerala criteria which is used to classify people in to below and above poverty line. The data thus obtained was used to analyse our aims. They were also asked if they had undergone or are aware of mammography and breast self examination.

**Results**

We had total 100 patients, 50 with locally advanced and 50 with early breast carcinoma in two year study period. First we analysed the data of 50 locally advanced breast carcinoma group. Out of these 50 patients, 23 patients (46%) belong to 15- 50year age group, 25 patients (50%) belong to 51-75 age group and 2 patients (4%)were in more than 75 age group (Table 1). Out of 50 patients 48 (96%)were married and 2 (4%) were unmarried.

Two patients (4%)were illiterate, 15 (30%) had primary school education, 11 (22%) completed secondary education, 16 (32%)studied in high school classes, 3 (6%) had pre degree qualification and 3 (6%) completed graduation (Table 2). If we divide the education group in to those with or without school education and those with college education, 43 (86%) belongs to school education and below and 6 (14%) had college education. We included pre degree and degree holders in college education group and high school, primary, secondary and illiterate patients in school education and below group.

Thirty-eight patients (76%) belong to below poverty line group and 12 (24%) were above poverty line group (Table 3). 32 patients (64%) were house wife, 15 (30%) were daily wage workers (unskilled workers), 3 (6%)were professionals (skilled and semiskilled workers) (Table 4). Only 16 patients (32%) had high grade (grade3) tumours. 19 patients (38%) had grade 2 and 15 patients (30%) were with grade 1 tumour (Table 5). 40 patients (80%) had breast lump and 10 patients (20%) had breast lump with ulceration. All the patients had enlarged axillary lymph nodes.

In the early breast carcinoma group out of 50 patients, 26 patients (52%) belong to 15 - 50 year age group, 23 patients (46%) belong to 51 - 75 age group and 1 patient (2%) was in more than 75 age group (Figure 1). Out of 50 patients 47 (94%) were married and 3 (6%) were unmarried.

One patient (2%) was illiterate, 12 (24%) had primary school education, 13 (26%) completed secondary education, 12 (24%) studied in high school classes, 5 (10%) had pre degree qualification and 7 (14%) completed graduation (Figure 2). If we divide the education group in to those with or without school education (without college education) and those with college education, 38 (76%) belongs to school education and below and 12 (24%) had college education. We included pre degree and degree holders in college education group and high school, primary, secondary and illiterate patients in school education and below group.

Twenty-four patients (48%) belong to below

**Table 1:** Age group of locally advanced breast carcinoma

15 -50	23
51 - 75	25
>75	2

**Table 2:** Education status of locally advanced breast carcinoma

Illiterate	2
Primary school education	15
Secondary school education	11
High school education	16
Pre degree	3
Graduate	3

**Table 3:** Economic status of locally advanced breast carcinoma

Above poverty line	12
Below poverty line	38

**Table 4:** Occupation status of locally advanced breast carcinoma

House wife	32
Daily wage worker	15
Professionals	3

**Table 5:** Grade of the tumour of locally advanced breast carcinoma

Grade 1	15
Grade 2	19
Grade 3	16

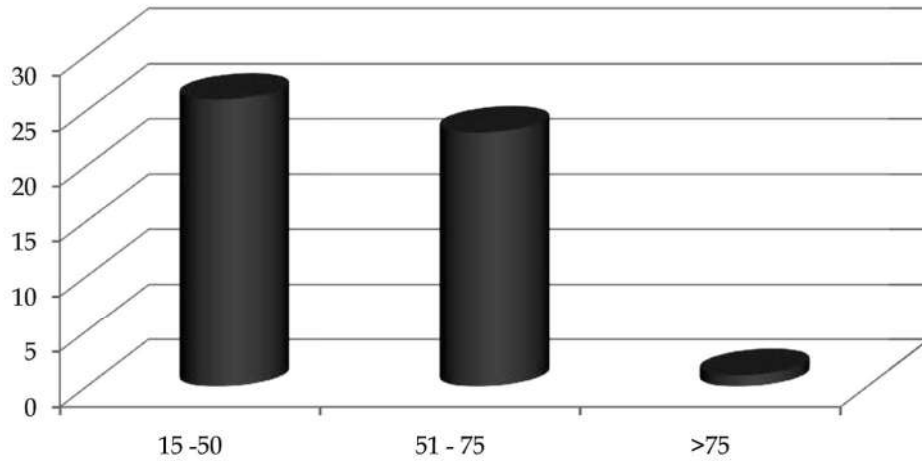


Fig. 1: Age group of early breast carcinoma

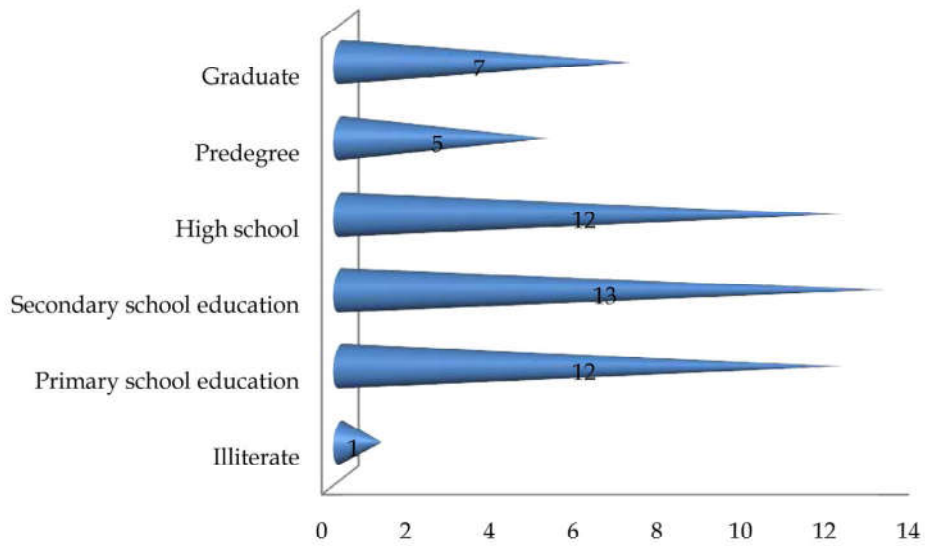


Fig. 2: Education status of early breast carcinoma

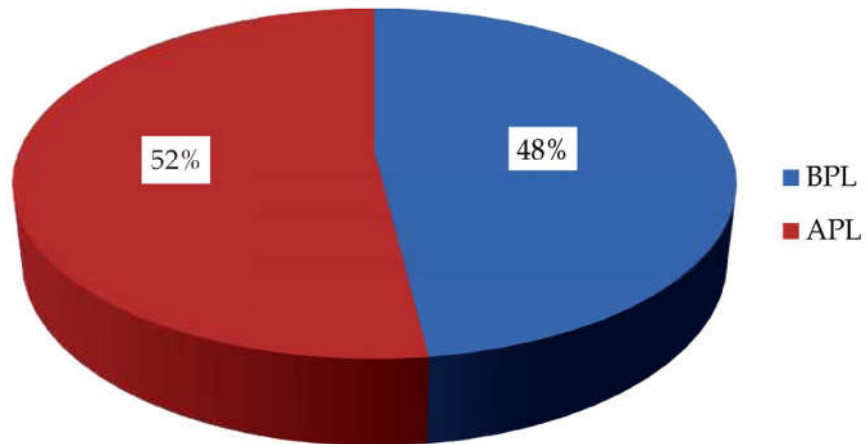


Fig. 3: Economic status of early breast carcinoma



Fig. 4: Occupation status of early breast carcinoma

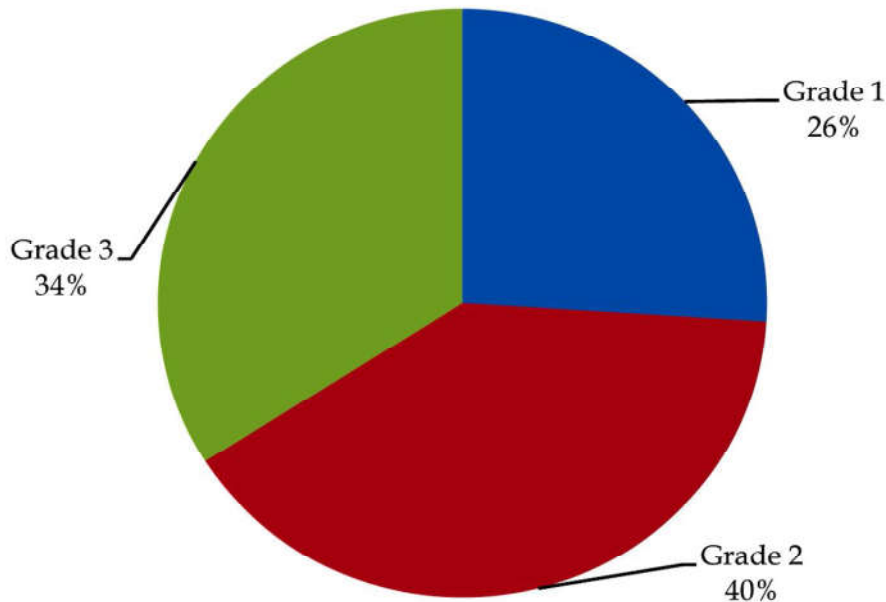


Fig. 5: Grade of the tumour of early breast carcinoma

poverty line group and 26 (52%) were above poverty line group (Figure 3). 24 patients (48%) were house wives, 14 (28%) were daily wage workers (unskilled workers), 12 (24%) were professionals (skilled and semiskilled workers) (Figure 4).

Seventeen patients (34%) had high grade (grade 3) tumours. 20 patients (40%) had grade 2 and 13 patients (26%) were with grade 1 tumour (Figure 5).

### Discussion

Around 10% to 20% of all patients with carcinoma breast have stage 3 disease which includes T0, T1 or T2 with N2 disease; T3 tumours with N1 or N2 disease; T4 tumours with any N classification; or any T classification with N3 regional lymph node involvement [1]. These cancers are classified under locally advanced breast carcinoma category. Early

breast carcinoma category includes Tis, T0, T1, T2 with N0 or N1 disease. Despite high literacy rate in Kerala, many breast cancer patients are diagnosed at a later stage as locally advanced breast cancer in this geographical area.

In a Chinese study breast carcinoma cases from low socio economic status with less education were diagnosed at later stages when compared with more educated cases [2]. This study suggests that strategies should work toward developing more accurate and effective breast cancer prevention and treatment aimed at patients with lower educational levels. According to a study from East Anglia, if the poor prognosis of low status women is mainly due to a high stage of tumour at presentation, then we should intervene in the area of early detection [3]. Another study found that women from deprived areas were more likely to present with locally advanced or metastatic disease. Alternatively, it might reflect a lower threshold for investigation and referral in patients from deprived communities presenting with suspicious symptoms [4].

In a Malaysian study the factors significantly associated with diagnosis delay were the use of alternative therapy, false negative diagnostic test, non cancer interpretation and a negative attitude toward treatment [5]. Another study from Senegal the only factor associated with locally advanced breast cancer after adjusting confounding factors was low level of income [6]. Among inflammatory breast carcinoma patients, a higher percentage of patients with metastatic disease versus non metastatic disease were black and from areas of higher poverty and more urban areas were seen in an American study [7].

The Government of Kerala is among a few state governments in India which has formulated its own criteria for separating people in to above and below poverty line. There are nine parameters which includes no land or less than five cents of land, no house or dilapidated house, no sanitation latrine, family with an illiterate family member, no regular employed person in the family, no access to safe drinking water, women headed household or presence of widows or divorcee, Scheduled castes and scheduled tribes (SC/ST), Mentally retarded or disabled member in the family. Families which lack access to four or more parameters are classified as below poverty line (BPL) [8]. We have used these criteria to separate patients in to above and below poverty line.

In our study we had 50 locally advanced breast carcinoma patients in two year period. Here, 86% patients with locally advanced breast carcinoma had only school education and below. Only 14% patients

with locally advanced breast carcinoma were having college education. 76% patients with locally advanced breast carcinoma were below poverty line according to Kerala government criteria. So in our study also most of the patients with locally advanced carcinoma belonged to low education and socioeconomic status.

Only 32% had high grade tumours. Rest 68% had low and intermediate grade tumours. So here high grade was not the single most major cause for locally advanced nature of breast carcinoma by percentage wise. The main cause for locally advanced nature of breast carcinoma in our study was delayed diagnosis. None of our patients in locally advanced breast carcinoma group, had breast cancer screening either in the form of mammography or breast self examination. 80% presented with obvious breast lump and noticed it only accidentally. 20% even had lump with ulceration.

When we analysed the data of 50 cases of early breast carcinoma, 76% of patients had only school education or below and 24% patient had college education and above. 52% of patients with early breast carcinoma belonged to above poverty line and 48% belonged to below poverty line. 48% were house wives, 28% were daily wage workers (unskilled workers), 24% were professionals (skilled and semiskilled workers).

So when we see the results of both Locally advanced and early breast carcinoma, early breast carcinoma group had more patients who were in college education group, above poverty line group and professionals group (which includes skilled and semiskilled workers) when compared to locally advanced breast carcinoma group which in turn had more number of patients coming from low socioeconomic and educational status. In the early breast carcinoma group none had mammographic breast screening. However, 7 patients out of 12 in college education group and 9 patients out of 12 among professional group were aware about breast self examination and that lead to early detection of breast lump in these patients.

In locally advanced breast carcinoma group, it was relatively more common by proportion and percentage wise in school education and below group, below poverty line group and house wives or daily wage workers group. No patients in this group was aware about mammographic screening and breast self examination. In short low educational and socioeconomic status leads to late presentation of the patients to seek medical attention. This lag in presentation is one cause for the disease being in the locally advanced stage at the time of 1<sup>st</sup> visit.

Hence it is the need of the time to strengthen community based breast screening and awareness among rural people of Kerala. Even though we have good literacy rate, the level of knowledge among our women about community based breast cancer screening programmes and awareness are poor. .

### Conclusion

Our study shows proportionate and percentage wise relation between low education and socioeconomic status with delayed diagnosis resulting in locally advanced breast carcinoma. This study also points to the need for further strengthening of community based breast cancer screening and awareness among rural folk of Kerala.

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