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Factors Influencing Delayed Presentation of Breast Cancer: A Systematic Literature Review

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IMPORTANCE Breast cancer is the most common cancer in women worldwide. It is amongst the leading cause of cancer-related death in women. Its incidence is higher in developed countries owing to early detection and diagnosis through screening. However, an alarming rise in its incidence and mortality rates are seen in developing countries. Early detection and treatment initiation is crucial for its management. Delayed presentation of the patients is seen to be associated with advanced-stage diagnosis, more aggressive treatment, poorer outcomes, poorer quality of life, and higher mortality rate. Delay in effective oncological treatment could be due to patient presentation delay or provider delay. Identification of these delaying factors is crucial for the removal of the barriers to early detection and treatment of breast cancer patients.

OBJECTIVE The objective of this literature review is to identify the factors that delay the presentation of breast cancer patients in developed and developing countries.

METHODS This systematic literature review is written according to the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) guidelines. A comprehensive literature search of PubMed/MEDLINE and ERIC was performed using search terms "delayed presentation" OR "late presentation" AND "breast cancer" OR "breast carcinoma". 143 papers were identified through a literature search. Following the removal of 4 duplicates, titles and abstracts of 139 papers were reviewed. After thorough analysis, 12 papers were included in this literature review.

RESULTS Factors that are seen to delay presentation are overlapping and can be broadly characterized as personal, socio-cultural, and economic. The role of these factors in delaying presentation is seen to vary in developed and developing countries. Hence, the role of these barriers cannot be extrapolated from one region to another as different studies have demonstrated contradicting results. Cancer control programs in developed countries have significantly reduced the influence of sociocultural barriers in delaying patient presentation. However, economic factors play a crucial role in the delay. While in developing countries fear-related barriers, lack of awareness, and poverty are the most prevalent factors.

CONCLUSION The incidence of breast cancer is rising worldwide. Early presentation in breast cancer is crucial for its management. Several personal, socio-cultural, and economic factors influence the presentation of patients. The role and distribution of these barriers are diverse. Social, cultural, and economic differences make it difficult to extrapolate the influence of these barriers from one region to another.

KEYWORDS Breast Cancer, Awareness, Delaying Factors, Ethnicity, Poverty, Developed and Developing Countries.

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Systematic Literature Review

Cancer is one of the leading causes of death worldwide[1]. It is estimated that 9.6 million people die from different types of cancer each year and 70% of deaths occur in developing and underdeveloped countries[2]. The number of reported deaths occurring due to cancer is increasing continuously especially in moderate-income and low-income countries[3]. Early presentation, diagnosis and timely treatment are seen to be associated with better outcome in patients. While delayed presentation of symptomatic cases is associated with poorer outcomes due to advanced stage presentation and these cases are usually managed with palliative intent[1]. Patients with advanced stage disease have higher fatality rate in developing and underdeveloped countries compared with developed countries [4]. In 2017 WHO provided guideline for early diagnosis of cancer. It outlined three sequential steps: access to care, evaluation of disease, and access to subsequent treatment [5]. In order to diagnose and treat cancers early it is

important to understand the barriers that prevent early intervention in different types of cancers. These barriers have been studied predominantly in high income countries [5].

Breast cancer is the most common type of cancer occurring in women worldwide. In 2018 2.08 million new cases of breast cancer were reported [6]. Incidence of breast carcinoma is higher in developed countries [7]. However, breast carcinoma is the leading cause of cancer related death in less developed countries and second most common cause of cancer related death in women of United States [8]. Higher incidence rates of breast cancer in developed countries can be attributed to early diagnosis, regular screening tests and registry of patients [9]. However, recent studies have shown alarming rise in incidence and mortality due to breast cancer in moderate-income and low-income countries [10]. This can be attributed to several factors such as level of education, awareness about the disease, reproductive factors, family history, alcohol consumption, obesity and income [11]. Racial minorities in developed countries are seen to present at an advanced stage, receive more aggressive treatment, and have overall poorer prognosis and quality of life [12].

Patients who present after three months of initial symptom appearance have 12% higher 5-year mortality rate than patients who present earlier [13]. The 5-year survival for stage 0 and stage I cases is 100%, stage II cases is 93% and stage III cases is 72% [14]. Owing to significance of early presentation WHO proposed increasing awareness about clinical presentations, risk factors, evidence-based diagnosis and management [15]. These strategies have been adopted by developed countries, but due to scarcity of resources these strategies are not employed by developing countries [16].

Africa has the lowest incidence rate of breast cancer worldwide [17]. However, its mortality rate is higher than developed countries [18]. The poorer outcome in African women is associated with delay in initial presentation, diagnosis and effective management. Incidence of breast carcinoma is increasing in Africa due to adoption of western lifestyle [19]. Younger population is affected more commonly in Africa than in high income countries. Presentation in African patients is seen to be delayed by 8-12 months [20].

In Asia incidence and mortality rates of breast cancer are highest in Pakistan. In Pakistan incidence and mortality rates are 5.2 and 2.8 times higher, respectively, than rest of the Asian countries [6]. Breast cancer is the 10th major cause of mortality in women of Pakistan [15,21]. In Pakistan younger population is affected by breast cancer more commonly when compared with affected population of West [6]. More than 50% patients present at an advanced stage (stage III and stage IV) [22]. Its incidence and mortality rates are rapidly rising in Pakistan and probability is that 1 in 9 women are diagnosed with breast cancer during their lifetime [23]. Lack of awareness about risk factors and symptoms, lack of evidence-based approach towards diagnosis and towards effective management is responsible for high incidence, morbidity and mortality rates in developing countries like Pakistan [11,24].

Delay in effective oncological treatment could be due to patient presentation delay and provider delay. Patient presentation delay refers to the time interval between development of symptoms and patient's presentation to health care provider. Patient presentation delay of greater than 3 months is associated with poorer outcomes [25]. While provider delay refers to the interval between first visit to a health care provider and initiation of effective oncological treatment [26]. Delay in presentation is significant in developing and developed countries as it is associated with advanced stage presentation and higher mortality rates [27].

Several studies have reported multiple factors responsible for advanced stage presentation. There is lack of awareness about symptoms and importance of self-breast examination. Patients are often unable to recall their initial symptoms unless these symptoms affect their daily routine[1]. Low socioeconomic status is seen to be responsible for advanced stage presentation and worse outcome [28]. Educational status, awareness about disease and access to health care resources are regarded significant factors [29]. All these factors can broadly be classified as personal, sociocultural and economic barriers [26]. Personal and economic factors are not modifiable such as age, marital status, ethnicity, previous history, family history, monthly income, cost of treatment and educational status of the patient. However, sociocultural factors such as stigmatization, awareness about disease, fear of treatment and social support are modifiable. Steps can be taken to overcome these barriers and decrease the presentation delays. The role of these factors is variable in developed and developing countries. In this article the effect of these factors in delaying patient presentation in developed and developing countries is reviewed.

METHODS

This literature review is written according to the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) guidelines with objective of analyzing data available for determining factors that are responsible for delayed presentation of breast cancer patients.

Search strategy A comprehensive computer literature search of PubMed/MEDLINE and ERIC was performed. The search algorithm was based on combination of terms: "delayed presentation" OR "late presentation" AND "breast cancer" OR "breast carcinoma". All the search papers were reviewed according to the selected search strategy. In addition, reference research papers were also included in this review to expand the search.

Inclusion of articles 143 papers were identified using the computer literature search. Titles and abstracts of all the papers were reviewed using the inclusion and exclusion criteria. 4 papers were excluded for duplication, remaining 139 papers were reviewed and 12 papers related to the topic were included in this literature review. Full text versions of the articles related to the topic were reviewed. No language,

age or gender restriction was applied. All papers from the year 2010 to 2020 were included in the literature search. Exclusion criteria included duplicate papers, poster presentations, papers not related to the topic, papers on other types of cancers, papers only addressing treatment options for breast cancer and papers on psychological effect of cancer on patients. The article selection process is given in Figure 1.
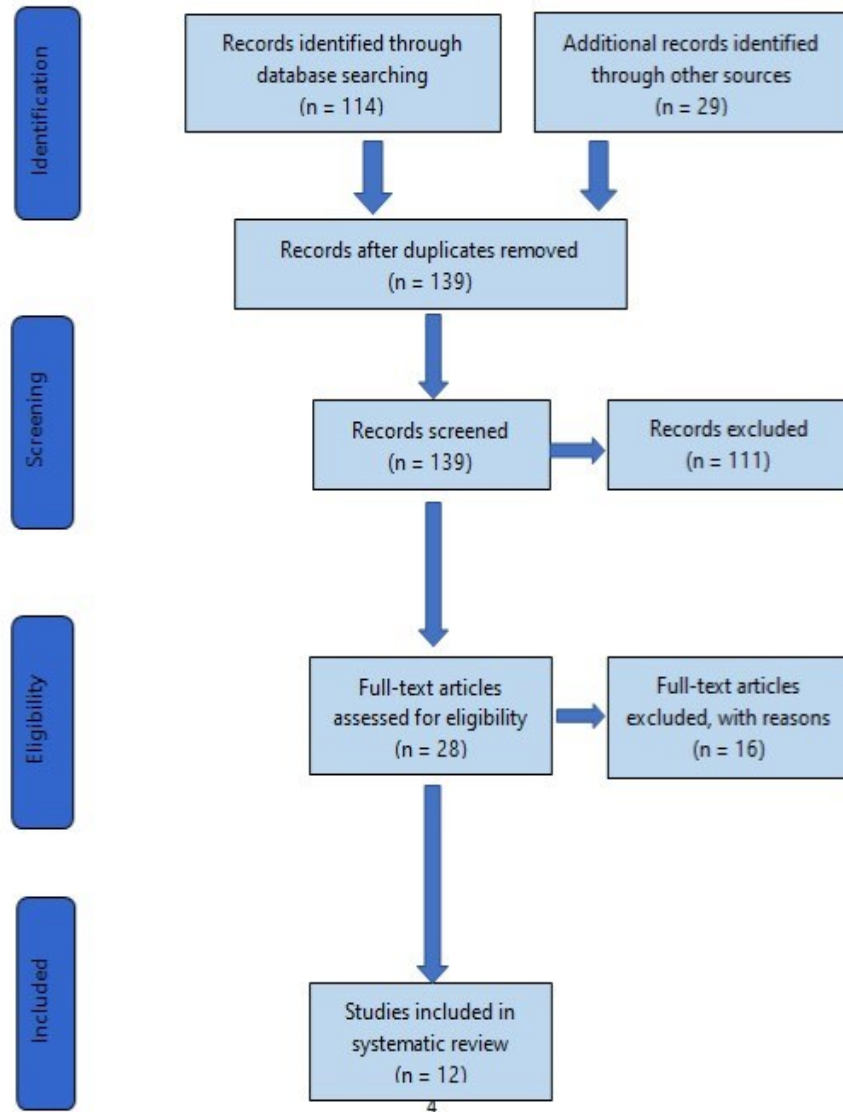

Figure 1: Article selection process through computer literature search

Data extraction and analysis: Thematic analysis of each eligible paper was done. Information about year of origin, author name, country of origin, method of study and theme identified was collected and coded. Barriers that delay presentation and diagnosis of breast cancer patients were identified and coded. The themes identified through analysis of the data are given in Table 1.

RESULTS

143 papers were identified through comprehensive computer literature search. Titles and abstracts of 139 papers were reviewed following removal of 4 duplicate articles. 28 papers related to the topic were thoroughly analyzed and 12 papers were included in this review. Themes identified in the included papers are coded in Table 1.

Year	Author	Country	Research Method	Themes Identified
2012	Sharma (Sharma et al, 2012)	USA	Systematic literature review	Increased access to health care facility and breast cancer awareness can enhance early diagnosis of cancer.
2013	Martins (Martins et al, 2013)	UK	Systematic literature review	Ethnic minorities are diagnosed later especially patients with breast cancer.
2014	Jones (Jones et al, 2014)	UK	Systematic literature review	In UK black women present with advanced stage more frequently than white women. They are also less likely to self-examine breasts and access screening for early detection. Fear of partner abandonment is a concern raised by women before surgical intervention.
2015	Donker (Donker et al, 2015)	Ghana	Systematic literature review	A complex matrix of factors delay presentation in Africa. Lack of awareness, alternate treatment and lack of healthcare facilities primarily delay presentation.
2017	Carolina (Carolina et al, 2017)	France	Systematic literature review	Delayed presentation and diagnosis are associated with poorer outcomes. Creating awareness can increase tendency of early diagnosis and referral and admission to health care facility for timely care.
2018	Baig (Baig et al, 2018)	Pakistan	Cross-sectional study of 89 patients Aged 25-64 years	Lack of awareness and health care facilities major barriers identified.
2019	Dong (Dong et al, 2019)	USA	Retrospective cohort study of 377 patients of stage I to stage IV breast cancer	Clinical and non-clinical factors which are associated with delaying the timely treatment benchmarks.
2019	Gulzar (Gulzar et al, 2019)	Pakistan	Retrospective study of 200 patients	Lack of awareness, illiteracy and poor social status are major presentation delaying factors.
2019	Brand (Brand et al, 2019)	USA	Systematic literature review	Studies on breast cancer and standardization of reporting delaying factors are required in developing countries.
2020	Naomi (Naomi et al, 2020)	USA	Retrospective cross-sectional study of 177,075 women	Racial minorities present at advanced stage receive aggressive treatment and poorer outcomes. Lack of health insurance is seen to have strong association with delayed presentation in developed countries.
2020	Sharma (Sharma et al, 2020)	India	Prospective study of 360 patients	Low educational status, fear of treatment, misinterpretation of symptoms and lack of awareness about disease are major reasons of delayed presentation.
2020	Agodirin (Agodirin et al, 2020)	Nigeria	Meta-analysis review of 236 articles	Misinterpretation of symptoms and fear related factors are most prevalent delaying factors in Africa.

Table 1 Thematic analysis of the 12 included studies summarized in the table

Several different factors are seen to be responsible for delayed presentation of breast cancer patients. These overlapping factors can broadly be classified as personal, sociocultural and economic [26]. The role of these factors in delaying the initiation of effective treatment is seen to be variable in developed and developing countries. The role of these factors is also seen to vary over time, geographic regions and appropriate interventions [30]. Understanding of these factors and their influence is crucial to effectively deal with modifiable factors and reduce the number of delayed and advanced stage presentations.

PERSONAL FACTORS:

Role of personal factors like age, marital status, ethnicity, personal history and family history is variable in developed and developing countries. Personal factors are not modifiable. Ramirez et al concluded that in developed countries there is strong association with older age, moderate association with educational status, non-white ethnicity, clinical presentation and non-disclosure of carcinoma symptoms and no association of marital status with the patient delay [25]. Younger age, lower income, positive family history and co-morbidities are all seen to be associated with missing the surgery or hormone therapy benchmark [31].

However, in developing countries strong association of positive family history, lower educational status and marital status (being unmarried/widowed/divorced) is seen in patient delay. There is evidence of moderate association of older age and clinical presentation to cause patient delay [26].

Age: Younger population is much more commonly affected in developing countries than in developed countries [18]. Breast cancer is generally not suspected in younger population and delay in diagnosis is observed by clinicians [32,33]. Younger population has aggressive presentation of breast cancer. They present with rapidly growing, high grade and negative hormone receptor types of breast cancer [34]. It makes chemotherapy more likely in younger population. In addition, breast cancer diagnosis in younger population

increases the risk of loss of fertility and normal ovarian function [35].

Ethnicity: In United States (US) racial or ethnic minorities present at a later stage and are reported to have higher morbidity and mortality rates [36]. Minorities in US have overall poor prognosis and poor quality of life [37,38]. In a study it is seen in US that 58% of the patients presenting at late stage were unmarried and 31% had less than high school education. It is also seen in the same study that 17% of Non-Hispanic Black women, 16% Hispanic and 15% American Indian and Alaskan natives were diagnosed at an advanced stage (stage III) compared with only 12% Non-Hispanic White and Asian women [14]. In UK black women are more likely to present at an advanced stage with metastatic disease and have poorer outcomes despite lower incidence than white women [39]. This disparity is seen in US and UK due to lower access and uptake of screening in black women than white women of both nations [40].

Knowledge of risk factors and ignorance of symptoms: Lack of knowledge of risk factors and ignorance of initial symptoms is associated with presentation delay and lack of motivation for self-examination of breast [41]. Ethnic minorities in US have less knowledge about risk factors and their potential to develop the disease. In UK only few women without breast cancer have the knowledge about increased risk of breast cancer in women above 70 years of age [42]. African-American and black women have lesser knowledge about increased risk of developing breast cancer if there is positive history in their mothers [41]. Many women in UK are seen to ignore the significance of their symptoms such as pain [41]. African- American women are seen to tolerate their symptoms and present for examination upon worsening of symptoms [43].

Gulzar et al, concluded that in Pakistan most patients presented with more than one symptom such as painless breast lump (81.1%), axillary node (4.25%), nipple discharge (3.2%) or signs of inflammation (2.1%) but due to ignorance of these symptoms' patients presented late. It was also concluded that marital status has strong association (99.2%) with delay as married women have responsibilities at home and they show lack of interest in their own health issues [6]. Baig et al, concluded that majority women delayed presentation as they believed initial symptoms were not significant [21].

SOCIOCULTURAL FACTORS:

Patient delay is influenced primarily by lack of awareness about symptoms and significance of breast self-examination, fear of the treatment especially mastectomy, preference of alternate treatments and lack of social support. Fear of mastectomy is the most common fear related factor. Herbal medicine and spiritual methods are used as alternate treatment options and both are preferred over orthodox medical treatment. In addition, use of herbal medicine is preferred over spiritual methods of care. Advice from family regarding treatment is a common social barrier [30]. However, sociocultural barriers are modifiable.

Sociocultural factors play a significant role in patient delay in developing countries. 34% women in Nigeria and 66% in Zimbabwe linked their delay to lack of awareness [44,45]. In Ghana 11% patients delayed presentation due to fear of diagnosis and 20% due to use of herbal medicine [46]. A study shows that symptom misinterpretation accounts for 50%, fear of diagnosis and treatment accounts for 16% and alternative treatment accounts for 10 % patient delay [30]. It also concluded that advice from family was the most significant social barrier [30].

Awareness and patient education: Lack of awareness about significance of breast self-examination, risk factors, symptoms, early detection though screening and treatment options are consistent findings among majority women. Women unaware of the symptoms lacked confidence for breast self-examination in US [47]. In UK white women are reported to self-examine more frequently than black women [42]. Lack of awareness about symptoms leads to ignorance of initial symptoms. Ignorance of pain due to lack of knowledge is seen to delay presentation in African-American women till the symptoms become intolerable [41]. Breast carcinoma is the second leading cancer related cause of death in US [31,48]. However, its incidence and mortality are reducing in US due to increase in awareness and patient education, early detection through screening and evidence-based treatment [49,50].

Agodirin et al, concluded that symptom misinterpretation is the dominant continent-wide delaying factor in Africa [30]. Before 2010 lack of awareness causing symptom misinterpretation (80%) was the most prevalent delaying factor in Africa, however, after 2010 characterizing symptoms as benign lesions (79%) has become dominant [30]. It indicates that awareness about occurrence of breast cancer has increased in Africa [51]. Gulzar et al, reported that in Pakistan 96% patients delayed presentation due to lack of awareness about symptoms, 73% due to shyness of examination by male doctor, 71% due to use of alternate herbal treatment, 65% due to stigmatization of the disease and 61% due to treatment by spiritual healers [6]. In Pakistan a number of studies have reported that lack of awareness about breast cancer, breast self-examination, and misinterpretation of symptoms contribute in delayed presentation [52,53]. Baig et al, concluded that lack of awareness is the most prevalent factor of delayed presentation in Pakistan [21].

Stigma, fear of examination and treatment: Stigma of breast cancer has appeared as a salient feature in US and UK. In US shorter delay is reported in women who disclose to others [54]. Fear of mastectomy is the most common fear related factor. Dong et al, concluded that patients who were recommended mastectomy did not meet the 45-day time to surgery benchmark. Similarly, patients presenting at advanced stage did not meet the chemotherapy benchmark

[31]. Patients recommended mastectomy had 3-fold greater delay than those recommended lumpectomies [31]. Fear of treatment is a dominant delaying factor in Africa and is seen to be responsible for delayed presentation of black women in developed countries as well [55]. Delay due to fear of treatment usually results in presentation at an advanced stage and more aggressive multidisciplinary treatment [30]. Nearly half of the patient delays were due to non-clinical issues such as seeking second opinion, indecision and family issues [31].

Donker et al, reported that late presentation of breast cancer in Africa is attributed to fear related factors and concluded that symptom misinterpretation is a regional problem [56]. However, Agodirin et al, concluded that symptom misinterpretation is a continent-wide problem and is much more dominant factor than fear related reasons of delayed presentation [30]. In West Africa pursuing alternate treatment options is a common practice probably due to fear related factors.

Social factors: Fear of partner abandonment is a common social barrier seen to delay presentation and seek help in African-American and white women [57]. Lack of support and fear of partner abandonment were significant factors raised during discussion of physical effects of surgery 41. In US family obligations are not seen to hinder presentation of patients [43].

In developing countries advice from family is the most significant social barrier [30]. Women is Pakistan have a key role in the family system [53]. They show lack of interest in their own health problems, in addition other factors such as fear of examination by male doctors, advice from family and shyness are also observed [58]. However, these factors are seen to become secondary once the diagnosed patients become aware about their health status and the disease [21].

ECONOMIC FACTORS:

Role of economic factors like high cost of treatment, high cost of travel to health care facility, access to health care facility, monthly income, and educational status is variable in developed and developing countries.

Health insurance: In developed countries health insurance plays a significant role in patient delay and treatment outcomes [59]. Patients without insurance lack prevention, screening access for early diagnosis and appropriate care, thus presenting at an advanced stage and having worse outcomes in terms of morbidity and mortality [60]. Naomi et al concluded that racial/ethnic minorities in US present at an advanced stage due to lack of health insurance. It was also demonstrated that 31% patients had less than high school education and 27% patients had low median income [14]. Diagnosis at a late stage is linked with high cost of treatment. Mittmann et al, concluded that cost of treatment of breast cancer is increased by stage [61]. Treatment of stage III patients is 58% more costly than stage I or stage II patients

[62]. Gorey concluded that bias in health insurance in US is responsible for worse breast cancer outcomes, whereas in Canada due to universal health coverage this disparity is absent [63]. Jemal et al, demonstrated early-stage presentation in low-income patients when provided with health insurance [64]. Dong et al, demonstrated that patients with low income, lack of health insurance, advanced stage cancer and mastectomy surgery type did not meet the 45-day time line to surgery or 1-year hormone therapy benchmark [31].

Personal	Sociocultural	Economic
Age of the patient	Awareness about symptoms and importance of breast self-examination	High cost of treatment
Marital status	Alternate treatment options	High cost of travel to health care facility
Ethnicity / Race	Stigma	Access to health care facility
Clinical presentation of the patient/ Risk factors	Fear of examination by the doctor and fear of treatment	Income
Personal history of the patient	Denial	Educational status
Family history of the patient	Social support	Patient obligations at home

Table 2: A brief overview of personal, sociocultural and economic factors

Poverty and cost of treatment/travel: Infrastructure of developing countries for cancer prevention is non-existent or inadequate in quality, quantity and accessibility [26]. Sharma et al, concluded that poverty is the most common delaying factor in developing countries. Patient delay is commonly associated with low income, low education status, rural residency and lack of access to health care provider in developing countries [26]. In West Africa due to false belief of cheaper treatment, alternate care is pursued [30]. Gulzar et al, reported that in Pakistan 81% patients delayed presentation due to fear of high cost of treatment and 37% due to lack of access to health care facility [6]. Baig et al, demonstrated in a study that patients (63%) belonging to the rural areas had concerns regarding cost of treatment and cost of travel to health care facility [21].

Access to health care facility and education of health care providers: In UK access to health care facility is not seen to hinder presentation in black or white women [41]. However, booking appointment is seen as a more significant barrier than transport problems [42].

In developing countries health care providers should be educated about the significance of triple assessment: clinical examination, radiological evaluation and pathological examination. It can significantly increase the rate of accurate diagnosis, help in quick referral to oncologist and timely

initiation of effective treatment [30]. Education about the symptoms of breast cancer in young and old population is crucial for timely diagnosis. In North Africa misdiagnosis and lack of referral are second most common delaying factors 30. In West Africa and East and Central Africa access to health care is major delaying factor [51]. Baig et al, concluded that lack of access to health care systems is second major contributor of delayed presentations in Pakistan. [21]

DISCUSSION:

Breast cancer is a major health problem worldwide[1]. Alarming rise in its incidence necessitates adoption of steps that can be taken to reduce mortality rate. Variation in its incidence and mortality rates in developed and developing countries may be explained by difference in lifestyle and factors that delay patient presentation. Delayed presentation of breast cancer patients is associated with advanced stage diagnosis and poorer outcomes [14].
This review was aimed to identify major factors that delay presentation in developed and developing countries. On analysis it was found that advance stage presentation can be due to patient delay or provider delay. Patient delay refers to time interval between appearance of initial symptoms and presentation to a health care provider and it is defined as a span greater than 3 months [13]. While, provider delay is the interval between patient presentation to health care provider and start of oncological treatment [26]. Delay in presentation is a significant concern as it is associated with advanced stage diagnosis.

Factors which are seen to delay presentation are overlapping and can be broadly characterized as personal, sociocultural and economic [26]. The role of these factors in delaying presentation is seen to vary in developed and developing countries. These barriers also vary over time, geographic regions and on appropriate interventions [30]. Hence, the role of these barriers cannot be extrapolated from one region to another as different studies have demonstrated contradicting results.

In developed countries like US and UK racial/ ethnic minorities are seen to present at an advanced stage [14]. Advance stage diagnosis, aggressive multidisciplinary treatment, poorer quality of life and high mortality rates are more common in racial minorities of developed countries. Age, marital status, personal history and family history have association with delayed presentation for treatment [31]. Modifiable sociocultural factors are major barriers to presentation. Following the adoption of cancer control programs in developed countries delay due to sociocultural barriers is significantly reduced. Patient education, awareness about cancer and early detection through screening have reduced symptom misinterpretation, fear of diagnosis, fear of treatment and stigmatization of the

disease. However, fear of treatment especially mastectomy or diagnosis at advanced stage are still reported to delay presentation [31]. Fear of treatment in developed countries is more prevalent in racial minorities especially black women. Economic factors play a significant role in patient and treatment delay in developed countries. Majority patients with delayed presentation and advanced stage diagnosis in developed countries have low educational status, low income and lack of health insurance. Patients delay presentation due to lack of health insurance and are diagnosed at advanced stage. Treatment cost increases with stage of the breast cancer at time of diagnosis. Treatment of stage III breast cancer is 58% more costly than stage I or stage II treatment [62]. Racial/ethnic minorities in US lack health insurance, hence present at an advanced stage.

In developing countries, a strong association of certain personal factors is seen to be responsible for delayed presentation in some regions. Age, marital status, misinterpretation of clinical symptoms and family history are seen to have strong association in delayed presentation. In developing countries younger population is more commonly affected than in developed countries [1,21]. Lack of awareness and less suspicion of breast cancer in young people is responsible for misdiagnosis and advanced stage presentation. Sociocultural factors play key role in delaying presentation in several developing countries. Due to lack of resources cancer control programs are not fully adopted in developing countries. Lack of awareness and fear related barriers are seen to be most prevalent sociocultural factors in developing countries [30]. These two barriers have been seen to influence presentation of racial/ethnic minorities settled in high-income countries. Lack of awareness, use of alternate treatment, anxiety, fear related problems and lack of social support are key factors to delay presentations in different developing countries. Infrastructure of developing countries is inadequate to reduce economic barriers. High cost of treatment is significant barrier to presentation. Low income, low educational status, lack of access to health care and high cost of treatment are major barriers in moderate-income and low-income countries 6.

Early stage diagnosis is significant for patients, their family and also the society. Diagnosis at an advanced stage negatively impacts patients and their families. Lack of health insurance in developed countries is associated with lack of prevention, screening and care [14]. Patients diagnosed at an advanced stage receive more aggressive treatment with overall poorer quality of life. Patient and provider related barriers are modifiable to varying extent. Fear of mastectomy or advanced stage diagnosis are seen to delay the treatment benchmark [31]. Gulshan et al proposed that mastectomy and concomitant reconstructive surgery could reduce delay in treatment [65]. Multidisciplinary approach is also proposed to reduce treatment delay [66].

Delay of 3-6 months is associated with large tumor size, advanced stage at presentation and poorer outcomes. Jassem et al, concluded that delay is seen to be lesser in women living in urban areas, with intermediate level of education or in those who work [67]. Factors linked to delayed presentation have a diverse distribution in Africa [30]. A study conducted in sub-Saharan Africa concluded that 90% patients present at stage III or stage IV, with large tumors and palpable nodal masses. Diagnosis at this stage has minimal survival rate even with optimal Western treatment [26].

The barriers responsible for presentation delay in developing countries have a very diverse distribution. Several studies have reported contradicting results due to which the findings cannot be generalized. However, taking essential steps to reduce the influence of modifiable factors is developing countries is crucial, owing to alarming raise in incidence rate and mortality rate in developing countries.

LIMITATIONS:

This review is subject to quality and limitations of previously published data. Most of the research is done in developed countries. Several studies propose contradicting results. The findings of developed countries cannot be generalized in developing countries. Limited studies are done on this topic in developing countries. Due to social, cultural and economic differences, findings of developing countries cannot be generalized from one area to another. Variation in role of personal, sociocultural and economic barriers is seen amongst developing countries. In addition, certain studies are done on a specific age group which may not be reflective of general population.

RECOMMENDATIONS:

Analysis of the literature has identified several factors responsible for delayed presentation of breast cancer patients. Certain steps can be adopted to reduce this delay in future:

• Awareness about risk of genetic inheritance can reduce delayed presentation in patients with positive family history.
• Awareness about symptoms, risk factors, importance of breast self-examination and disease can significantly reduce delayed presentation.

• Stigmatization that breast cancer is incurable or is not treatable can be reduced by creating awareness about available treatment options and their effectiveness.
• Increase the number of female doctors especially in rural areas to reduce fear related to examination by male doctor.
• Easy access to affordable health care facilities should be provided especially in rural areas, towns or small cities.
• Breast cancer awareness and control programs should be initiated in developing countries to reduce the effect of modifiable barriers.
• Screening tests for early detection of breast cancer should be made available in all health care facilities.
• Education of clinicians about significance of triple examination, common signs and symptoms and quick referral to oncologist can significantly reduce provider related delay.
• Concomitant breast reconstructive surgery can reduce the delay in treatment due to fear of mastectomy.
• Multidisciplinary approach can reduce delay in chemotherapy or surgical intervention due to fear of treatment.
• Availability of health insurance can reduce the disparity seen in racial minorities of developed countries.

CONCLUSION:

Breast cancer incidence is significantly rising in women worldwide. Early presentation in breast cancer is crucial for its management. Delay in presentation of over 3 months from the time of appearance of initial symptoms is associated with poorer outcomes and higher mortality rate. Several personal, sociocultural and economic factors are observed to play a role in delaying presentation. The distribution of these barriers is diverse over geographic regions. Social, cultural and economic differences make it complex to generalize the role of these barriers to early presentation. However, in developed countries cancer control programs have significantly reduced delays due to sociocultural factors. While economic factors are seen to play a crucial role in delaying presentation. In developing countries, a variation is seen in role of sociocultural and economic factors. Nonetheless, fear related problems, lack of awareness and poverty are seen to be most prevalent.

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