International Journal Dental and Medical Sciences Research
Volume 3, Issue 5, pp: 1486-1496 www.ijdmsrjournal.com ISSN: 2582-6018

.Awareness and Acceptability of Breast Reconstruction among female physician about Breast Cancer: a prospective survey

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Date of Submission: 18-11-2021 Date of Acceptance: 01-12-2021

ABSTRACT

Background: Breast Conserving Surgery (BCS) is oncologically safe for eligible patients with breast cancer and has enormous physical and psychological benefits. Despite this, the mastectomy rate in many centres is still very high. Female physician awareness would have great impact on patients eligible for breast conservation seeking expert opinion. **Methodology:** Questionnaires were administered to 235 female physicians in JA group of Teaching Hospital and other private practitioners using convenient sampling. Feedback responses of 219 adequately filled questionnaires were extracted. Association between the acceptance of BCS versus its awareness, equivalence to TM and years of medical practice were tested using Chi-square probability test. **Result:** The 219 participants had good representation of junior and senior female physician among whom 80.4% were at least 45 years old. The female physicians were mostly general medical practitioners (76.7%) and 49.3% had practiced for duration not less than 10 years of age. The 126 (57.5%) female physicians, who described BCS as the surgical removal of a cancerous breast lump short of mastectomy, were considered to be aware of BCS irrespective of their understanding of complementary treatment modalities, eligibilities, comparative advantages to TM and certainty of its oncologic safety. A lack of ready access to radiotherapy centres (54.3%) were recognised respectively as major local challenges affirmed by 44.3% of the female physicians. A higher and significant level of acceptance of BCS was noted among those aware of its oncologic equivalence to TM (p-value = 0.000)

Conclusion: This study demonstrated gaps in knowledge of BCS among female physicians. This affected their perception and acceptance of BCS and will inevitably interfere with their ability to adequately counsel those seeking their expert opinion.

KEYWORDS: Breast Cancer, Breast Conservation surgery (BCS), Female physician, Awareness & Perception.

I. INTRODUCTION

Breast cancer is the most common tumour among women globally and also the commonest cause of cancer death in women (Coleman *et al.*, 2008; Akram *et al.*, 2017). It is a global health challenge with a rising incidence both in rural and urban India. A 2018 report of Breast Cancer statistics recorded 1, 62,468 new registered cases and 87,090 reported deaths (Statistics of Breast Cancer in India, 2018). Worldwide, the gold standard for treating localized and operable breast cancer is surgery – mastectomy or breast conserving surgery (BCS) (Biganzoli *et al.*, 2012). While total mastectomy (TM) refers to removal of the entire breast, BCS preserves the portion of the patient's breast that is uninvolved. BCS is best defined as any surgical intervention in the breast short of total mastectomy aimed at removal of the primary breast tumour with an envelope of adequate margin of grossly normal appearing surrounding breast tissues (Dorval *et al.*, 1998). Other terms used for this breast operation include: lumpectomy, wide local excision, quadrantectomy, segmental mastectomy (segmentectomy), partial mastectomy and tylectomy (Dorval *et al.*, 1998). This therapy is usually followed by the assessment of regional lymph node status and/or dissection/clearance through a separate incision in the axilla, adjuvant radiotherapy to the breast, chemotherapy (adjuvant or neoadjuvant), hormonal therapy or immune therapy if indicated (Fisher, 1998; Fisher *et al.*, 2002; Newton and Washington, 2003). The practice of BCS is borne out of the pressing desire to preserve the native breast and several meta-analyses that demonstrated

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Volume 3, Issue 5, pp: 1486-1496 www.ijdmsrjournal.com ISSN: 2582-6018

oncological equivalence to TM (no difference in overall survival and recurrence rates) in early stage breast cancers (Arriagada *et al.,* 1996; van Dongen *et al.,* 2000; Fisher *et al.,* 2002; Morrow *et al.,* 2002; Mahmood *et al.,* 2012). Preserving a woman's breast has a huge psychological and physical impact on her body image, nude appearance and sexuality all of which significantly improve her quality of life (QOL) (Coleman *et al.,* 2008; Akram *et al.,* 2017).

The indications for BCS have been updated severally leaving fewer contraindications, enhanced by response to neoadjuvant chemotherapy and the improved cosmetic outcomes of oncoplastic surgeries (Bajaj *et al.,* 2004; Chen *et al.,* 2004; Mieog *et al.,* 2007). The major indications now includes: patient's choice and willingness (to undergo radiotherapy and postoperative surveillance protocol), oncological feasibility and absence of contraindications to radiation therapy. Contraindications includes patient's refusal and lack of motivation, unattainable free surgical margins (eg multifocal/multicentric tumours, extensive calcifications), increase likelihood of poor cosmesis after BCS (eg very large tumour relative to breast size), known genetic susceptibility and when radiotherapy is contraindicated or not feasible (Morrow, 2005; Fajdic *et al.,* 2013). In developing countries as India, local issues such as ignorance, rural location, lack of oncoplastic surgical expertise and issues with radiotherapy (availability, affordability, facility crowding and delays) are given due consideration in the decision making for breast conservation. While BCS is considered less invasive than mastectomy, it is not without complication. Complications include reoperation for positive margins, poor cosmetic outcomes, breast deformities (volumetric, retraction, contour), chronic pain syndromes, higher risk of in-breast recurrence and anxieties over possible recurrence and remnant cancer (Singletary, 2002). Some of the benefits of BCS may also not apply to a pendulous breast (Singletary, 2002).

Despite the enormous advantages of BCS, its increasing eligibility and the innate feminine desire for breast preservation, the mastectomy rate in many countries is relatively high (Dragun *et al.,* 2012; Kummerow *et al., 2015*). Evidence from local experience shows an overwhelmingly high mastectomy rate, and many women opt for mastectomy for the wrong reasons and are thus deprived of the benefits of breast preservation. Factors contributing to the high mastectomy rates include misinformation, wrong beliefs and exaggerated fears, in addition to late presentation which leads to a more advanced disease pattern at presentation (Nair NS *et al.,* 2021 and Surana et al., 2021.

Majority of women with breast cancer in India are relatively young (Surana et al., 2021). Mastectomy, which is the most common surgical treatment for breast cancer in India, will definitely raise psychological concerns for these women (Nair NS *et al.,* 2021 and Surana et al., 2021) explored the experiences of young Indian women after mastectomy in a study and observed that many of the women who had mastectomy wished they had BCS or breast reconstruction after mastectomy. In another study in Singapore, nearly one-fifth of women regretted their decision to undergo mastectomy and felt that they would choose BCT if they had the opportunity to choose again (Lee *et al.,* 2018). These desires reflect the innate feminine satisfaction of having a breast or its semblance. For eligible females, the decision for BCS versus mastectomy involves several determinants such as age, personal beliefs, personal preference, education, comfort level, situational awareness, quality and appropriateness of available care, geographical location, ethnicity, religion and the influence of managing clinicians. Wrong perception often leads to wrong decision making. Some patients believe that TM is a safer approach just because it is a more extensive surgery and therefore assumes it should provide a guarantee for lower recurrence or help them to avoid chemotherapy (Teh *et al.,* 2014; Gu *et al.,* 2017). Non-acceptance of TM is also largely responsible for the delays in presentation, defaults from follow up care, discharges against medical advice and delayed surgical treatment in India (Nair NS *et al.,* 2021, Surana et al., 2021 and Gupta A et al 2014). Female physicians as frontline staffs in the healthcare setting have great contact with the female patients. They use best available evidence in their judgements to influence key decisions within the healthcare system (Thomson *et al*., 2004). The level of their awareness would have great impact; as patients tend to ask them lots of questions. Therefore, this study aims to explore BCS awareness and perception among female physicians.

II. MATERIALS AND METHODS

This was a questionnaire based exploratory survey of female physicians in JA group of Teaching Hospital and other private practitioners carried out in 2021 between April and August, following ethical approval by G R Medical College & JA group of hospital ethical and research committee. **Study Design:** Prospective exploratory study

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Study Location: JA group of Teaching Hospital and other private practitioners of Gwalior district, Madhya Pradesh state. **Study Duration:** April to August 2021.
Sample size: 219 female physicians.
Sample size calculation: The sample size (n) for this study was taking with our convenience and female physicians who had given their consent. The number of questionnaires distributed was adjusted to 235.
Subject Eligibility: 155 female physicians in the hospital and 80 of doing private practitioners were considered eligible for participation unless they decline consent.
Inclusion: female physicians in the various specialities of JA group of hospital and private practitioners.
Exclusion: Those who declined consent to participate in the study.
Procedure and Methodology: Questionnaires were administered to the female physicians using convenient sampling to over a period of 5 months. The questionnaires had three (3) sections comprising of open and close ended questions. Section 1 contained information on the socio-demographic characteristics of the female physicians, area of specialization and number of years in practice. Section 2 explored the awareness and knowledge of the female physicians of BCS as a treatment option for breast cancer and included information on alternative descriptive terminologies for BCS, complementary treatment modalities to BCS, eligibility for BCS, its perceived advantages and disadvantages in comparison to TM, participation of the female physicians in managing a patient who had breast conserving surgery for breast cancer, as well as local challenges with the practice of breast conservation. Section 3 assessed the acceptance of BCS by the female physicians as a treatment option for breast cancer and the factors that might influence an individual's choice of BCS viz-a-viz mastectomy. A total of 235 questionnaires were retrieved and 16 of these questionnaires which were either blank or inadequately filled were excluded from the analysis.
Data Collation and Analysis: Information extracted from 219 adequately filled questionnaires were entered into an IBM SPSS Statistics Data Document (version 21) and analysed. Categorical variables were presented in counts and percentages. Association between the acceptance of BCS versus its awareness, equivalence to TM and years of medical practice were tested using Chi-square probability test and a p-value of <0.05 was considered statistically significant.

III. RESULTS

Demographics of Participants

Demographic characteristics of the participant female physicians shown in table 1 and figure 1 reveal that the majority were at least 45 years (80.4%), married (82.2%), Hindu (92.7%) and a good representation of junior and senior female physicians. Most participants were specialised in various specialization with only a handful of other specialist female physicians. Nearly half of the female physicians (49.3%) had practiced for duration not less than 10 years and 78.5% were spread across the departments of medicine, surgery, paediatric and O&G and others .

Table 1: Social Demographic, Specialization and year of practice Characteristics of the Participants

Characteristics	Number (n =219)	Percentage (%)	Cumulative Percentage (%)
Age Group			
25-30	14	6.4	6.4
31-35	25	11.4	17.8
36-40	61	27.9	45.7
41-45	46	21.0	66.7
45-50	30	13.7	80.4
> 50	43	19.6	100.0
Marital Status	37	16.9	16.9
Single	180	82.2	99.1
Married	2	0.9	100.0
Widowed/Divorced			
Religion	203	92.7	92.7
Hindu	3	1.4	94.1
Muslim	13	5.9	100.0
Others			

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Area of Practice General Practitioners Medicine Surgery Paediatric O&G Anaesthesia Others [including non practitioners and non clinical]	54 51 36 31 10 35 2	24.7 23.3 16.4 14.2 4.6 16.0 0.9	24.7 47.9 64.3 78.5 83.1 99.1 100.0
Years of Practice 1-3 4-6 7-9 10 above	32 44 35 108	14.6 20.1 16.0 49.3	14.6 34.7 50.7 100.0

Perception (Awareness and Knowledge) of BCS versus Mastectomy

Table 2 demonstrated the perception of the female physicians on BCS viz-a-viz total mastectomy (TM). More than two third of participants were familiar with the term 'BCS' and aware of its use as a treatment option for breast cancer. 126 (57.5%) female physicians described BCS as the surgical removal of a cancerous breast lump short of mastectomy. This category was considered to be aware of BCS irrespective of their understanding of complementary treatment modalities, eligibilities, advantages and oncologic safety. BCS was also called lumpectomy, partial mastectomy, WLE, excision biopsy, quadrantectomy and segmental mastectomy in 42%, 34.2%, 26%, 21%, 20.1% and 17.8% of participants respectively. Chemotherapy (55.7%) and radiotherapy (48.9%) were recognised by most participants as additional treatment modalities after a BCS; followed by axillary surgery/dissection (16.4%), hormonal therapy (10%) and immune therapy (3.2%).

On the superiority of BCS compared to TM, 62.1% believe it will improve psychological well being and QOL of the patient, 33.3% believed it will preserve the woman's nude appearance or beauty and 26.9% believed it preserves the native breast. On the contrary, 70.3% believed TM will lower local recurrence rate compared to BCS and 12.8% erroneously agreed there is no need for further treatment after a TM. Early stage and small size breast cancers were considered by many (71.2% and 54.8%) as eligibility criteria for BCS. 55.3%, 52.5% and 8.2 % respectively attributed their fears for BCS to fear of recurrence, undue anxieties over recurrence and poor cosmesis. A lack of ready access to radiotherapy centres (54.3%) and delay/overcrowding of these facilities (42.5%) were recognised as the major local challenges to the practice of BCS while delayed presentation and ignorance were implicated in 25.5% and 14.6% of the participants.

The equivalence of BCS to TM was affirmed by 44.3% of the female physicians; while 41.6% did not and 8.7% were unsure. 35.6% of the female physicians had participated in the management of patient who had BCS while 3 in 5 female physicians had not. 65.3% of the participants believed there is paucity of information to make an informed decision for BCS. The major determinants for choosing between BCS and TM were believed to be personal opinion and preference (82.6%), income and finance (70.8%), surgical expertise (69.8%), level of education (64.4%), previous experiences (63.9%), social status (58.9%), age (58.9%) and traditional belief (50.7%).

Table 2: Perception (Awareness and Knowledge) of BCS versus Mastectomy

Variables & Frequency No(%)	Response						
Familiarity with the Term "BCS" Frequency (%)	Yes				No		NR
	158(72.1)				52(24.2)		8(3.7)
Awareness of BCS as Treatment for BC Frequency (%)	Yes		No		Don't know		NR
	161(73.5)		35(16.0)		14(6.4)		9(4.1)
Definition of BCS Frequency (%)	Right		Wrong		No idea		NR
	126(57.5)		41(18.7)		7(3.2)		45(20.5)
Other Names for BCS Frequency (%)	Ex.B	L	WLE	Quad	SM	PM	Os
	46(21)	92(42)	57(26)	44(20.1)	39(17.8)	75(34.2)	8(3.7)
Added Modalities to BCS	ASD	RT	Chemo	HT	IT	None	

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Frequency (%)	36(16.4)	107(48.9)	122(55.7)	22(10)	7(3.2)	3(1.4)

Advantages of BCS over TM Frequency (%)	PNB	PNAB	IPWQL	None	Os
	59(26.9)	73(33.3)	136(62.1)	8(3.7)	2(0.9)

Advantages of TM over BCS Frequency (%)	Lower LRR	No Further treatment	None	Os
	154 (70.3)	28(12.8)	21(9.6)	2(0.9)

Eligibilities for BCS Frequency (%)	Early stage	All stages	Small tumour	Big tumour	Small breast	Large breast	Os
	156(71.2)	4(1.8)	120(54.8)	4(1.8)	6(2.7)	6(2.7)	2(0.9)

Fears with Practice of BCS Frequency (%)	Recurrence	Undue anxieties for recurrence	Poor cosmesis	Os
	121(55.3)	115(52.5)	18(8.2)	2(0.9)

Local Challenges with Practice of BCS Frequency (%)	No ready access to RT	Delays/ overcrowded RT centres	Ignorance	Delayed presentation	Os
	119(54.3)	93(42.5)	32(14.6)	55 (25.5)	4(1.8)

Equivalence of BCS to M Frequency (%)	Yes	No	Unsure	NR
	97 (44.3)	91(41.6)	19(8.7)	12(5.5)

Participation in BCS Cases Frequency (%)	Yes	No	NR
	78(35.6)	132(60.3)	9(4.1)

Adequate BCS Information for Informed Decision Frequency (%)	Yes	No	NR
	64(29.2)	143(5.3)	12(5.5)

Choice of BCS/TM	POP	TNE	RB	Age	LE	PE	GL	SE	SS	IF	Os
Yes	181	111	95	129	141	140	81	153	129	155	7
No	14	67	80	51	40	34	89	28	52	29	
NR	24	41	44	39	38	45	49	38	38	35	

BC: Breast Cancer; NR: No Response; ExB: Excision Biopsy; L: Lumpectomy; WLE: Wide Local Excision, Quad: Quadrantectomy; SM: Segmental Mastectomy; PM: Partial Mastectomy; Os: Others; ASD: Axillary sampling/ dissection; RT: Radiotherapy; Chemo: Chemotherapy; HT: Hormonal therapy; IT: Immune therapy; TM: Total Mastectomy; PNB: Preserve native breast; PNAB: Preservation of a woman's nude appearance and beauty; IPWQL: Improved psychological wellbeing and quality of life; LRR: Local Recurrence Risk; POP: Personal Opinion and Preference; TNE: Traditional Belief and Ethnicity RB: Religious Believe; LE: Level of Education; PE: Previous Experience; GL: Geographical Location; SE: Surgical Expertise; SS: Social Status; IF: Income/Finance

Acceptability of BCS and Association with its Awareness

More than a half of the participants (57.1%) will accept BCS or recommend it to eligible friends or relatives as shown in Figure 1. Table 3 shows no statistical association between those who accepted BCS as a treatment option and their awareness (as defined) or duration of medical practice. However, a significant correlation was observed between acceptance of BCS as a treatment option and awareness of its oncologic equivalence to TM. The knowledge and awareness of its oncologic equivalence to TM increased its acceptance among the female physician. Improved psychological satisfaction and QOL is top of the reasons for acceptance of BCS while recurrence is top of the reasons for non-acceptance. (Table 4)

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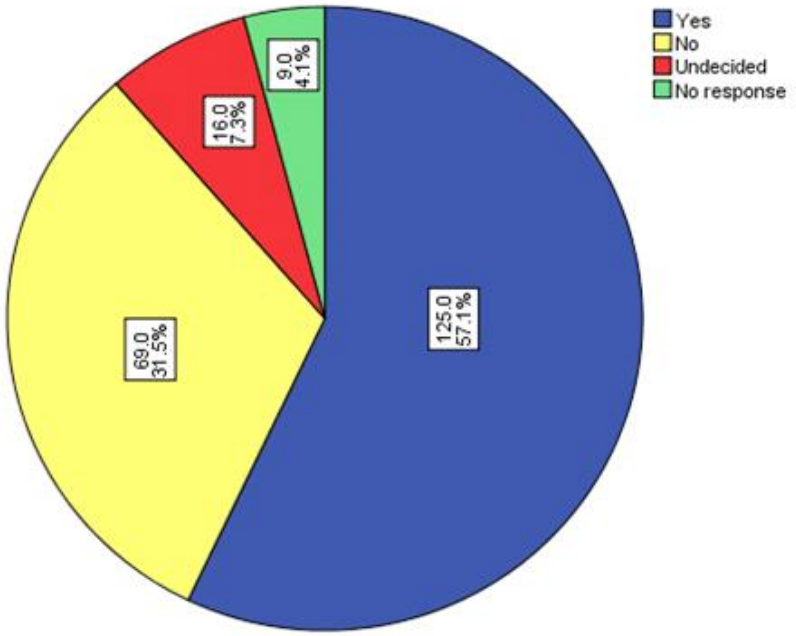

Figure 1: Acceptance of Breast Conservative Surgery

Table 3: Acceptance of BCS versus its Awareness, Years of Practice and Equivalence to TM

	Acceptance of BCS				X^2 P-value Inference
	Yes	No	Undecided/ No response	**Total**	
Awareness of BCS					
Aware	79	34	13	126	3.882 0.114 Not significant
Not Aware	46	35	12	93	
Total	125	69	25	219	
Years of Practice					
1-3	21	10	1	32	6.531 0.366 Not significant
4-6	27	14	3	44	
7-9	19	9	7	35	
10 above	58	36	14	108	
Total	125	69	25	219	
Equivalence to TM					
Yes	66	23	8	97	22.733 0.000 Significant
No	49	35	7	91	
Unaware/no response	10	11	10	31	
Total	125	69	25	219	

Table 4: Reason for Acceptance and Non-acceptance of BCS as Treatment Option

Acceptance	Frequency (%)
Preserve/conserve breast	19(8.7)
Beauty/cosmesis/nude appearance	21(9.6)
Improve psychology/satisfaction/quality of life	23(10.5)
Safe oncologic equivalence to mastectomy	11(5.0)
No specific reason	44(20.1)
Non applicable	94(42.9)
Others	7(3.2)
Non-acceptance	

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Recurrence	43(19.6)
Uncertainty of its oncologic safety	8(3.7)
Undue anxiety	4(1.8)
No specific reason	12(5.5)
Non applicable	149(68.0)
Others	3

IV. DISCUSSIONS

Breast conserving surgery (BCS) endorsed by National Institutes of Health Consensus Conference in 1990 has become the standard of excellence in breast cancer care (NIH Consensus Conference, 1991). In the US, accredited breast centres are measured based on the performance of BCS in the majority of women with early-stage breast cancer (National Accreditation Program for Breast Centres, 2013; Kummerow *et al.*, 2015). The routine practice of BCS in India is low and is beset by various challenges peculiar to resource-limited settings including inadequate and inappropriate knowledge/awareness, limitations posed by eligibility criteria as well as radiotherapy requirements, low demand, limitations of oncoplastic and reconstructive breast surgeries (Olasehinde *et al.*, 2019).

This study explored the understanding of 219 female physicians in a teaching hospital & private practitioners in Gwalior district of Madhya Pradesh State, on breast conserving surgery (BCS) and their willingness to accept or recommend it as an oncologically safe treatment option for early breast cancer. Participants consisted of female physicians mostly 45 years and below corresponding to the age where the concept of breast preservation is expectedly an interesting consideration. Nearly a half (49.3%) of the female physicians have been practising for duration not less than 10 years – a period of time reasonable to allow each female physician participate in management of a breast cancer woman with breast conservation modalities.

Despite claims of more than two third of the participants to have heard the term "BCS" and aware of its use as alternative to mastectomy to treat breast cancer, only 57.5% of female physicians could actually define or describe the concept in proper perspective. This was the category of female physicians considered to be aware of BCS in the context of this discussion. Other terms used to describe BCS in the literature and in practice were lumpectomy, wide local excision, quadrantectomy, segmental resection, partial mastectomy and tylectomy (Dorval *et al.*, 1998). In this study, lumpectomy and partial mastectomy were the most recognised terminologies for BCS. To prevent in-breast cancer recurrence, breast conservation is complemented by other treatment modalities such as axillary surgeries (sentinel lymph node biopsy, axillary sampling or dissection), radiotherapy, chemotherapy, hormonal therapy and target or immune therapy (Arriagada *et al.*, 1996; van Dongen *et al.*, 2000; Mahmood *et al.*, 2012). While 48.9% of participants recognised the role of radiotherapy in this study, only 16.4% acknowledged axillary surgery as an important component of breast conservation in the surgical management of breast cancer. Fewer numbers recognised the role of hormonal and immune therapy. These knowledge gaps in the definition/description of BCS and its complementary treatment modalities may in part be due to inadequate classroom education and clinical exposure of the female physicians, failure of continued medical education and in practice training/updates, low hospital BCS practice rate or a lack of engagement of female physicians in clinical decision making in the hospital. A feminine approach to counselling by informed female physicians is vital to assisting patient make a right decision. Without a proper understanding and a clear conviction of these female physicians on the subject matter, counselling patients with early breast cancer for BCS will be an uphill task.

The advantages of BCS such as - improved psychological well being and quality of life (QOL), preservation of nude appearance/beauty and preservation of native breast; were respectively recognised by 62.1%, 33.3% and 26.9% of the female physicians in this study. Earlier studies observed a significant difference in mastectomized and breast conserved women in their perception of body image/configuration, nude appearance and sexual function with spouse, leisure time activities especially activities that necessitate exposure of the body (eg athletics or swimming) and social isolation. However the long-term frequency of mental/psychic dysfunction was not remedied by breast preservation (Meyer and Aspegren, 1989; Howes et al., 2016). Fear of recurrence (55.3%) and undue anxieties over recurrence (52.5%) were the major concerns given by participants about the practice of BCS in this study. In a Singaporean study, an exploration of the reasons given by women

who were eligible for BCT but choose to undergo mastectomy revealed fear of cancer recurrence as the major deterrent in 74% of cases. Conceptually, many believed that TM (which is a more radical than BCS) should offer patients a better guarantee to achieve cure, a greater sense of security with respect to recurrence and provide greater opportunity to avoid chemotherapy (Teh *et al*., 2014; Gu *et al.*, 2017). This may explain why 70.3% believed TM lowers local recurrence rate compared to BCS in this study and 12.8% even considered there may be no need for further treatment after a TM. In reality, the survival and recurrence rates are equivalent in BCS and TM (Arriagada *et al.*, 1996; van Dongen *et al.*, 2000; Mahmood *et al.*, 2012).

The major eligibility criteria to BCS in this study were early stage breast cancer and small tumour size. Though these were the traditional criteria for eligibility, improved oncoplastic surgical techniques and response to neoadjuvant chemotherapy has made feasible cases that formerly were excluded. Currently, contraindications to BCS are patient's refusal and lack of motivation, unattainable free surgical margins, increase likelihood of poor cosmesis after BCS, known genetic susceptibility and instances when radiotherapy is contraindicated or not feasible (Morrow, 2005; Fajdic *et al.*, 2013). Out of several limitations to BCS practices in India, issues with radiotherapy such as a lack of access (54.3%) and overcrowding of these facilities (42.5%) were top on the list followed by late presentation (25.5%) and ignorance (14.6%). Radiotherapy services, a critical component in breast conserving therapy, are not readily available to a large number of cancer patients in India. There is biggest gap between radiotherapy availability and need is in India (Abdel-Wahab et al., 2013). Majority of radiotherapy centres in India leads to long travel distance for patients in rural locations, overcrowding of these centres and repeated damages to the machines. (Munshi A et al 2019). In this study, 57.1% of participants agree to accept BCS as treatment option and this was statistically unrelated to their awareness of BCS in general. This finding buttresses the observation in several studies that choosing between BCS and mastectomy is a complicated decision making process (Teh *et al.*, 2014; Bellavance and Kesmodel, 2016). Some of the determining factors include education, personal beliefs, personal preferences, concerns about body image, sexuality and recurrence, partner's opinion and surgeon's recommendation (Teh *et al.*, 2014). Shared decision-making that acknowledges and respects patient's concerns and autonomy as well as expert medical opinion is advocated as ideal (Bellavance and Kesmodel, 2016). Our finding of a significant acceptance among those aware of their oncologic equivalence in this study suggests that a low BCS acceptance rate could result from lack of awareness of equivalent treatment options amongst patients, their providers and family members. This is supported by studies demonstrating a higher BCS acceptance among the younger and more literate women (Agrawal *et al.*, 2012). The likelihood of choosing BCS by an eligible patient is expected to increase with adequate knowledge, information and education. Decision aids available in various forms like patient pamphlets, interactive patient education classes, interactive websites, audio-booklets and media apps, can be used to enhance the shared decision-making process (Nicholas *et al.*, 2016; Si *et al.*, 2020).

V. CONCLUSION

This study demonstrated gaps in knowledge and perception of BCS among female physicians who are stake holders in assisting patient make a right decision. This affected their perception and acceptance of BCS and will inevitably interfere with their ability to adequately counsel those seeking their expert opinion. Though there was no significant association between its awareness and acceptance in generality, a significantly higher level of acceptance of BCS was noted among those aware of its oncologic equivalence to TM. Drawing from these findings, we recommend more education for female physicians and more public awareness on the subject of breast conservation for early breast cancer as a means to improve the acceptance rate of BCS in our practice. Caregivers also should device an effective means of communication to counsel eligible patients for breast conservation.

CONFLICTS OF INTEREST

The authors declare no conflict of interest in the participation and undertaking of this research

ACKNOWLEDGEMENT

The authors acknowledge the female physicians who avail themselves to participate in this study.

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