

Why do Older Women with Invasive Breast Cancer Avoid Surgery? A Qualitative Analysis of Factors Influencing the Decision of Patients and Physicians

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Abstract

Purpose: Limited data exists about why older women (≥ 70 years old) with breast cancer avoid surgery. This study aimed to identify physician- and patient-perceived attitudes that influence the decision to avoid surgery among older women with invasive breast cancer.

Methods: Semi-structured in-depth interviews were conducted with multidisciplinary breast cancer specialists and with older women with breast cancer who declined surgery. Transcripts were iteratively coded using a theoretical framework to guide identification of common themes. Thematic comparison was performed between patients and physicians.

Results: Ten breast cancer specialists and eleven patients participated. Physicians believed older women declined surgery because they did not perceive their breast cancer as a life-threatening ailment compared to other medical comorbidities. Physicians did not discuss breast reconstruction, as it was perceived to be unimportant. Treatment side effects, length of treatment, impact on quality of life, and minimal survival benefit strongly influenced a patient's decision to decline surgery. Patients valued independence and quality of life over quantity of life. Patients felt empowered to participate in the decision-making process but appreciated having support. Both groups had congruent beliefs with respect to age impacting treatment decision, cosmesis playing a minor factor in treatment decisions, and importance of quality of life; however, they were discordant in their perceptions about the amount of support that patients have from their families.

Conclusion: The decision to avoid surgery in older women stems from a variety of individual beliefs. Acknowledging patient values early in treatment planning may facilitate a patient-centered approach to treatment decision making.

Introduction

Older women (≥ 70 y) comprise approximately one-third of newly diagnosed breast cancer patients [1,2]. Older women represent a unique patient population, as they often have multiple comorbidities, lower performance status, less social support, and shorter life expectancy [3-6]. Additionally, these patients often have breast cancers with favorable tumor biology (e.g. low-grade, estrogen and progesterone receptor positive, and HER2/neu negative) [7]. The optimal treatment for older women is also unclear, as they are often underrepresented in clinical trials [8,9].

Some older women with breast cancer choose not to undergo surgery [6,10,11], instead opting for primary endocrine therapy (PET), radiation therapy (RT), or no treatment. There are a number of reasons for this, including the high number of comorbidities, preference for less invasive procedures, desire to avoid anaesthesia, lower life expectancy, and physician's recommendation [12]. Consequently, balancing the risks of curative-intent surgery with the physical and emotional needs of the patient is challenging.

Qualitative studies have explored patient-reported factors that influence the decision-making process of older women with breast cancer. A recent systematic review of the qualitative literature reported how treatment characteristics, personal goals, patient characteristics, physician's recommendation, and personal and family experience determined treatment choice amongst older women with breast cancer [13]. Nonetheless, these studies lacked information about physicians' perceptions. Given that some older women prefer physician-driven decision-making [14-8], it is important to compare whether patients and physicians perceive the same factors as important. Qualitative research is critical to answer this question as quantitative studies cannot describe the nuances of decision-making. An understanding of patient and physician attitudes towards surgery amongst older women may facilitate counselling and targeted educational strategies. This study aimed to identify the attitudes of physicians and patients related to avoiding surgery in older women (≥ 70 y) with invasive breast cancer.

Methods

Study design

Institutional approval was obtained by the research ethics board at Sunnybrook Health Sciences Centre (SHSC), Toronto, ON, Canada. Figure 1 depicts the study design. A qualitative grounded theory approach was used. One-on-one semi-structured interviews were conducted with older women (≥ 70 y) with invasive breast cancer who elected not to undergo surgery as initial treatment, and with multidisciplinary breast cancer specialists. Interviews were performed to examine the experiences, attitudes, decision-making strategies, and rationale for surgical avoidance.

Interview question development and pilot interview study

A systematic literature review was performed to ensure all areas of interest were addressed in the conceptual framework and question prompts for the interview [13]. Supplement 1 and 2 outline the interview guides. Pilot interviews were conducted with one patient and one physician to gauge flow and question feasibility. The data collected in these interviews were included in the final analyses. Figure 1 depicts the interview development process.

Physician cohort

Breast surgical oncologists, radiation oncologists, and medical oncologists were purposively recruited from SHSC. The following information was gathered from publicly available data on the University of Toronto and College of Physicians and Surgeons of Ontario (CPSO) website: name, email, specialty, and type of practice.

Patient cohort

The patient inclusion criteria were as follows: women age ≥ 70 y at diagnosis, biopsy proven invasive breast cancer, stage I-III, non-surgical treatment as first attempted treatment, and English-speaking. Patient exclusion criteria included stage 0 and IV breast cancer, non-breast primary tumours, concomitant

cancer of other origin, inability to independently speak and understand English; and inability to obtain consent.

Patients were purposively sampled from the SHSC Salvage Radiation Database, which collects data on breast cancer patients referred for ablative radiation therapy. This was an appropriate referral database for this study as institutional practice is that most women who decline upfront surgical management are offered a consultation for ablative radiotherapy. To confirm eligibility, the patient's medical record was reviewed. Initial eligibility was confirmed by reviewing their primary spoken language, mailing address, contact information, age at diagnosis of breast cancer, date of visit to clinic, clinical stage, core biopsy date and confirmation of invasive breast cancer, and initial treatment plan.

Recruitment

Participants were contacted via phone, in person, or E-mail. Participants were provided with a package including invitation letter, participation form, and consent form via mail or in person if they wanted additional information. Two weeks after initial invitation, potential participants were contacted again to follow up on their desire to participate. If the potential participant mailed the participation form indicating they would not want to enrol, they were not contacted. If the potential participant returned the participation form indicating they wanted to be enrolled, they were telephoned to set up the interview as well as to answer any questions. Ten patients and ten physicians were anticipated, with recruitment ceasing when data saturation was achieved. Interviews were performed between 2/2017 and 4/2020. The prolonged recruitment period was due to difficulty in recruiting patients.

Data collection

One-on-one semi-structured interviews were carried out either in-person or over the telephone and audiotaped on a digital recorder. Notes were taken during the interview to reflexively analyse the participant's tone of voice and body language, and to document the interviewer's own biases. The digital audio files were transcribed verbatim by a third-party transcriptionist with anonymization of all identifying information.

Data analysis

Framework analysis was performed using familiarisation, theme development, indexing, charting, and interpretation [19]. Transcripts underwent constant comparative analysis with simultaneous data collection and analysis to generate a coding schema reflecting unique ideas. Four authors analysed the interviews. Transcripts were double coded by least two authors. Similar concepts were grouped into common themes with the intent to refine an existing framework or develop a new conceptual idea to represent the understanding of ideas. Four authors independently coded the interviews and discussed results until consensus of interpretation was achieved. Patient interviews were analyzed separately from physician interviews. Common themes and frameworks between physicians and patients were compared. Data saturation was reached once repetition of conceptual ideas was observed.

Results

Physician cohort

Twenty academic physicians were eligible for participation of which ten participated. Distribution of participants was as follows: radiation oncologists (n=5), medical oncologists (n=3), surgical oncologists (n=2) (Figure 1). Breast cancer made up between 50 to 100% of each physician's practice. Seven physicians were female and three were male. The median years in practice was 21 [interquartile range: 7 – 30].

Patient cohort

Seventy-four older women were eligible for participation of which eleven participated (Figure 1). Table 1 summarizes the patient, tumor, and treatment characteristics of participants. The median age at time of breast cancer diagnosis was 84 (IQR 75–89). The majority of women were widowed (n=5) followed by single (n=2), married (n=2), divorced (n=1), and not specified (n=1). Ten patients identified as Caucasian and one patient identified as Asian. Patients had a median of five comorbidities (IQR: 2–6). Three patients had a previous history of breast cancer. Previous surgeries included lumpectomy (n=2), mastectomy (n=1), sentinel lymph node biopsy (n=2), and no lymph node procedure (n=1). One woman underwent radiation therapy and all three women received hormone therapy for their previous cancers.

With respect to the presenting breast cancer, nine patients were diagnosed clinically while the other two were detected by imaging. Nine women were diagnosed with invasive ductal carcinoma while two had invasive lobular carcinoma. Ten patients had hormone receptor positive breast cancer, while one patient had triple negative breast cancer.

One patient declined all forms of treatment and ten women underwent non-surgical treatment as the initial form of therapy (eight patients opted for an aromatase inhibitor and two underwent radiation therapy alone). Of the women who sought treatment, five had changes to their treatment modalities over time. Changes to treatment were as follows: aromatase inhibitor to radiation therapy (n=3), radiation therapy to aromatase inhibitor (n=1), and aromatase inhibitor to tamoxifen (n=1). One patient who was initially treated with aromatase inhibitor and then radiation therapy, eventually underwent a mastectomy. Patients underwent a change to treatment because of disease progression or treatment side effects.

Physician qualitative results

Table 2 summarizes and compares the physician- and patient-reported factors that influenced the decision-making process. Physicians viewed older women as a diverse group with respect to health and expectations of breast cancer treatment. Factors perceived to influence the decision-making process included treatment side effects and the length of treatment. Patient characteristics such as age and comorbidities also influenced the decision-making process. Older women were often perceived to defer treatment decisions to family members and physicians. The impact of treatment on quality of life along with the perceived minimal survival benefit were described as reasons why women declined surgery.

Previous negative personal or family experience with surgery were also believed to affect decision making. Breast reconstruction was often not offered or not discussed in depth as it was considered unlikely to be important to older women. Additional factors that were perceived by physicians to influence treatment decision-making included lack of time for thorough assessment and treatment discussion, variable family support, impact of treatment on family dynamics, caretaker responsibilities, misinformation about the disease and treatment options, and challenges with language and cultural barriers.

Patient qualitative results

Patients reported that their treatment decisions were affected by their own previous experience as well as by the experience of other individuals. Patients valued their independence and quality of life over quantity of life when deciding on treatment. Patients were generally satisfied with their choice of non-surgical treatment. Older women felt empowered to participate in the decision-making process but appreciated having friends and family as a support. This patient population perceived their age as a factor that influenced decision making away from surgical therapy. Older women were concerned about the impact of general anesthesia on cognitive function and the extent and duration of surgery/recovery. Instead, they valued treatments that induced minimal pain or side effects. Cosmesis was not reported to be an important factor in their decision-making. Older women noted a lack of resources specific to women of their age group. They also desired more time with their physicians and information about their condition.

Decision-making varied amongst women in this study. Some women advocated strongly for their own personal values, while others preferred physician-driven recommendations. Additionally, women in this study did not appear retrospectively to struggle with decision-making. Some patients had pre-conceived ideas and rapidly evaluated and rejected or accepted treatments offered, describing an immediate preference. Other patients deliberated to varying degrees, with differing levels of external support and discussion. Healthcare professionals contributed to the process by providing an outlet to seek and receive information, providing advice about treatment options, and helping individuals to cope with the diagnosis and decision-making.

For both groups of participants, patient characteristic (e.g., age, others' experiences, and a desire to maintain independence) were perceived as key factors in decision-making. There were also several unique themes identified for physicians and patient participants. For example, patients reported a specific desire to avoid pain. While both groups felt a need for dedicated resources for older women with breast cancer, patients were satisfied with the care that they received.

Conceptual theory model

Figure 2 depicts the conceptual theory created from the thematic analysis of both physicians and patients. Factors commonly encountered in the interview analysis were synthesized. Older women with invasive breast cancer have both intrinsic and personal factors which frame their decisions. Modifiable factors within a patient's life as well as the health care system influence the decision-making process.

Discussion

In this study, we performed a qualitative analysis to determine why older women with invasive breast cancer choose non-operative management. Treatment side effects, length of treatment, impact on quality of life, and minimal survival benefit strongly influenced women's decisions to decline surgery. In addition, patients expressed that experience (both personal and from other patients), fear of general anesthesia, and a desire to maintain independence were important factors in treatment decision-making. Physicians reported that older women declined treatment because they did not perceive their cancer as life-threatening compared to other comorbidities. Breast reconstruction was often not discussed as it was considered unimportant to patients. Patients felt empowered to participate in the decision-making process but appreciated having support. They also valued independence and quality of life over quantity of life.

Within this study population, fear of general anesthesia was frequently reported as a reason to forego surgery. An American College of Surgeons National Surgical Quality Improvement Program study of 26,761 older women (≥ 70 y) with invasive breast cancer showed that 88% of patients underwent surgery with general anaesthesia [25]. While the 30-day overall morbidity rate was not significantly different between young and elderly women (3.9% versus 3.8%, $p=0.2$), older women did have significantly higher rates of pulmonary, cardiac, venous thromboembolic, and neurological morbidity. All-cause 30-day mortality was higher in older women compared to younger women (0.2% versus 0.05%, $p<0.001$). These data suggest that perhaps alternative strategies for anesthesia should be better explored. Breast surgery can be effectively performed under local and regional anesthesia, particularly in patients who are unable to tolerate or are fearful of general anesthesia. For example, mastectomy under local anesthesia was successfully reported in a series of American Society of Anesthesiologists class IV patients [26]. This study reported no morbidity in the form of hematoma, wound infection or skin flap necrosis. A prospective observational series of patients undergoing breast conserving surgery under a paravertebral block and mild sedation reported successful outcomes, including no need for intraoperative or postoperative opioids [27]. A survey of breast surgeons noted that approximately two thirds of respondents considered breast surgery under local anesthesia to be well-tolerated amongst older women [28]. It is unknown whether patients in our study were offered alternative anesthetic strategies or would have accepted surgery if they had been offered local or regional options.

Another factor that patients frequently described as a reason to avoid surgery was the concern over the length of recovery from surgery. Most breast surgery represents a short-term inconvenience to patients, as the majority of breast surgeries are day surgeries with a minority staying one night in hospital for observation. However, the isolated short- and long-term effects of breast surgery compared to alternative treatment options on older women's functional status is unknown. Preoperative function is a well-known predictor of postoperative function. Specifically, patients who experienced preoperative functional decline are at a higher risk of accelerated postoperative functional decline [30]. Patients experiencing frailty, a multifactorial state associated with poor nutrition, strength, mobility, depression, comorbidities, and cognitive impairment, also have worse functional outcomes [31,32]. Although these patient factors

greatly impact how well a patient recovers from surgery, the procedure itself also influences their postoperative course. Physical functional recovery in older adults who have undergone major surgery is occasionally slower compared to younger women. For example, older adults who underwent major abdominal surgery took 6 weeks to 3 months to recover basic activities of daily living, but up to 6 months to recover their instrumental activities of daily living [33]. In contrast, most older women undergoing surgery for pelvic organ prolapse, including those with low preoperative functional status, return to their baseline functional status within 3 months of surgery [34]. Unfortunately, studies looking specifically at how breast surgery affects older women's postoperative functional status are lacking. Future studies are needed to evaluate functional status after breast surgery, as the return to baseline function may be comparatively quicker compared to larger and more invasive surgery.

One of the major, but deliberate, biases in this study is that all women initially declined surgery as the primary treatment modality. It is unclear whether the patients included in this study had already decided to decline surgery prior to their surgical consultation or if patient decisions evolved over the course of actual discussions with multidisciplinary providers. However, it is clear that a fulsome discussion about the pros and cons of different treatment options is required. Non-surgical treatments such as PET) are not without difficulties. Prolonged use of endocrine therapy is associated with increased odds of developing cardiovascular disease, bone fractures, deep venous thrombosis, and endometrial cancer [35]. PET may be associated with long lasting side effects and multiple hospital visits. A disadvantage of PET is that it may be only effective for a limited period, after which the treatment must be changed, and surgery may still eventually be necessary. Additionally, adherence to PET is variable amongst older women. A systematic review reported an adherence rate of 52% to 100% amongst older women [36]. Adverse events and toxicity are generally the main reasons for discontinuation of endocrine therapy [37]. Furthermore, there are challenges when discussing the effectiveness of PET as an alternative to surgery. Trials focused on closing this knowledge gap have been met with a lack of recruitment. The British ESTEem trial was developed to compare aromatase inhibitors with surgery, but poor patient inclusion resulted in premature closure of the study. Additionally, although randomised trials comparing tamoxifen with surgery showed tamoxifen was associated with inferior local disease control but similar overall survival [38], these data have important limitations. In some of these studies, patients received tamoxifen regardless of hormone receptor status, and the quality of surgery and radiotherapy received by the surgical group may not meet modern-day standards. Aromatase inhibitors have now replaced tamoxifen in the management of breast cancer in postmenopausal women owing to proven superior efficacy in other clinical scenarios [39-42]. Given data on PET are ever evolving in this patient population, it is clear that a balanced discussion is required between patients and providers to examine the pros and cons of surgical treatments as well as non-surgical options.

Patients stressed their desire to maintain independence and quality of life over quantity of life when deciding on treatment. In a qualitative study of older women with operable breast cancer who underwent PET, patients stated their age was a marker that they were at the end of their lives [43]. While patients did not express the desire for an immediate end, they were not interested in prolonging their lives. Patients declined surgery as they were concerned about the impact of surgical therapy on their quality of their life.

The thoughts articulated by these patients describe “a sense of completeness that life has run its course” [44]. Identifying similar points of view in patients through discussion and exploration is critical to understanding a woman’s wishes surrounding breast cancer therapy. Recognizing this, health care providers can hopefully guide patients towards treatment options that most closely follow their wishes.

A challenge that lies in managing older women with breast cancer is accurately estimating life expectancy as different comorbidities having variable impact on life expectancy. Additionally, impaired cognition, malnutrition, and dependency for activities of daily living are important contributors to one’s quality of life [45]. Although considered important to determine treatment options for older women with operable breast cancer [28], a recent study shows that surgeons often underestimate a patient’s life expectancy [46]. This is also exacerbated by that fact that both physicians and patients feel there is limited time available for adequate and objective clinical evaluations and counselling. Therefore, a formal geriatric assessment may be a useful adjunct to identify which patients are at the highest risk of surgery when counseling patients on treatment options and which patients may benefit from prehabilitation [47].

This study has both limitations and strengths. One of the strengths is that we incorporated both physician and older women’s opinions, which allowed us to identify areas where the two groups converged and diverged. Additionally, the qualitative nature of this study facilitated in-depth exploration of participant’s opinions. Moreover, older women were interviewed at different time points from the initiation of their treatment, which allowed for varying perspectives regarding side effects and long-term impact of treatment decision. A limitation of this study is the homogeneity of both physicians and patients. Physicians were all from a single, urban, academic institution with a predominant breast practice. Physicians treating older women in other centres may have different opinions from the ones expressed by this group. Patients were predominantly independent, Caucasian, English-speaking women who lived in a large urban area. This limits the applicability of this study to older women of diverse ethnic backgrounds and those who live in rural settings. Furthermore, volunteer bias exists, as the women who participated in our study all declined surgical therapy and are more likely to have strong views about their care. As a retrospective study, there may also be recall bias of events and details. Nonetheless, several themes were consistently triangulated across several women and physicians, which bolsters the face validity of the data.

Conclusions

The decision to avoid surgery in older women with invasive breast cancer is an intricate and individualized process. The common beliefs among physicians and patients is the desire to maintain quality of life and minimize harmful effects. Both groups identified the need for dedicated resources and more time spent with patients. Future studies should assess how dedicated resources affect decision-making process. It is also important to study a more heterogeneous population in terms of physician specialty and patient ethnicity. Ensuring a comprehensive understanding of the values and beliefs that influence a patient’s treatment choice may facilitate shared decision-making and improve educational strategies for older women with breast cancer.

Abbreviations

ER: estrogen receptor

IQR: interquartile range

M: months

MO, medical oncologist

NA, none available

PET: primary endocrine therapy

RO, radiation oncologist

PR: progesterone receptor

RT: radiation therapy

SHSC: Sunnybrook Health Sciences Centre

SO: surgical oncologist

y: year

Declarations

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Conflicts of interest/Competing interests: The authors declare that they have no conflict of interest.

Availability of data and material (data transparency): The datasets generated during and analysed during the current study are not publicly available because study participants did not consent for their data (original audio and transcripts) to be released.

Authors' contributions: All authors contributed to the study conception and design. Material preparation, data collection and analysis were performed by Fernando A. Angarita, Ethan Hoppe, Gary Ko, and Nicole Look Hong. The first draft of the manuscript was written by Fernando A. Angarita and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

Ethics approval: The interview guide and methodology for this study was approved by the Research Ethics Board at Sunnybrook Health Sciences Centre, Toronto, ON, Canada.

Consent to participate: Informed consent was obtained from all individual participants included in the study.

Consent for publication: Study participants provided informed consent regarding publishing their data.

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Tables

Table 1
Patient characteristics

Variable	N ¹
Demographics	
Age at time of diagnosis (y), median (IQR)	84 (75–89)
Time between diagnosis and interview (m), median (IQR)	22 (4–51)
Marital status	
Single	2
Married	2
Widowed	5
Divorced	1
Not specified	1
Race	
White	10
Asian	1
Past medical history	
Comorbidities ²	
Cardiac	11
Respiratory	2
Gastrointestinal	4
Endocrine	7
Musculoskeletal	5
Neurologic	6
Ophthalmologic	4
Psychiatric	4
Other ³	3
Number of comorbidities per patient, median (IQR)	5 (2–6)
Current breast cancer	
Method of detection of breast cancer	
Imaging detected	2
Palpable mass	7
Ulcerated mass	2
Clinical TNM	
T2N0M0	5
T2N1M0	1
T3N0M0	2
T3N1M0	1
T4N0M0	1
T4N1M0	1
Tumour histology	
Invasive ductal carcinoma	9
Invasive lobular carcinoma	2

Variable	N¹
Hormone receptor status	
ER+/PR+/HER2/neu -	8
ER+/PR- /HER2/neu -	2
ER- /PR- /HER2/neu -	1
Breast cancer treatment	
Initial breast cancer treatment	
Aromatase inhibitor	8
Radiation therapy	2
None	1

Table 2

Physician- and patient-reported factors that influence the decision-making of older women with breast cancer

Concept	Physicians' Beliefs	Demonstrative Quotes	Patient's Belief	Demonstrative Quotes
CONVERGENT				
Cosmesis	Reconstruction is not discussed Elderly women do not care about cosmesis or impact of treatment on sexuality	"They don't care if their breasts don't match so well. They don't bother putting nipples on and things like that." (M01)	Cosmetic result does not affect decision-making	"I live alone. Nobody is seeing me. No, it wasn't body image at all." (P-001)
Treatment characteristics/ Fear of Anesthesia	Factors women generally cite include easiness of compliance, risk of side effects, and duration	"Or the lady that's like, I'm 80 years old and I don't want to come here for five weeks. I'm going to get tired..." (R04) "Often they don't think they can get through an operation and a general anesthetic..." (S01)	Beliefs regarding side effects of anesthesia Fear of extent and duration of surgery	"I just felt like I didn't want to have anaesthetic. I'm older and I know people who've had surgery and they haven't been the same since." (P-010) "If I remember all this, it was either a mastectomy ... well, first of all, the medication, a mastectomy, and I'm not sure if they offered the lumpectomy or I said couldn't we do a lumpectomy. Because I don't know, I just didn't really want a big surgery." (P-011)

Concept	Physicians' Beliefs	Demonstrative Quotes	Patient's Belief	Demonstrative Quotes
Patient characteristics	Chronologic age becomes an issue in women over 80 years old Comorbidities and functional status increase risk of complications	"I start changing my surgical approach is more in women in their 80s or if women have a lot of comorbidities and they're in their 70s." (S01)	Chronologic age as a moderator of decision making Self-awareness of comorbidities and life expectancy	"I think if I was young, I would have opted for the surgery." (P-001) "Maybe 30 years ago I would have said, sure, go ahead. But I just wanted to know if there were alternatives, and there was, you see, there was, and they all decided that with my age, my willingness to go ahead with this, so that was fine." (P-006)
Impact on quality of life/ Independence	Women prioritize quality over quantity Maintaining current lifestyle is a priority	"There are women who say you know what, this is like four months, it's December and I want to get to Florida this year, forget it." (M01)	Desire to maintain independent lifestyle Choosing quality over quantity of life	"I think Dr.- said that it would take about three months for me to get over the surgery. I really value my life, and I hate to give up three months of hanging around, not doing anything." (P-006) "I said quality of life is more important than quantity." (P-011)

Concept	Physicians' Beliefs	Demonstrative Quotes	Patient's Belief	Demonstrative Quotes
Previous experience/ Others' recommendations	<p>Prior negative personal or family experience affects decisions</p> <p>Older women grew up in the paternalism era</p> <p>Decisions may be deferred to relatives</p> <p>Women trust their family members and healthcare team</p>	<p>"The two things that I would say are that they've had either personal or friends or family experiences with medicine with treatments and sometimes they've seen negative things happen in terms of side-effects and want to avoid that personally." (R01)</p> <p>"But, in my experience, most of the older women are quite... they're of that era where you just do what the doctor says. You don't necessarily challenge it as much." (R04)</p>	<p>Other people's and personal experience influenced their opinion about treatment</p>	<p>"So, I'm in pretty good health, at least I was until I got this lump. I did have a lump in 1982, a malignant lump. It was removed and I didn't have anything. I didn't want anything. And I've lived all these years with no treatment." (P-001)</p> <p>"Well, I knew I didn't ever want chemo because I've gone through it with too many friends and relatives and my sister and I think it's a brutal way of treating the body." (P-012)</p>

Concept	Physicians' Beliefs	Demonstrative Quotes	Patient's Belief	Demonstrative Quotes
Lack of resources specific to older women	Managing elderly women takes time Proper assessments are complex Multiple issues need to be considered	"It's, unfortunately, unrealistic that the physician in a busy clinic is going to do all that stuff and take care of the cancer, and take care of all the other stuff." (R04)	Desire for more time, information, or allied health care workers Desire for support groups	"I know they have to rush to somebody else, so it's not a place to have a lengthy conversation. I guess that's where a nurse or social worker might come in handy." (P-011) "You don't get very much explanation. You could always use more." (P-009) "It would be nice to talk to other women that went through the same." (P-011) "The doctors are so busy, I think they could spend a bit more time discussing it." (P-011)
DIVERGENT				
Survival benefit	Marginal survival benefit for women with limited life span and for those who do not want to live longer	"Patients will say if this is going to help three or four out of a hundred women and not help the rest, I'm not going through these side effects, forget it." (M01)	Marginal benefit given "benign" characteristics	"I'm pretty old, I never figured ... this thing probably doesn't grow very much, from what I've heard over the years. I thought that maybe I could just live with it." (P-006)

Concept	Physicians' Beliefs	Demonstrative Quotes	Patient's Belief	Demonstrative Quotes
Cultural barriers	Language barriers make treatment discussion difficult Patient's culture determines the decision-making model	"Similarly, someone who's very fit and has a long potential life expectancy, but who somehow has cultural views that if you get a diagnosis of cancer then there's no point in treating it because the outcome is predetermined, then those patients, I would probably spend a little more time with." (S02)	NA	NA
Pain	NA	NA	Pain as a determinant of an ideal treatment	"Yes, very happy [with radiation] because there's no pain and it work for me." (P-004) "I'm not surgically inclined. I have friends who oh I've got this and I've to get it taken off, oh I've got a pain and I think I've got, and they're running to the doctor every two minutes and I've never been like that." (P-008)

Concept	Physicians' Beliefs	Demonstrative Quotes	Patient's Belief	Demonstrative Quotes
Satisfaction	NA	NA	Satisfaction with healthcare system Satisfaction with lack of treatment side effects Satisfaction with lack of interruption of independent lifestyle	<p>"I felt that I was treated with great respect from the team at —. I never felt that ageism came into it with them, and that's a very real thing with other people in other circumstances." (P-003)</p> <p>"Well, so far I've had no side-effects. They told me what side-effects there might be, but I've had no side-effects. I've been lucky." (P-001)</p>
Amount of social support	Transportation needs impact decision to accept chemo- and radiation therapy	"Although often they're left for long periods of time which, if they're not the only one in a ride, if they're ride sharing with a group, they may be sitting for hours, so that's not always great." (MO2)	Having friends and family as a support in the process	<p>"Yes, I get some good support from my family and from the doctors. They've gone along with any treatment I might want to have or anything." (P-001)</p> <p>"My family is all gone. I have a colleague who works in the office and I have several friends like that." (P-009)</p>

Concept	Physicians' Beliefs	Demonstrative Quotes	Patient's Belief	Demonstrative Quotes
Empowerment	NA	NA	Patient felt empowered to participate in the decision-making process	"You know I did my homework and found out what was the best route to go and then made the decision which way I wanted to go." (P-008)
Caretaker responsibilities	Women may take care of other family members, especially husbands Women put other's needs first	"And they decline radiation treatment because they don't feel comfortable leaving their partner who has dementia or has some illness at home alone..." (R01)	NA	NA

Figures

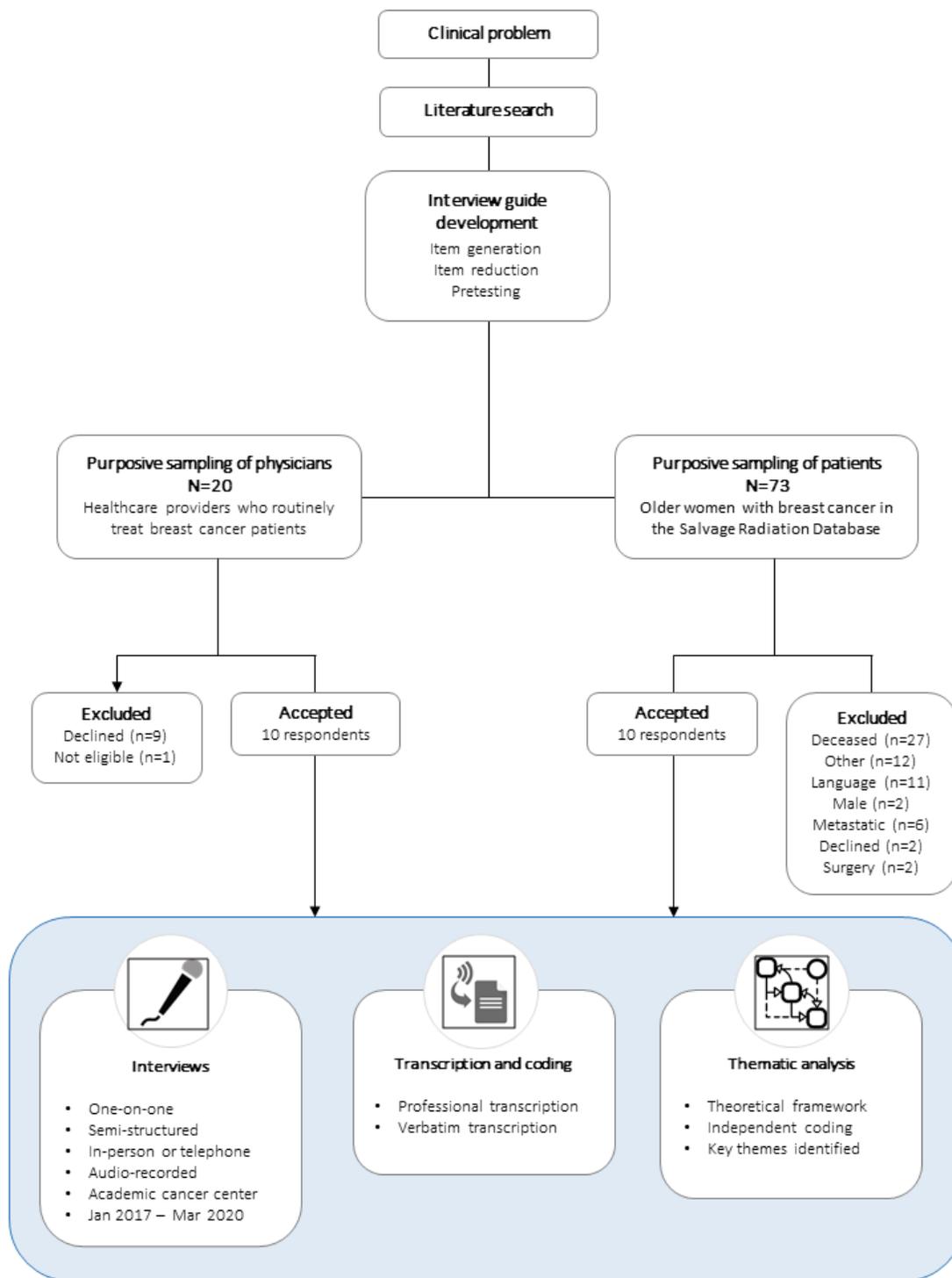


Figure 1

Study design and interview development process.

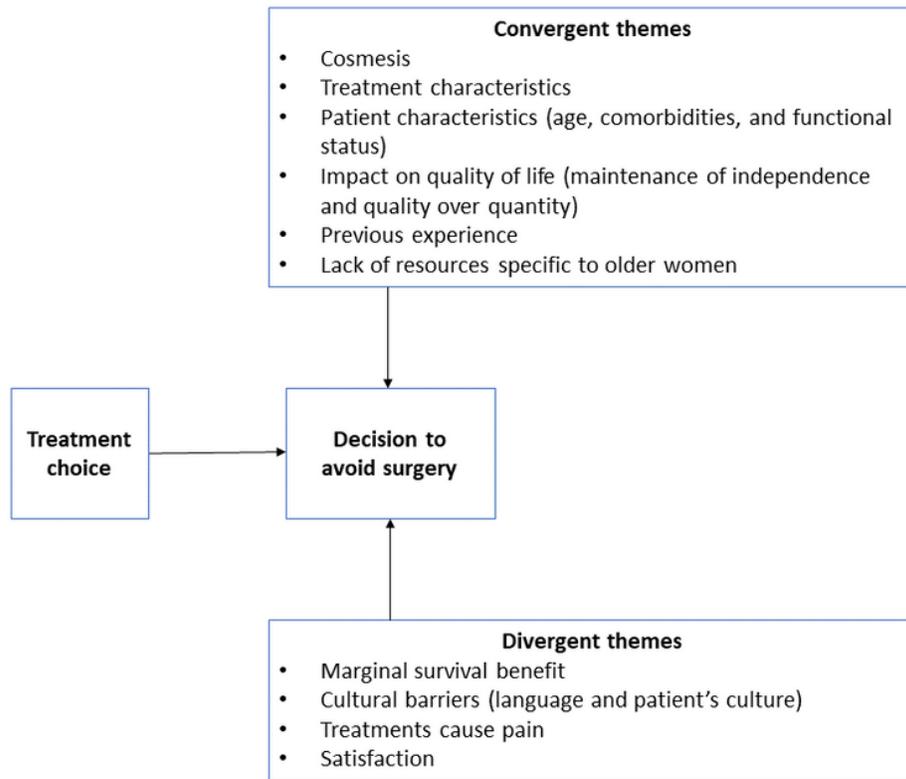


Figure 2

Conceptual theory model