

Research Article

Adherence of Older Breast Cancer Patients to Cancer Therapy Recommendations

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ABSTRACT

Searches of cancer databases have shown that the rate of non-compliance among elderly cancer patients is significantly higher than among younger patients. Using the concepts of Theoretical Sampling and Grounded Theory, we tried to identify the reasons why older breast cancer patients (>69 y) declined or accepted treatment recommendations of their gynecologist / oncologist. We found meaningfulness of therapy in the context of the individual living situation to be the core decision category. Patients did not question the professional authority of their doctors but made their decisions based on

individual factors in their personal living situation (*axial coding categories*), with advanced age playing an important role. The consideration of this knowledge is important for the success of the medical therapy conversations. Although a study with a selected patient cohort, this study is a good example for the use of Theoretical Sampling and Grounded Theory in qualitative health research.

Keywords: Oncology; QOL in special populations; Elderly; Clinical guidelines; Meaningfulness; Guided decision-making

Introduction

Oncological guidelines are references for diagnostic and treatment procedures based on the available scientific knowledge and intended to assist physicians in treatment decision-making, enabling them to provide the best possible medical care to their patients. However, these recommendations are not always followed, especially in the case of older patients, although modern guidelines have been adapted to the needs of aging cancer patients [1-3]. It has been reported, for instance, that elderly patients with colorectal carcinoma were less frequently treated in accordance with guidelines than younger patients [4,5]. Except for adherence to aromatase inhibitors [6], studies have shown that elderly patients with breast cancer were less likely to receive guideline therapy; these included breast-conserving therapy, radiation therapy, axillary dissection, as well as adjuvant and systemic treatment, such as chemotherapy or anti-hormone therapy [7-10].

From the point of view of the physician, deviating from standard therapy recommendations by dropping some components of guideline-based therapeutic regimens might be well justified in the presence of factors such as comorbidities or other medical limitations. In this study, we present the patients' perspective on deviations from the therapy recommended by their treating oncologist by exploring factors behind acceptance or rejection of all or some components of recommended treatment. Although there are earlier studies on this topic, the conditions of oncological patient care have changed substantially in the last few years, and we believe that a re-examination of decision-making based on informed consent in oncology is warranted in the view of these new findings. We focused on older (>69 y)

breast cancer patients, since several recent publications reported that, in this age group, guideline-based therapy was more often lacking in breast cancer patients than in those with other cancers [7,9,10]. One of the objectives of this qualitative study with the selected population of female patients with breast cancer after their initial treatment was to provide a basis for the development of survey instruments used in the assessment of PROM/PREM (patient-reported outcome measures, patient reported experience measures). Also, the findings might help build a structured and focused patient-doctor conversation with the integration of the topics that are decisive for the patients' decision making.

Methods and Materials

Design of the qualitative study

The study was approved by the Ethics Committee of the University. We conducted qualitative interviews with breast cancer patients in a one-on-one setting. We followed most of the published criteria for reporting qualitative research (COREQ) [11]. The development of relevant questions (interview guides) was based on a comprehensive review of the literature and extensive experience in the field of oncological treatment of the clinical authors. Questions that referred to plain facts, those that reflected too closely the interviewer's expectations as well as those that might be too abstract from the patients' point of view were dropped. Subsequently, the questions were sorted, and as many questions as possible were subsumed under a single open question. With this method, as described by Helfferich, we identified certain topics of interest, but did not have a formal guide, which allows the patient to co-determine the direction of the interviews [12].

All interviews were conducted by a medical student who received extensive training from the qualitative research group of the university. An oncologist was not involved in the interviewing process to avoid bias resulting from previous professional experiences with older patients. As compared to interviews conducted by doctors, this has the advantage that the student has no preconceived opinion regarding the therapy. No relationship with the participants was established prior to the interviews.

Patient approval was obtained prior to starting the interviews. All interviews were recorded as audio files with a portable audio device. The clinical authors took information such as the date of primary diagnosis, stage, comorbidities and treatments carried out from the medical documents and compared them with the current guidelines. We defined the following topics in relation to decision-making: (1) conversation with doctors, (2) role of family, friends and family doctor, (3) impact of age, (4) future expectations and (5) satisfaction with conversations with the treating oncologists and the treatment received. Typically, we started a conversation with an open question such as: "After you received your cancer diagnosis, what happened next?" Later we asked more specific questions: for example, "what are your expectations for the future?" Although the topics were the same in all interviews, the exact formulation of the questions was adapted to the participant and conversation atmosphere. Also, the interviewer was allowed to raise additional questions at certain points if necessary.

Selection of patients

Study participants were recruited from an oncological rehabilitation clinic and the gynecological department of the university hospital. Patients were given an information flyer describing the goal of the study (to find out personal factors for accepting or rejecting the doctors' recommendations, from the viewpoint of the patients) and asked if they are willing to be interviewed by the student. The patients were also asked if they agreed with the merging of the clinical data from the medical files before anonymizing the records. Approximately one-half of the patients who were invited to participate refused, the reasons given being lack of time or lack of interest.

Theoretical Sampling, which involves the researcher collecting and analyzing the first data while planning the interviews with the next group of patients [13], was the methodological approach employed in this study. Initially, similar cases were investigated to form first categories, followed by cases, which allowed reflecting on the largest possible variation in age, and severity of disease. Following these rules, a total of 17 patients were interviewed to reach saturation. Most of the interviews took place in the rooms of the patients at the rehabilitation center or hospitals; one patient was interviewed at home and one patient had a telephone-based interview. At the beginning of the interview, the reasons for conducting the research project were explained to the participants. Patients being of advanced age and liable to tire easily, interviews lasted 10-30 minutes each, which is shorter than interviews in qualitative studies in general.

Data analysis

The recorded audio files were transcribed verbatim to text

files. Evaluation of data was based on the concept of *Grounded Theory*, using the procedures of *open coding*, *axial coding*, and *selective coding* according to Glaser and Strauss [14]. First, *open coding* was done: relevant texts were marked, and these were classified under the first set of *descriptive concepts*. Further ideas, associations or questions were noted in the form of memos. The second step involved axial coding, with subcategories and the relationships between the categories being worked out. Categories central to the theories, the so-called *axis categories*, were defined. In the third step of the *selective coding*, the axis categories were again revised using the original data with the aim of describing as many variations as possible by key categories. As a result, a *network of aspects* that play a role in the decision-making process emerged. In addition, a summary was compiled for each interview to describe the individual experiences of the patients as well as the individual core statements. For the coding process, the computer program MAXQDA 12 was used (VERBI Software GmbH, Berlin, Germany). To avoid distortion of results by the interviewer's sole interpretation, the reflections and results were discussed several times with members of the qualitative research group at the university. Since the first results were considered as plausible, it was decided to include additional patients outside the oncological rehabilitation clinic and to include at least one patient in a palliative situation.

Results

According to the medical records of the interviewed patients, 11 patients were treated in line with the guidelines. Six patients (35%) rejected one or more components of the recommended therapies: axillary dissection (1), chemotherapy (1), radiation (2), and/or adjuvant treatment with aromatase inhibitors (3),

Table 1: Patients characteristics.

Number	17
Age	70-79 y; median 73 y
Tumor Stage	T1, n=7; T2, n=8; T3, n=1; M1, n=1
Deviation from guidelines*	6/17 (35%)
*Guidelines (Deutsche_Krebsgesellschaft, 2017)	

tamoxifen (1) or herceptin (1) Table 1.

Factors that influenced patients' decisions

Following the concept of Grounded Theory, in the first step of *open coding*, descriptive codes were identified. These were, for instance, aspects mentioned by patients when they described the conversations they had with their doctors, such as taking time, explanations, whole truth, objectivity, calmness, personal situation, optimism, changing contact persons etc. Further ideas were noted in the form of memos.

In the second step, the *axial coding*, the first set of relations between categories were defined. We identified aspects that led to patient acceptance of the recommended therapy and aspects that resulted in a rejection of the recommended therapy Table 2.

Table 2: Axial coding categories: Acceptance and rejection of recommended therapies.

Acceptance of therapy
Trust in doctor
Comprehensive information and explanation from the doctor
Doctor addressing the living conditions of the patient
Lack of alternatives
Desire to spend some more time with the family
Rejection of therapy
A feeling that therapy-associated impairments outweighed or would outweigh the advantages of therapy
Quality of life interpreted as negative in the context of age
Inadequate information from the doctor
Influence of the family doctor towards therapy rejection

Reasons for therapy acceptance

Trust in the doctor: Nine patients underlined their trust in their physicians as a major reason for following the doctor's recommendations.

"The doctor assured me she would tell me (about all the treatment possibilities). And I should think about them. I had a lot of confidence in the doctor. She is a consultant. She was always there with me in the operating theater. She was always there for me and I could also have a good conversation with her. And she said, <This is the advice I would give my own mother>".

Trust was promoted by a good relationship with the doctors. Many patients said that it was important for them that the doctors were friendly, sympathetic and sensitive. They wanted the doctors to give them a feeling that their concerns were taken seriously and that they were really interested in them as individual human beings. In this context, personal relationship with the doctor was of importance.

"I must say it is not nice to be just a number, but to be considered as an individual. And I think that's good. And this is not always the case, this (situation of) being looked upon as an individual. And that's exactly what a cancer patient needs".

Comprehensive information and explanation: Fifteen patients expressed a desire to be fully informed about their disease. Trust was also promoted when physicians provided relevant medical information in an understandable way. Most of the patients said that it was of the utmost importance for them to know the full truth about their disease, they wanted to be fully and comprehensively informed both about their illness and available treatment.

"Yes, for me it is always important that I know everything exactly. Then I am satisfied, then I can adjust to it. But when I'm unsure and do not know what to expect - that makes me a bit nervous".

Addressing the living conditions of the patient: A patient in a palliative situation with a chest wall recurrence initially wanted to refuse additional therapy. During treatment for her first cancer, she had experienced the therapeutic procedures, especially chemotherapy, as very stressful. However, her doctor convinced her of the usefulness of undergoing therapy by explaining that there were still various other treatment options available. In addition, he had taken into consideration her personal situation.

"And so, I wanted to say to myself: now let us drop the whole thing, if that does not have any effect any more, you don't need to trouble yourself any further, then we shall just drop the whole thing. And then the doctor said: No. I would advise you very much (to continue with the therapy), you have grandchildren and you still enjoy your garden very much and so on and so forth. (If you continue the therapy), you would continue to participate in life and that is something that is always worth doing". In retrospect, the patient was very grateful to have continued with the therapy and underlined the fact that she was also having a good quality of life.

"And I live here alone, but honestly I do not see myself as suffering under limitations. I like to play bridge. (...) And yes, I cannot even imagine a better life than I actually have at this age. I even go with friends on a one-week bridge holiday. And I can do all these. I am not confined to bed. I will not let things come to this point. (Laughs)".

Lack of alternatives to treatment: One reason given by seven of the patients who followed the recommendations was that they felt there were simply no alternatives to the treatment proposed by the doctor.

"If one has to do something, then one must do it. If one wants to have a chance (to survive)".

Desire to spend some more time with the family: Ten patients explained that the family played an important role in their treatment decisions. Family support helped patients make decisions and enabled them to deal with the illness. Frequently, patients discussed therapy decisions with family members. The desire to spend as much time as possible with their families motivated the patients in some cases to accept even unpleasant therapies.

"... and I will be a great grandmother. And that is something again I'm looking forward to. I want to be a great grandmother now, so I need to be healthy. I want to live long enough to experience that".

Reasons for rejection of therapy

Therapy-associated impairments outweighing advantages of therapy: Five of the patients who declined guideline-based treatment did so despite the doctor's recommendation; they rejected therapy components after weighing the advantages and disadvantages. In particular, adjuvant systemic therapy

was rejected with the argument that the benefits would not be justified by the expected adverse side effects and reduced the quality of life.

"And I had noticed this and then I was told: the chances, that is, only the statistical chances, it is always only a matter of statistics, but well, the chances were only 1 percent in my case. And that would be reason enough for me to consider whether the benefits would well outweigh these side effects. And then I said: no, then I shall do without this treatment".

In this context, infrastructure and difficulties in getting to the treatment centers also played a role in therapy rejection. This is a patient-based reason but also a structural one.

"And I have no desire to go for breast radiotherapy for 52 weeks. I want to be quite honest with you. Then I would put myself again under a lot of stress. You must consider that I have to travel to the clinic and back. It always takes 45 minutes (to get to the clinic). Then the taxi driver is waiting for me and it takes another 45 minutes to get back home. And this every day for 5 weeks, no 52 weeks. No, I am not going to do this to myself".

Quality of life interpreted in the context of advanced age: Five patients rejected parts of the therapy because they expected a reduction of life quality associated with the suggested treatment in the context of their age. The majority of patients considered cancer in advanced age as less worrisome than in younger years. Nine women said they would have been more worried about the future if they had become ill when they were young. In old age, illness would be a part of life and would be easier to accept. They felt that it would be a more difficult situation for younger women with cancer because they would be needed to look after their children. Some women also said that they would have fought more against the disease and would have accepted a reduction of life quality as a necessary price to pay in younger years. In the context of their age, three patients said that they wanted to have as high a quality of life as possible, so that they would even be willing to accept the risk of recurrence and the uncertainty about disease progression as a result of rejection of therapy if this was associated with reduced quality of life.

"And then I said to the doctor: dear lady, I am 75 and I have a pacemaker, and I have to go back to the hospital for 8 days, the pacemaker has to be re-implanted and I do not want to add any more stress with (cancer) therapy".

Another patient said:

"You need not answer me, but (she laughed), I guess ...well, I'll be 80 next month. Do I really have to do these things to myself? I don't believe so. So, I have now made this decision for myself (...)".

One patient who rejected therapy because of age and fear of adverse side effects, mentioned faith in God as an important factor in coping with the disease. She hoped that her life would be extended and that she would be able to spend some more time with her family. However, she accepted death as part of life and believed that there was something more than just this life on earth.

Inadequate information from the doctor: Two of the patients who rejected anti-hormonal therapy said that they had not been

adequately informed about possible side effects. When asked if there had been any conversation about side effects at all, one patient answered:

"Yes, but not much. She only said: you must take it, because you cannot rule out that the disease has spread. This medicine is to support the therapy so that there is no recurrence of the disease".

Influence of the family doctor: For most of the patients, while the gynecologist was the most important medical contact, the family doctor who often regularly checked blood values was also very important. Eleven patients said that it was very important to them to have a GP they could consult. Two of the patients who had refused parts of the recommended treatment regimen said that they did so in agreement with the opinion of their family doctors in whom they had complete trust.

"I called my family doctor and I explained to him (my situation and decision). He said: you can stop taking these pills with a good conscience".

Although patients consulted their family doctors, for additional help in decision-making, most patients reported that it was their own decision to reject parts of therapy recommended and offered by the doctors. For example, one patient said:

"I'm not like that. I never want to give up my independence. I always want to decide for myself because I know my body. I always want to have a doctor who accepts my decision, but one who at the same time empowers me to make my decision".

Only one patient said that therapy decisions were made by the doctors without consulting and discussing therapy-associated issues with her.

Selective coding categories and core category

In the step of *selective coding*, we defined more abstract categories to summarize the factors that influenced the decision by using the original data again. We identified the key categories as follows: "Cost-benefit calculation", "Influence of doctor", "Influence of family" and "future expectations". The final core category that emerged was "*meaningfulness of the treatment in the particular situation*" (Figure 1).

Finally, meaningfulness of treatment in the context of the individual living situation with advanced age playing a predominant role could be isolated as the core category as well for acceptance as for rejection of therapy recommendations.

Discussion

Theoretically, the reasons for non-adherence to therapy guidelines can be divided into two different categories:

Deviation from the recommendations of the medical society guidelines by the oncologist

Rejection of the physician-recommended treatment by the patients themselves.

In this project, we looked for category B reasons for non-adherence, and asked the patients why they rejected or partially rejected a therapy recommended by their treating oncologist. These reasons cannot be covered by medical society

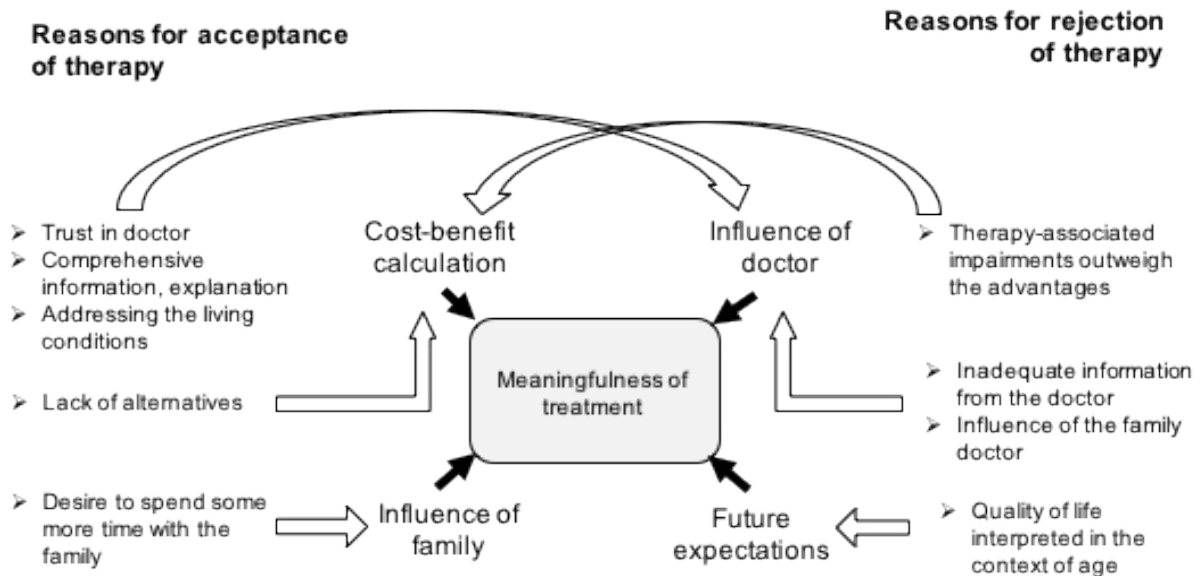


Figure 1: Network of categories.

guidelines as they lie in the personal situation of the patients. We performed qualitative interviews with older breast cancer (>69 y, patient characteristics are shown in Table 1), as recent studies have reported that, in this age group, guideline-based therapy was more often lacking than in those with other cancers [7,9,10]. Also, it has been shown that reduced therapy intensity potentially reduces life expectancy of these older patients [15].

As compared to older studies on the same topic, where *patient satisfaction* was the most recognized outcome measure [16], we identified *meaningfulness* as the *central category* as well for acceptance, as for rejection of therapy recommendations, using the concept of *Grounded Theory* for the analysis of the interviews with patients (Figure 1). *Meaningfulness* is a central philosophical concept of solving problems, especially under life-threatening conditions such as being ill with cancer. In modern models, it can be seen as an ongoing process of composing and recomposing one's life story through sharable values [17], which might describe the patient's situation after receiving the diagnosis of cancer. One of the major differences between young and elderly cancer patients is that older people can look back on their life stories. Thus, meaningfulness is a guiding structure for making decisions about treatment and is closely rooted in the personal life history of the patient. Meaningfulness is not a static but a dynamic process defined by a constant redefining of risks and benefits, which has also been described as a process for decision making of women to undergo prophylactic contralateral mastectomy [18].

In this concept, meaning and identity, or self, are closely linked. Cancer diagnosis is a (potentially) destructive element in patients' life stories. Agreement between doctor and patient regarding treatment can only be expected if the patient not only understands the treatment concept and its consequences but is also able to integrate it into his/her personal life story. This guiding structure for decision making can also be understood as a method of preserving the self, that has been also found as a process of decision making about hereditary breast cancer and ovarian cancer risk reduction [19]. Some cancer survivors

even report positive subjective changes they describe as "*life transforming*" within the scenario of cancer diagnosis and treatment [20].

Interestingly, three of the five axial coding categories underlying patient decisions to accept or reject recommended therapies, namely trust in doctor, comprehensive information and explanation from the doctor, and addressing the living conditions of the patient are within the doctor's sphere of influence (Table 1). The oncologist can establish a trustful relation with patients by providing adequate information and answering questions about disease and available treatments in terms intelligible to them and by addressing their personal life situation. However, it needs to be noted that despite such efforts to establish a trustful relationship, patients might still decline recommended therapy. On the one hand, whereas the gynecologist was the key medical advisor for most patients, in two cases, the family doctor played a decisive role in the rejection of gynecologist-recommended therapy. These patients declined therapy when assured by the family doctor that in rejecting the therapy, they were doing the right thing. These conclusions are in agreement with the findings of other studies. On the other hand, as pointed out by Puts and colleagues, patients wanted as much information as possible so that they can make therapy decisions that fitted into their personal and unique life situation [21]. Thus, oncologists need to accept the fact that their expertise, although taken into account, is not the only source of information used by patients in making therapy-related decisions: besides the internet, which is being increasingly used also by patients of advanced age, our interviews showed that information from the family doctor was also taken into consideration [22].

These new perceptions again lead us back to the old knowledge that the style of physician communication is a major factor in treatment adherence [23]. Although it is known that patient adherence to therapy is lower than suggested by oncologists [24], the number of published studies evaluating the possible reasons for this phenomenon is surprisingly low. Nevertheless, it has been shown that physician communication is significantly

positively correlated with patient adherence; a meta-analysis has shown that there is a 19% higher risk of nonadherence among patients whose physician communicates poorly than among patients whose physician communicates well; training physicians in communication skills results in substantial and significant improvements in patient adherence [23]. We suggest that future physician communication training should include the factors that we analyzed in this project.

Further investigation of non-acceptance of treatment decisions is needed. Even though the study reveals some reasons for non-acceptance, no quantitative statements can be made based on our findings. One factor that has been found in previous studies was the wish to act independently especially in cancer patients that are living alone, which is often the case in older patients in the western countries [25]. The approach to integrate PROM/PREM (patient-reported outcome and experience measures) into clinical documentations, as cancer registries, is relatively new and requires the development of relevant and focused survey instruments. Studies like ours can help to include factors that are relevant for the patients' decision-making and experience before and during therapy and hopefully overcome barriers to better adherence to guideline-based treatment in elderly patients [26].

Strengths and limitations of the study

This study using the Grounded Theory approach addresses the concept of meaningfulness of therapy in a population of elderly breast cancer patients in the context of the individual life situation of each patient. The strength of the study lies in its qualitative approach. In contrast to quantitative studies, where the possibilities of response are limited, open questions were asked, which allowed patients to decide which aspects of the issue were of importance to them. We reached a theoretical saturation, which explains the small sample size. One limitation is the focus on a selected group of patients with breast cancer after their initial therapy; however, the overall message is such that further work in this area is warranted. Furthermore, the study might be a supplement to work addressing patient-reported outcomes (PRO).

Conclusion

We focused on a group of older cancer patients with breast cancer, a group where treatment non-adherence is especially high, and asked them what their reasons were for accepting or rejecting the cancer therapy recommended by their treating gynecologists. We found that advanced age played a decisive role in patients' decisions: cancer and expectations from therapy (negative as well as positive) were interpreted in the context of their life stories, thus contributing significantly to the building of an individual concept of meaningfulness. Awareness of factors that are pivotal in the patients' decisions regarding treatment can help doctors understand and respect refusal of specific therapies or therapy components by patients and might help in subsequent therapy planning. We suggest that more studies on this subject are warranted and that physician communication training should include the factors that have emerged from this study, factors that are currently not part of such training in medical curriculum. Awareness of the reasons why patients reject the recommended therapy helps to reduce

physician stress. In addition, these findings should be integrated into the development of PRE/PRO as an integral part of clinical documentation systems such as cancer registries.

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