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Original article

How do breast cancer patients experience multidisciplinary tumor conferences? – A description from the patient perspective

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ABSTRACT

Objectives: Aim of this study was to investigate the experiences of breast cancer patients who participated in multidisciplinary tumor conferences (MTCs).
Study design: Data from two consecutive years of an annual postal survey of patients with primary breast cancer were combined. Data was collected between February and July 2015 (response rate 72%) and 2016 (response rate 73%) from N = 8893 patients (ICD-10 C50) after hospital discharge from 86 breast cancer center hospitals in North Rhine-Westphalia, Germany. The study used a mixed-methods design. Standardized quantitative survey questions were analyzed descriptively and an open-ended question was analyzed using qualitative content analysis.
Results: Around 9% of the patients were invited to participate in a multidisciplinary tumor conference (MTC) and 49% of the invited patients reported actual participation in a MTC. Approximately 87% of those patients did not regret their participation in the MTC. The qualitative analysis from the open-ended question indicated that MTC participation was perceived by patients as being both supportive and informative ($n = 109$ expressions). However, some patients reported difficult experiences and emotional reactions during and after participation ($n = 37$ expressions). Altogether, the patients' perception was divided into positive and negative, cognitive and emotional experiences following participation in a MTC.
Conclusion: The perception of the MTCs varies between the participating patients. Further research on advantages and disadvantages for patients and particularly on the feasibility from the provider's perspective is necessary.

1. Introduction

With around 71,000 new cases diagnosed every year in Germany, breast cancer is the most commonly diagnosed cancer in women [1]. Currently, one out of eight women in Germany are diagnosed with breast cancer during her lifetime, and 17,850 women become deceased as a result of this disease annually [2]. The experience of breast cancer influences the patients' psychological condition and frequently leads to anxiety or depressive disorders [3,4]. The global impact of this disease on the woman's body and mind requires the need for holistic treatments [5].

Progress in cancer research has given rise to new diagnostic and treatment options for breast cancer patients [6]. Therefore, oncological care is becoming more complex and requires the cooperation of a multidisciplinary team of specialists [7]. In recent years, a

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multidisciplinary approach to managing breast cancer has become the standard of care [6–9]. Multidisciplinary cancer care (MCC) describes the collaborative work of relevant professionals from different disciplines working together to support a patient through their cancer treatment journey [5]. This type of care is multifactorial and involves a number of factors which include: increased coordination of care, better communication between health care providers, comprehensive and integrated treatment decisions as well as enhanced access to clinical trials [8,10–13]. Several studies have reported an association between improved patient satisfaction and survival rates [8,11,12].

A common process for implementing MCC involves the organization of multidisciplinary tumor conferences (MTCs). MTCs are regular meetings comprising of a multidisciplinary treatment team of health care specialists who are involved at differing stages of a cancer patient's management plan [11,12,14]. The treatment team consists of various medical specialists who are involved in breast cancer care [6,13,15]. MTCs are internationally established and are a requirement in Germany by the certification catalogue for breast centers of the German Cancer Society and the Medical Council Westphalia-Lippe, Germany [16,17]. According to a patient survey, conducted in breast cancer centers in North-Rhine Westphalia, patients are invited to participate in tumor conferences at some breast cancer centers. The invitation depends on a number of patient characteristics [14]. Typically, only few patients take part in MTCs, resulting in a dearth of available data on the distribution, risks and benefits of patient participation in MTCs [14,18]. The provider perspective on patient participation in MTCs are largely unexplored. An Australian study reported on the provider perspective of breast cancer patient's attending MTCs and highlighted that surgeons, medical oncologists and radiation oncologists were not supportive of the idea of patient participation in treatment planning meetings, predominantly due to the psychosocial concerns they felt were experienced during and following the meeting attended by the patient. In addition, health care providers found that they had to adapt the use of medical terminology to describe the patient's condition, which at times restricted communication and discussion with other health professionals at the multidisciplinary tumor conference (MTC). In contrast, the majority of nurses and patient advocates supported the involvement of breast cancer patients in the MTC as they felt that the patient could be encouraged and empowered. Moreover, they observed that the interactive establishment of the management plan resulted in better informed and supported patients through their cancer treatment journey as compared with standard routine care. Furthermore, the participation would facilitate a collaborative decision-making model in order to enhance communication between providers and patients [18]. Another Australian study reporting on outcomes generated from focus groups with healthcare providers, report provider's rejection of patient participation in MTCs. Providers were concerned about a patient's ability to deal with the information being discussed [9].

A pilot study of 30 breast cancer patients explored the acceptability and feasibility of involving these patients in MTCs. The majority of the patients recommended the participation and valued the involvement as being helpful. However, some patients reported negative experiences regarding participation, including increased anxiety, being overwhelmed by the information discussed or experiencing difficulties interacting with the providers during the MTC [19]. This Australian pilot study is an intervention study. It combined both quantitative and qualitative data by using questionnaires the patients filled out before and after the MTC as well as qualitative interviews with the breast care nurses after the MTC. Compared to the Australian pilot study our study is not based on an intervention but is an exploratory study and observes how the patient's experience participation in a MTC by using an open-ended question about how the patient's experienced the MTC. Since answering this question was completely optional it can be assumed that the responding patients had a particular need to communicate their experiences. This study builds on intuitive, unfiltered data that can serve as a starting point for future qualitative studies, which can review the issues that patient's mentioned in our study in-depth.

To date, there have been few studies investigating the patient's experience regarding participation in a MTC. Further benefits and risks of patient participation in a MTC are widely unexplored. The aim of this study was to bridge the gap regarding 'How do patient's experience their participation in MTCs?'

2. Materials and methods

2.1. Study design and sample

Data from two consecutive years of an annual postal survey were conducted at 86 breast cancer center hospitals in North Rhine-Westphalia, Germany. Data were collected between February and July of the years 2015 and 2016 and from patients, who (1) were newly diagnosed with breast cancer (ICD-10 C50), (2) had undergone primary breast cancer surgery during their current hospital stay, (3) had at least one malignancy and (4) had at least one postoperative histology. Patient recruitment took place in the breast cancer centers. The hospital staff provided the research team with patient clinical characteristics, which included: stage and grade of tumor. Before being discharged, patients provided written consent to take part in the survey. The patient survey was designed utilizing the Dillman Total Design Method [20]. Further details of the survey have been reported elsewhere [21,22]. The study received the approval from the ethics committee of the Faculty of Medicine of the University of Cologne, Germany.

2.2. Instruments

For the survey, the Cologne Patient Questionnaire – Breast Cancer (KPF-BK) was used [23]. This breast cancer-specific version of the Cologne Patient Questionnaire included: aspects of hospital organization, patient information and satisfaction as well as interaction between healthcare providers and patients. For the following investigation, the question: "*Were you asked if you wanted to participate in the tumor conference?*" was analyzed. The response options were: (1) "*Yes, and I did*", (2) "*Yes, but I did not*", (3) "*No*", and (4) "*I do not remember.*"

A variable for "*invitation to participate*" was established by grouping together patients who received an invitation, regardless of their actual participation, versus patients who reported that they had not been invited. A variable for "*participation in the MTC*" was established for patients who reported that they had participated in the MTC [14]. Patients who indicated that they participated in a MTC were asked the subsequent open-ended question: "*Please briefly describe how you experienced the MTC.*" In addition, sociodemographic information was also collected and included: age, type of health insurance, native language, partnership status and highest level of school education.

2.3. Analysis

The study used a mixed methods approach with a sequential explanatory design, which included both quantitative and qualitative analysis [24]. We conducted descriptive analysis using SPSS version 25 (IBM SPSS Statistics, 2017). Differences between patients, who participated in a MTC, vs. patients, who did not participate in a MTC as well as differences between patients, who

Table 1
Descriptive results of the patients' characteristics of the whole sample (N = 8893), the participating patients' in the MTC ($n = 408$), the non-participating patients' ($n = 8032$) and the patients who answered the open-ended question ($n = 188$).

Variables	Response trait	Total (%)	Non-participation (%)	Participation (%)	p-value	Participation (%)	Open-ended question (%)	p-value
UICC Stage	Stage 0	553 (7.5)	498 (7.5)	29 (8.6)	0.778	29 (8.6)	16 (10.4)	0.789
	Stage I	3371 (45.7)	3053 (45.8)	161 (47.8)		161 (47.8)	67 (43.5)	
	Stage II	2551 (34.6)	2302 (34.6)	106 (31.5)		106 (31.5)	53 (34.4)	
	Stage III	645 (8.7)	575 (8.6)	30 (8.9)		30 (8.9)	11 (7.1)	
	Stage IV	262 (3.5)	231 (3.5)	11 (3.3)		11 (3.3)	7 (4.5)	
	Missing	1511 (–)	1373 (–)	71 (–)		71 (–)	34 (–)	
Grading	G1	1207 (14.6)	1108 (14.9)	47 (12.5)		47 (12.5)	27 (15.8)	0.920
	G2	4768 (57.8)	4284 (57.4)	230 (61.0)	0.308	230 (61.0)	88 (51.5)	
	G3	2281 (27.6)	2065 (27.7)	100 (26.5)		100 (26.5)	56 (32.7)	
	Missing	637 (-)	575 (–)	31 (–)		31 (–)	17 (–)	
Age	18–29	33 (0.4)	31 (0.4)	2 (0.5)		2 (0.5)	0 (0.0)	0.720
	30–39	275 (3.1)	247 (3.1)	20 (4.9)		20 (4.9)	8 (4.3)	
	40–49	1271 (14.3)	1165 (14.5)	46 (11.3)		46 (11.3)	27 (14.4)	
	50–59	2506 (28.3)	2282 (28.5)	115 (28.3)	0.053	115 (28.3)	49 (26.2)	
	60–69	2423 (27.3)	2188 (27.3)	119 (29.2)		119 (29.2)	46 (24.6)	
	70–79	1741 (19.6)	1553 (19.4)	88 (21.6)		88 (21.6)	45 (24.1)	
	>80	612 (6.9)	541 (6.8)	17 (4.2)		17 (4.2)	12 (6.4)	
	Missing	32 (–)	25 (–)	1 (–)		1 (–)	1 (–)	
Type of health insurance	Statutory	6401 (72.7)	5800 (72.8)	286 (70.8)		286 (70.8)	144 (76.6)	
	Statutory with additional private insurance	1368 (15.6)	1232 (15.5)	74 (18.3)		74 (18.3)	26 (13.8)	
	Private	995 (11.3)	900 (11.3)	42 (10.4)	0.001	42 (10.4)	17 (9.0)	0.156
	Other	24 (0.3)	37 (0.5)	2 (0.4)		2 (0.4)	1 (0.5)	
	Missing	89 (–)	63 (–)	4 (–)		4 (–)	0 (–)	
Native language	German	8137 (92.8)	7379 (93.0)	356 (88.8)		356 (88.8)	172 (93.0)	0.765
	Other	628 (7.2)	554 (7.0)	45 (11.2)	0.001	45 (11.2)	13 (7.0)	
	Missing	128 (–)	99 (–)	7 (–)		7 (–)	3 (–)	
Living with partner	Yes	6201 (71.3)	5639 (71.5)	283 (71.3)		283 (71.3)	135 (72.2)	0.679
	No	2497 (28.7)	2245 (28.5)	114 (28.7)	0.918	114 (28.7)	52 (27.8)	
	Missing	195 (–)	148 (–)	11 (–)		11 (–)	1 (–)	
Having Children	Yes	6883 (80.9)	6241 (81.1)	300 (76.1)	0.016	300 (76.1)	145 (78.0)	0.376
	No	1628 (19.1)	1459 (18.9)	94 (23.9)		94 (23.9)	41 (22.0)	
	Missing	382 (–)	332 (–)	14 (–)		14 (–)	2 (–)	
Highest level of school education[a]	No lower secondary school education	164 (1.9)	138 (1.7)	14 (3.5)	0.044	14 (3.5)	4 (2.2)	0.061
	Lower secondary school education	3622 (41.6)	3264 (41.4)	159 (40.1)		159 (40.1)	76 (40.8)	
	Intermediate secondary school education	2307 (26.5)	2121 (26.9)	91 (22.9)		91 (22.9)	41 (22.0)	
	Entrance certificate for a university of applied sciences	953 (10.9)	863 (10.9)	49 (12.3)		49 (12.3)	22 (11.8)	
	University entrance certificate	1559 (17.9)	1405 (17.8)	76 (19.1)		76 (19.1)	39 (21.0)	
	Other	109 (1.3)	96 (1.2)	8 (2.0)		8 (2.0)	4 (2.2)	
	Missing	179 (–)	145 (–)	11 (–)		11 (–)	2 (–)	

Note: Due to rounding, percentages might not add up to exactly 100%.
[a] In Germany, educational levels are named as follows in ascending order according to years of schooling: (1) ohne Volks-und Hauptschulabschluss (no lower school education), (2) Volks-und Hauptschulabschluss (lower secondary education), (3) Realschule/Polytechnische Oberschule 10. Klasse (intermediate secondary school education), (4) Fachhochschulreife (entrance certificate for a university of applied sciences), (5) Hochschulreife (university entrance certificate).

participated in a MTC, vs. patients, who completed the open-ended question were analyzed by calculating chi-square. For qualitative analysis, data was transcribed and analyzed using qualitative content analysis according to Miles, Huberman and Saldaña [25]. For managing the data, MAXQDA software version 12.2.1 was used. Coding was deductive and inductive. Inductively identified codes were complemented and modified by deductively derived frames. The coding process was conducted by two researchers separately, and regular consultations were carried out within the research team for validation.

3. Results

3.1. Descriptive results

The sample consisted of N = 8893 patients. The response rate of the survey was 72% (2015) and 73% (2016). Table 1 highlights patient characteristics. Around 87% ($n = 7773$) of the patients reported that their case was discussed in a MTC, and approximately 84% ($n = 7496$) of the patients specified that they were informed about the outcome regarding their cancer management plan following the MTC. Approximately 9% ($n = 760$) of patients were invited to participate in a MTC. About 49% ($n = 373$) of the invited patients reported participation, and overall, 5% ($n = 408$) of the whole sample took part in a MTC. About 41% ($n = 3048$) of non-invited patients reported that they would have liked to participate in a MTC. In total, 87% ($n = 356$) of the patients did not regret their participation in the tumor conference at the time of the survey. Table 2 reports on survey items representing patient's experience with participation in a MTC.

Table 2
Descriptive results of the patients' participation in MTCs ($N = 408$).

Variables	Response trait	N (%)
For how many minutes did you participate in the MTC?		N_{Valid}: 367 (90.0) $N_{Missing}$: 41 (10.0) Min: 2 min Max: 60 min Median: 15.0 min Std. Deviation: 10.4
How many persons were sitting in the MTC except you?		N_{Valid}: 364 (89.2) $N_{Missing}$: 44 (10.8) Min: 1 person Max: 17 persons Median: 4 persons Std. Deviation: 3.1
Were you accompanied by someone? (e.g. partner, spouse, relative)	Yes No Missing	283 (69.4) 99 (24.3) 26 (6.4)
Did you have the opportunity to express your opinion referring to the subsequent treatment?	Yes No Missing	350 (85.8) 24 (5.9) 34 (8.3)
Were you involved in the decision making process referring to the subsequent treatment?	Yes No Missing	315 (77.2) 58 (14.2) 35 (8.6)
Did you regret the participation in the MTC?	Yes Partly No Missing	13 (3.2) 8 (2.0) 356 (87.2) 31 (7.6)

Note: Due to rounding, percentages might not add up to exactly 100%.

3.2. Results of qualitative data analysis

Around half of the patients who participated in the MTC ($N = 188$) responded to the following open-ended question: "Please briefly explain how you experienced the MTC." Qualitative analysis was performed on three main categories, which were derived from the open-ended responses provided by patients and included: (1) situational context, (2) personal context and (3) decision making. Under each of the three main categories, further subcategories were developed. The main categories of "decision-making" and "personal context" as well as the subcategories "classification of experiences as negative or positive" evolved deductively out of examining the literature [10,19,26]. The other main category and the other subcategories evolved from data analysis. Fig. 1 details the categorization tree. The categories as well as their subcategories are described below.

Situational context. The situational context focused on how the MTC appeared to the patients. It describes the psychosocial influence of the atmosphere of the MTC on the patient. The analysis resulted in three subcategories in relation to the *situational context* category, namely *positive experience, neutral experience* and *negative experience*. The *positive* and *negative experience* can be specified as *cognitive experiences* and *emotional experiences*, whereas the *neutral experience* only represents *no new information received* ($n = 9$ expressions). The cognitive experience describes how the patients perceived the MTC on a cognitive level without expressing their experiences emotionally. Examples of positive cognitive experiences included ($n = 79$ expressions) the following:

> "*Helpful concerning the subsequent treatment*" or "*Very informative*"

Comparatively, examples of negative cognitive experiences ($n = 15$ expressions) included:

> "*Like an assembly line. Cases were discussed too fast.*" or "*The group was under time pressure – this made for a negative impression*" or "*the […] oncologist used foreign words concerning chemotherapy that neither my companion nor I could understand*".

In contrast, an emotional experience described how the patient perceived the MTC on an emotional level, which excluded cognitive interpretations. The following are examples of a positive emotional experience ($n = 30$ expressions) of the MTC:

> "*For my mind very reassuring*" or "*I left the MTC soothed, with a positive outlook for the future*" or "*encouraging.*"

In contrast, examples of a negative emotional experience ($n = 22$ expressions) included:

> "*Very stressful –the label 'MTC' alone …*", "*Like a tribunal*" or "*Very frightening*"

Personal context. The category "personal context" described the patient's perception of the communication skills demonstrated by the healthcare providers during the MTC. This category differentiates from the category "situational context" as follows: the category "personal context" referred to the social component of the MTC by focusing specifically on the communication between patients and health care providers of the MTC, while the category "situational context" related to the psychosocial influence of the atmosphere of the MTC on the patients. The perceived competence of the provider's communication skills was categorized into two

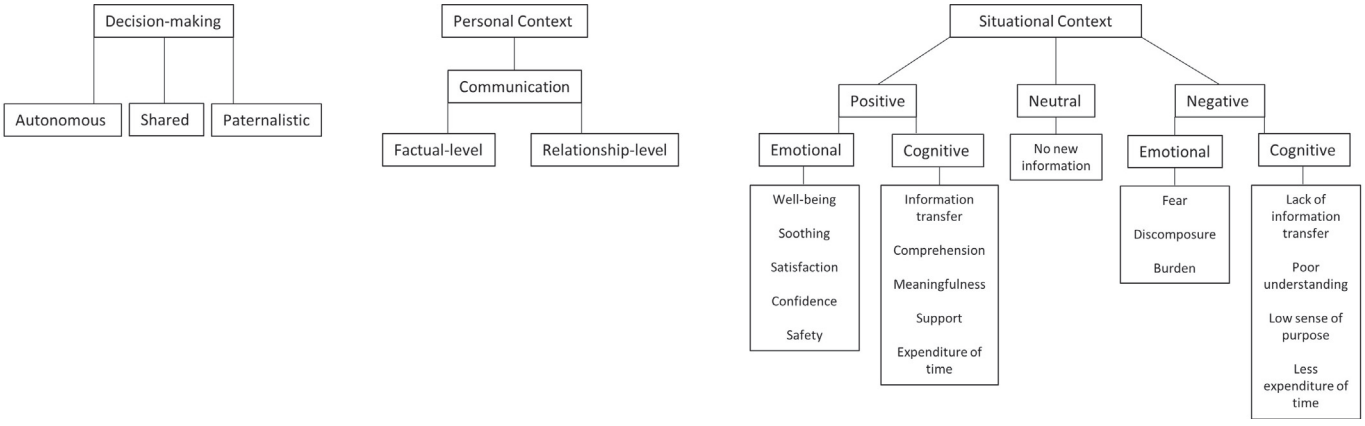

Fig. 1. Categorization-tree of the patient experiences in the multidisciplinary tumor conference (MTC).

subcategories, which included: *factual-level* and *relationship-level of* communication. *Factual-level* ($n = 76$ expressions) referred to the objective and factual communication of the patient's information and professional appearance during the MTC:

"*Very qualified*", "*Factual, targeted […]*" or "*Competent, factual […]*"

In contrast, the *relationship level* ($n = 41$ expressions) of healthcare provider communication referred to caring behaviors exhibited during the MTC and sensitive communication of the patient information:

"*Friendly, calm, understanding*", "*The doctors were very nice and personal*" or "*sensitive*"

Decision-making. The decision-making category referred to how the final decision in association with a treatment recommendation was made in the MTC and who (providers and/or patient) significantly contributed to the decision. The subcategory *autonomous decision-making* ($n = 3$ expressions) applied to when the decision was predominantly made by the patient:

"Presentation of the facts, further treatment options […] and then my decision"

The subcategory *shared decision-making* ($n = 7$ expressions) reflected a decision which was made together with the health care providers and patient:

"*I was advised about the further treatment and was given time to think about the possible options*" or "*My wishes were considered*"

The last subcategory explored *paternalistic decision-making* ($n = 22$ expressions) and related to the decisions made exclusively by the healthcare providers without consideration of the patient perspective:

"I was presented with a fait accompli (duration of chemo) without being involved and without any explanation … !!!".

Altogether the qualitative analysis provided an ambiguous picture of the participants' perceptions. There were not only inter-individual differences between the patient's reporting negative and positive impressions, but also intra-individual discrepancies within the same patient. Thus some patients exhibited a cross-categorical reaction pattern ($n = 35$ expressions), such as a negative emotional, but a positive cognitive reaction.

4. Discussion

The aim of the study was to investigate the experiences of breast cancer patients who participated in MTCs. The study used a mixed methods approach of both quantitative and qualitative data analysis. Descriptive findings indicated poor patient involvement in MTCs, indicating that it is not yet an established process within the healthcare system. However, patient involvement in MTCs is currently being practiced in some breast cancer centers in Germany. Half of the invited patients were not interested in participating in a MTC. This may indicate that patients may have had no preference or may face fears regarding participation in a MTC meeting given the nature of the information being discussed and the patient's health at the time of the MTC taking place [14,26]. Conceivably, the term MTC may have been unknown to some of the surveyed patients, although a definition had been provided in the survey. Further investigation regarding reasons for non-participation would be required.

In Table 1 chi-square tests indicated that patients whose native language was not German were more likely to participate in the MTC. Moreover, patients who do not have children and patients who have an additional private health insurance were more likely to participate in the MTC. To date, and to the best of our knowledge, these patient characteristics have not been considered in prior publications. However, these results need to be interpreted with caution, as tests did not adjust for other covariates and the findings are based on a relatively small sample size.

The majority (87%) of participating patients did not regret their participation in a MTC. Results of the descriptive analysis seem to be in contrast with the ambivalent findings of negative and positive perceptions of participation represented by the outcome generated from the qualitative analysis.

Patients did experience positive aspects of participation, such as being informed about their illness, which was the most frequent response to the open-ended question. In addition, participation in a MTC was reported to have positively influenced the well-being of many patients. This may be associated with a positive experience of involvement in a meeting where the patient is receiving information around their diagnosis and treatment from a multidisciplinary group of supportive health care professionals involved with their care. This can make patient's feel cared about and gives the impression of being well supported. Other international studies report similar findings experienced by patients in attendance at a MTC [18,19].

Comparatively, patients also reported feelings regarded being overwhelmed by the information, as they felt that they were overloaded with information received as well as medical terminology used in discussions at the MTCs. In addition, the sensitive mental condition of many patients explains a patient's inability to follow the content of the MTC. The fact that some patients indicated a cross-categorical reaction pattern, highlights the difficult situation faced. Many patients feel overwhelmed by their diagnosis, particularly after hearing different views from a multi-disciplinary team of clinicians, whilst in discussion about different aspects of a patient's treatment plan. This could in turn lead to a patient's increased psychological distress and further cause anxiety. Patients want to be informed about their cancer progression and treatment recommendations, but facing the facts about their illness may also evoke negative emotional reactions [19]. The vast majority of patients indicated that they had no regrets in their decision to participate at one of these meetings. As both negative and positive experiences have been highlighted by patients, it makes it difficult to determine or recommend whether the benefits associated with MTC outweigh the negative emotions following the experience with attendance. Clinicians need to be mindful of a number of issues when offering the opportunity to participate in a MTC to a patient, which would include: coping strategies of the individual patient, age and cultural appropriation of the information provided and discussed, patient participation preferences and health literacy of the individual patient.

In terms of patient-provider communication, some patients reported about their perception on a relationship level of communication. These patients focused on 'how' the caregivers talked to and cared about them. In contrast, a second group of patients focused on the factual ('what') level of communication [27]. They emphasized the professional appearance of the health care providers and gave little consideration to their social communication skills. A better understanding of the relationship between the different feelings expressed by patients in relation to the category *personal context* requires further exploration in order

to better support and enhance clinician and patient communication.

With regards to the decision-making category, patients presented differing views. The level of involvement in decision-making depended on the individual patient as well as on the participation preference, the attitude of the health care providers toward shared decision-making with the patient, the temporal aspect of the MTC and the information of cancer treatment recommendations being provided by the health care provider and processed by the patient [9,18,19].

Overall, 50% of patients ($N = 188$) responded to the open-ended question. Hence, our qualitative findings need to be interpreted cautiously as we are unable to determine the experiences of those patients that participated in a MTC, but did not respond to this survey question. Sometimes, patients' responses to the open-ended question were brief, making it difficult to thematically categorize a patient's response into one of the three main categories or further subcategories. Furthermore, responses were at times ambiguous. In addition, there were no nonverbal or paraverbal information that could contribute to a better understanding of patients' actual emotional perception. Patient interviews would be a positive step in assisting with ameliorating some of these issues, in order to provide a holistic picture of the patients' experiences in a MTC. As the sample represented patients receiving treatment at local breast cancer centers in NRW, we are unable to generalize these findings and experiences to an international breast cancer population, even though the sample size for this population was significant in size ($N = 8893$) [28]. A mixed methods approach of using both quantitative and qualitative methods assists with explaining and providing a greater understanding of the quantitative results presented through a detailed explanation provided using qualitative analysis [29].

4.1. Implication for practice and research

These preliminary findings do not support recommendations for or against patient participation in a MTC. A positive experience associated with attendance at a MTC depends on communication, which should be respectful and sensitive on an emotional level as well as informative on a cognitive level. The success of participation further depends on how much information a patient actually wants to receive and to the degree of which a patient wants to be involved in the management of their cancer treatment journey. Hence, the level of information provided at a MTC should be individually assessed. For practical advice, an individual assessment of the patients' information needs, decision-making preferences (autonomous, shared, paternalistic) and psycho-social assessment (e.g. anxiety) would be critical in assisting with identifying patients that may benefit from attendance and participation in a MTC. Additionally, studies with a controlled design would be a preferential methodology in providing a deeper insight into the circumstances faced by the patients when participating in MTCs, e.g. by observing MTCs with patient participation.

5. Conclusion

The study indicated mixed experiences for patients that attended and participated in a MTC at different breast cancer centers. The quantitative analysis revealed mainly positive experiences concerning patient participation, however the open-ended question indicated a mixed response of both positive and negative patient experiences.

Several further questions remain unanswered: (1) Which patients benefit from participation? (2) How do caregivers experience patient participation? (3) How is shared decision-making implemented in the process of MTC and how do patients and providers experience it? (4) Is MTC participation beneficial or harmful for patients in terms of psychological health? (5) How are these patients followed up after a MTC and what kind of (psychological) support do they receive after the meeting?

These mentioned questions should be addressed in studies using suitable quantitative and qualitative designs. A subsequent study on the patient, provider and organizational perspective regarding patient involvement in MTCs is currently being conducted.

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References

[1] Robert Koch-Institut. Bericht zum Krebsgeschehen in Deutschland 2016. RKI-Bib1. Robert Koch-Institut; 2016.
[2] Robert Koch-Institut. Wie steht es um unsere Gesundheit? RKI-Bib1. Robert Koch-Institut; 2015.
[3] Burgess C, Cornelius V, Love S, Graham J, Richards M, Ramirez A. Depression and anxiety in women with early breast cancer: five year observational cohort study. BMJ 2005;330(7493):702.
[4] İzci F, Sarsanov D, Erdogan Zİ, İlgün AS, Çelebi E, Alço G, et al. Impact of personality traits, anxiety, depression and hopelessness levels on quality of life in the patients with breast cancer. Eur J Breast Health 2018;14(2):105–11.
[5] Rabinowitz B. Interdisciplinary breast cancer care: declaring and improving the standard. Oncology (Williston Park, N Y) 2004;18(10):1263–8. discussion 1268-70, 1275.
[6] Croke JM, El-Sayed S. Multidisciplinary management of cancer patients: chasing a shadow or real value? An overview of the literature. Curr Oncol 2012;19(4):232–8.
[7] Fleissig A, Jenkins V, Catt S, Fallowfield L. Multidisciplinary teams in cancer care: are they effective in the UK? Lancet Oncol 2006;7(11):935–43.
[8] Houssami N, Sainsbury R. Breast cancer: multidisciplinary care and clinical outcomes. Euro J Canc 2006;42(15):2480–91.
[9] Devitt B, Philip J, McLachlan S-A. Team dynamics, decision making, and attitudes toward multidisciplinary cancer meetings: health professionals' perspectives. J Oncol Pract 2010;6(6):e17–20.
[10] Hahlweg P, Didi S, Kriston L, Härter M, Nestoriuc Y, Scholl I. Process quality of decision-making in multidisciplinary cancer team meetings: a structured observational study. BMC Canc 2017;17(1):772.
[11] Prades J, Remue E, van Hoof E, Borras JM. Is it worth reorganising cancer services on the basis of multidisciplinary teams (MDTs)? A systematic review of the objectives and organisation of MDTs and their impact on patient outcomes. Health Policy 2015;119(4):464–74.
[12] Wright FC, Vito C de, Langer B, Hunter A. Multidisciplinary cancer conferences: a systematic review and development of practice standards. Euro J Canc 2007;43(6):1002–10.
[13] Chang JH, Vines E, Bertsch H, Fraker DL, Czerniecki BJ, Rosato EF, et al. The impact of a multidisciplinary breast cancer center on recommendations for patient management. Cancer 2001;91(7):1231–7.
[14] Ansmann L, Kowalski C, Pfaff H, Wuerstlein R, Wirtz MA, Ernstmann N. Patient participation in multidisciplinary tumor conferences. Breast 2014;23(6):865–9.
[15] Gabel M, Hilton NE, Nathanson SD. Multidisciplinary breast cancer clinics. Do they work? Cancer 1997;79(12):2380–4.
[16] Haier J. Aufgaben und Grenzen von Tumorkonferenzen. Onkologe 2016;22(3):184–91.
[17] Westfalen-Lippe Ärztekammer. Certification of breast cancer centers in North-Rhine Westphalia. Requirement catalogue breast cancer centers: [Verfahren zur Zertifizierung von Brustzentren in NRW. Anforderungskatalog-Brustzentren; 2018.
[18] Butow P, Harrison JD, Choy ET, Young JM, Spillane A, Evans A. Health professional and consumer views on involving breast cancer patients in the multidisciplinary discussion of their disease and treatment plan. Cancer 2007;110(9):1937–44.
[19] Choy ET, Chiu A, Butow P, Young J, Spillane A. A pilot study to evaluate the impact of involving breast cancer patients in the multidisciplinary discussion of their disease and treatment plan. Breast 2007;16(2):178–89.
[20] Dillman DA. Mail and telephone surveys: the total design method. 1978. New York.
[21] Ansmann L, Kowalski C, Ernstmann N, Ommen O, Jung J, Visser A, et al. Do

breast cancer patients receive less support from physicians in German hospitals with high physician workload? A multilevel analysis. Patient Educ Counsel 2013;93(2):327–34.
[22] Ansmann L, Kowalski C, Ernstmann N, Ommen O, Pfaff H. Patients' perceived support from physicians and the role of hospital characteristics. Int J Qual Health Care 2012;24(5):501–8.
[23] Pfaff H, editor. The Cologne Patient Questionnaire. Development and validation of a questionnaire of the involvement of patients as co-therapist: [Der Kölner Patientenfragebogen (KPF): Entwicklung und Validierung eines Fragebogens zur Erfassung der Einbindung des Patienten als Kotherapeuten]. Sankt Augustin: Asgard-Verl; 2003.
[24] Creswell John W, Clark Vicki L Plano, editors. Designing and conducting mixed methods research. second ed. Sage publications; 2017.
[25] Miles MB, Huberman AM, Saldaña J. Qualitative data analysis: a methods sourcebook. third ed. Los Angeles, London, New Delhi, Singapore, Washington DC: SAGE; 2014.
[26] Hubbard G, Kidd L, Donaghy E. Preferences for involvement in treatment decision making of patients with cancer: a review of the literature. Eur J Oncol Nurs 2008;12(4):299–318.
[27] von Thun Friedemann Schulz, editor. Miteinander reden: 3: Das “Innere Team” und situationsgerechte Kommunikation. Kommunikation, Person, Situation. Rowohlt Verlag GmbH; 2013.
[28] Ansmann L, Kowalski C, Pfaff H. Ten years of patient surveys in accredited breast centers in North Rhine-Westphalia. Geburtshilfe Frauenheilkd 2016;76(1):37–45.
[29] O'Cathain A, Murphy E, Nicholl J. Three techniques for integrating data in mixed methods studies. BMJ 2010;341:c4587.