

Psychosocial Information Requirements for Multimorbid Breast Cancer Patients in Breast Centres in North Rhine Westphalia

Psychosoziale Informationsbedürfnisse multimorbider Brustkrebspatientinnen in nordrhein-westfälischen Brustzentren

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Key words

- mammary carcinoma
- psychosocial information requirements
- multimorbidity

Schlüsselwörter

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Abstract



Introduction: The importance of breast cancer patients (BPs) being supplied with sufficient information is well known. This study investigated the unfulfilled psychosocial information requirements of multimorbid BPs.

Methods: This study records the unfulfilled psychosocial information requirements of 4166 patients, who were treated at one of the fifty breast centres in North Rhine Westphalia. The Cologne patient questionnaire for breast cancer 2.0 included in the postal survey following hospital stays records the information requirements using an adapted version of the “Cancer patient information needs” scale. Through a univariate analysis using the χ^2 test, it was investigated whether multimorbid BPs had significantly different psychosocial information requirements than BPs without further concomitant illnesses.

Results: In general, it transpired that BPs had relatively low unfulfilled information requirements regarding work (20.7%), everyday life (26.8%), illness (27.4%) and treatment (35.7%), though such requirements were higher when it came to health-related behaviour (54.2%). Multimorbid BPs had significantly lower unfulfilled information requirements regarding work and significantly larger ones regarding treatment in comparison to BPs without concomitant illnesses. Renal diseases and concomitant mental illnesses were associated with particularly high information requirements ($p < 0.05$).

Conclusion: The results of our study should clarify the complexity and heterogeneity of information requirements of breast cancer patients in oncological care and should help to design the supply of information to be more patient-oriented.

Zusammenfassung



Einleitung: Die Bedeutung einer adäquaten Informationsversorgung von Brustkrebspatientinnen (BP) ist hinreichend bekannt. In dieser Studie wurden die unerfüllten psychosozialen Informationsbedürfnisse von multimorbiden BP untersucht.

Methodik: Die Studie erfasst die unerfüllten psychosozialen Informationsbedürfnisse von 4166 BP, die an einem der 50 nordrhein-westfälischen Brustzentren behandelt worden sind. Der in der poststationären postalischen Befragung eingesetzte Kölner Patientenfragebogen für Brustkrebs 2.0 erfasst die Informationsbedürfnisse mit einer adaptierten Version der „Cancer patient information needs“-Skala. Mittels univariater Analyse, unter Verwendung des χ^2 -Tests, wurde überprüft, ob multimorbide BP signifikant andere psychosoziale Informationsbedürfnisse hatten als BP ohne weitere Begleiterkrankungen.

Ergebnisse: Allgemein ergaben sich bei den BP hinsichtlich Beruf (20,7%), Alltag (26,8%), Erkrankung (27,4%) und Therapie (35,7%) eher geringe und bez. des Gesundheitsverhaltens (54,2%) größere unerfüllte Informationsbedürfnisse. Multimorbide BP hatten bez. des Berufs signifikant geringere und hinsichtlich der Therapie signifikant größere unerfüllte Informationsbedürfnisse im Vergleich zu BP ohne Begleiterkrankungen. Nierenerkrankungen und psychische Begleiterkrankungen waren mit besonders großen Informationsbedürfnissen assoziiert ($p < 0,05$).

Schlussfolgerung: Die Ergebnisse unserer Studie sollen den in der onkologischen Versorgung Tätigen die Komplexität und Heterogenität der Informationsbedürfnisse von Brustkrebspatientinnen verdeutlichen und helfen, die Informationsversorgung patientenorientierter zu gestalten.

Introduction

▼ In Germany, breast cancer is the most common malignant cancer in women. Each year, approximately 70 000 patients are first diagnosed with invasive breast cancer [1]. Breast cancer patients are confronted with a life-threatening diagnosis that can lead to psychological and social impairments alike [2], meaning that treatment should be provided in line with the principles of holistic care [3]. Typical adverse psychosocial effects experienced by breast cancer patients concern treatment-related changes in body image as well as concerns regarding sexual dysfunction and impacts on relationships with partners. Furthermore, existential worries such as fear of death and the recurrence of the illness have also been described [2]. Psychosocial issues occur more frequently in multimorbid patients [4]. These are patients who are suffering from two different illnesses at the same time [5]. Breast cancer patients are not affected by multimorbidity more frequently [6], but the relevance of multimorbidity is underlined by a high prevalence (50%) among the older population [7]. Adverse psychosocial effects are associated with unfulfilled psychosocial requirements [8]. On this subject, Choi et al. described the importance of being given sufficient information [9]. According to Maslow's "A theory of human motivation", human needs are ordered in the following hierarchical structure: Physiology (highest), safety, love and self-realisation. In this respect, fulfilling a superior requirement takes precedence over fulfilling a lesser requirement [10]. This study focuses on the personally perceived information requirements that rank among the most frequent needs of cancer patients [11]. Regardless of whether they receive good or bad news, breast cancer patients want to be as well informed as possible [12]. Information forms a prerequisite for the successful involvement of the patient in medical decisions [13] and helps cancer patients to cope with their physical and mental problems [14]. This in turn appears to be associated with an improvement in quality of life.

Despite everything, providing cancer patients with information is one of the requirements that is most frequently not met, as was shown in the study by Park et al. of breast cancer patients with recurring illness [15]. The review by Rutten et al., which explicitly dealt with cancer patients' information needs, also describes high unfulfilled information requirements [16]. A younger age as well as a more poorly perceived mental and physical state of health are associated with higher information requirements in breast cancer patients [17]. The most common sources of information are healthcare providers (27.3%) such as doctors and nurses, followed by written informational material (26.2%) [16]. Many studies have focused on the information needs of breast cancer patients regarding their illness as well as drug therapy and the associated side effects [18, 19]. Furthermore, the information requirements regarding health-promoting measures were also investigated [20]. Neumann et al. identified five subgroups with varying information requirements. 31.4% had no unmet information needs, 40% had unfulfilled psychosocial information requirements, approx. 16% exclusively had a need for medical information and 13.6% required only psychosocial information [21]. The study situation is not entirely conclusive with regard to the information requirements of multimorbid breast cancer patients. Choi et al. were unable to determine any difference in unfulfilled information requirements regarding health-promoting measures [20]. Beckford et al. showed that multimorbidity is associated with higher needs for information, but did not specify the content of such information [17]. Multimorbidity

generally goes hand in hand with a higher utilisation of health services as well as an increase in need for care and a poorer quality of life [22]. These effects may also arise in the context of the typical illness spectrum of older breast cancer patients, which is dominated by cardiovascular diseases and disorders of the musculoskeletal system [6]. We therefore expect multimorbid patients to have information needs different from those of patients without concomitant illnesses. Due to demographic development and medical advances, the relevance of adequate care for breast cancer patients with multiple illnesses will increase. This study had many aims. The unfulfilled psychosocial information requirements of breast cancer patients undergoing inpatient hospitalisation in certified breast centres were investigated. Furthermore, whether multimorbid patients have other psychosocial information needs than patients without concomitant illnesses, and to what extent certain concomitant illnesses are associated with other psychosocial information requirements, was also to be investigated.

The results of the study can provide indications of the extent to which the multimorbidity of breast cancer patients plays a role in the supply of information as well as contributing to adapting the supply of information to specific requirements.

Methodology

▼ Study design

At 50 breast centres with 84 surgical sites in North Rhine Westphalia, a postal patient questionnaire was carried out following hospital stays. All breast centres that wish to be certified in accordance with the requirements of the Medical Association of Westphalia-Lippe must participate in this questionnaire [23]. The patients gave their written consent to participate in the study before they were discharged. The questionnaire, approved by the ethics committee of the medical faculty of the University of Cologne, was conducted in the style of the total design method [24] with three attempts at contact, and was supplemented by the clinical data supplied by the hospitals. Further details have already been described elsewhere [25–27].

Sample

To be included in the questionnaire, the patients had to meet the following criteria. The operation had to take place between the collection period of 01.02.2014 to 31.07.2014, with at least one malignant result and at least one postoperative histology with mammary carcinoma having been demonstrated, the ICD code of the assured diagnosis being C50.x or D05.x and it being an initial diagnosis, i.e. not a local relapse.

Instrument

Through the Cologne patient questionnaire for breast cancer 2.0 (KPF-BK 2.0), which represented an extension to Cologne patient questionnaire 1.0 [28], data was collected on various aspects of the stay in hospital. In addition to sociodemographic aspects, the KPF-BK 2.0 also measures health-related patient information and information regarding inpatient care, also including psychosocial information requirements. To collect psychosocial information requirements, the patients are asked whether they would have liked to have received more information on the subjects of health behaviour, work, everyday life, illness and treatment. The CAPIN scale (cancer patient information needs) by Neumann et al. was adapted to our questionnaire for this purpose [21]. The in-

formation requirements regarding health behaviour were measured with seven items, work with six items, everyday life with four items, illness with three items and treatment with three items. The scales and individual items used are detailed in **Table 1**. The reliability and validity of the collection tool was increased through the existence of multiple items per area. Through factor analyses, the construct validity of the individual sub-scales was verified. The patients could answer each individual question with “yes” or “no”. “Yes” was coded with a “1” and “no” with a “0”. The sub-scales were formed by summarising the items, divided by the number of items fulfilled.

A higher value therefore stands for higher information requirements. Multimorbidity was measured with one item. The patients were able to state whether they were diagnosed with a further illness in addition to breast cancer. The patient could specify the following illnesses: Diabetes mellitus, kidney disease, high blood pressure, stroke, cardiovascular disorders, rheumatism or arthritis, chronic bronchitis or mental illnesses. If none of the illnesses stated were appropriate, the patient could choose the “Other illnesses” category. Should no further illness exist in addition to breast cancer, the patient could tick the “No illness” field.

Statistical analysis

For the descriptive analysis of the dependent variable of “psychosocial information requirements”, the sub-scales were divided into subgroups. Four intervals of equal size were formed and defined as “none”, “low”, “average” and “high” psychosocial information requirements. Furthermore, a variable for multimorbidity was introduced. In this respect, at least one further concomitant illness corresponded to the multimorbidity variables. A statistical connection between the sub-scales of the psychosocial information requirements (dependent variable) and the variables of concomitant illnesses (independent variable) was verified by the χ^2 test. Here, “no” psychosocial information requirement was compared with at least “low” information requirements. The independent variable of multimorbidity was tested for psychosocial requirements based on the one hand on the number of concomitant illnesses and on the other on the individual concomitant illnesses. The level of significance was a p-value of 0.05. All analyses were carried out with the statistics program SPSS Version 22.0.

Results

Sample characteristics

Of the 5653 patients treated at the breast centres in North Rhine Westphalia, 4808 consented to take part in the questionnaire and were contacted. 4166 returned a completed questionnaire, which corresponds to a response rate of 73.7%. 274 patients did not specify the independent variable of “concomitant illnesses”, resulting in their questionnaires not being considered. The general characteristics of the investigation group are presented in **Table 2**. The average age was approximately 61 (SD 12.03). Almost all patients were female (99.4%) and had German as their native language (92.7%). The highest level of education achieved by most patients was secondary school-leaving level, specifically “Volksschule or Hauptschule” (42.8%), followed by “Realschule” (27.1%) and “Abitur” (17%). 35.5% were old-age pensioners, 40.5% worked full-time, part-time or between five and fifteen hours per week, 12.8% were housewives and 3.4% received unemployment benefits. The majority of patients were covered

Table 1 Individual items and scales used in the study.

Scales	Items	
Health behaviour	Would you have liked to be given further information from your breast centre regarding the following...	
	▶ ... Supplementary naturopathic treatment?	
	▶ ... Relaxation exercises through courses and/or at home?	
	▶ ... Nutrition while suffering from breast cancer?	
	▶ ... Everyday physical strain?	
	▶ ... Everyday mental strain?	
	▶ ... Exercise and sport following discharge from the breast centre?	
	▶ ... Health-promoting aids and/or measures while suffering from breast cancer?	
	Work	▶ ... Working while suffering from breast cancer?
		▶ ... Sick leave while suffering from breast cancer?
▶ ... Advice on labour law-related problems?		
▶ ... Protection against dismissal while suffering from breast cancer?		
▶ ... Entitlement to additional leave while suffering from breast cancer?		
▶ ... Measures for professional reintegration?		
Everyday life	▶ ... Consultation in the case of problems with health insurance?	
	▶ ... Advice in the case of financial issues?	
	▶ ... Certain tax breaks while suffering from breast cancer?	
	▶ Help and support at home?	
Illness	▶ ... The results of the examination?	
	▶ ... The diagnosis of your breast cancer?	
	▶ ... The course of your breast cancer?	
Treatment	▶ ... The advantages and disadvantages of surgery?	
	▶ ... Medications (e.g. benefits, side effects, dosage)?	
	▶ ... Means and/or measures to reduce side effects?	

under statutory insurance only (71.4%), had a life partner (70.7%) and children (78.8%). Most of the breast cancers were in UICC stages 1 (37.2%) and 2 (30.1%). Significantly fewer sufferers had UICC stage 3 (9%) and 4 (2.4%) cancers. In accordance with ASA classification, 40.1% of patients were healthy (ASA 1), 42% had mild (ASA 2) and 10.4% had a severe general illness (ASA 3). 0.1% of patients had a severe general illness that is consistently life-threatening (ASA 4). Due to a lack of data, 14.6% of patients could not be assigned a UICC classification and 7.3% could not be assigned an ASA classification. 22.3% of patients had an officially recognised disability (physical and mental disabilities). Furthermore, the majority of patients were affected by at least one further concomitant illness (63.6%).

Dependent variable – unfulfilled psychosocial information requirements

Fig. 1 depicts the unfulfilled psychosocial information requirements of the sample, divided into the CAPIN groups of health behaviour, work, everyday, illness and treatment. The particularities of the unfulfilled information requirements vary among the CAPIN groups. Most patients were well-informed, and the unfulfilled information requirements lay between 35.7% (CAPIN-treatment) and 20.7% (CAPIN-work). Only in the CAPIN-health behaviour group did 54.2% have at minimum a low need for information. In the health behaviour (18.1%), illness (13.3%) and treatment (10.7%) CAPIN groups, the patients had significant unfulfilled information needs.

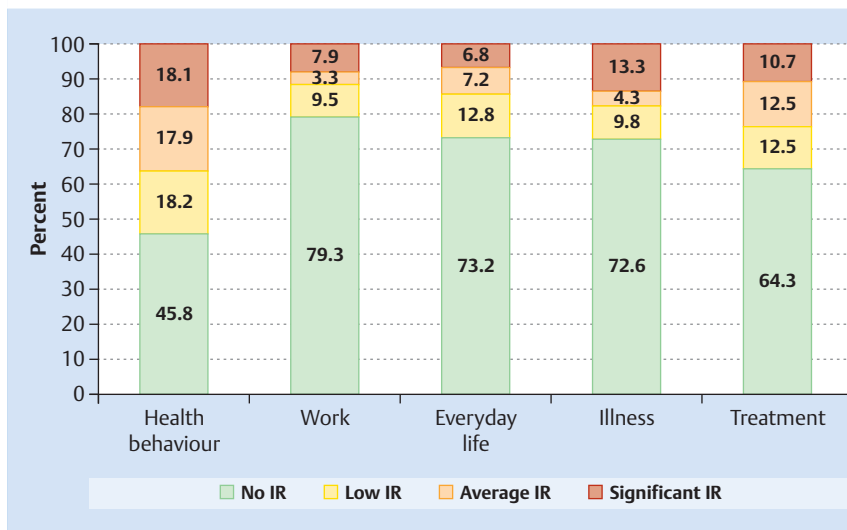


Fig. 1 Unfulfilled psychosocial information requirements (IR) in the areas of health behaviour, work, everyday life, illness, treatment.

Table 2 Sample characteristics.

	n	%
Age groups		
▶ 18–29 years	6	0.1
▶ 30–39 years	117	2.8
▶ 40–49 years	608	14.6
▶ 50–59 years	1 190	28.6
▶ 60–69 years	1 124	27.0
▶ 70–79 years	853	20.5
▶ ≥ 80 years	244	5.9
▶ No info	24	0.6
Sex		
▶ Female	4 143	99.4
▶ Male	23	0.6
▶ No info	0	0.0
Native language		
▶ German	3 860	92.7
▶ Other	249	6.0
▶ No info	57	1.4
Highest education completed		
▶ Not completed secondary school	68	1.6
▶ “Volksschule” or “Hauptschule” certificate	1 782	42.8
▶ “Realschule” certificate	1 128	27.1
▶ Advanced technical college certificate	381	9.1
▶ General “Abitur” (A-level equivalent)	708	17.0
▶ Other	25	0.6
▶ No info	74	1.8
Employment situation		
▶ ≥ 30 hours/week	877	21.1
▶ 15–30 hours/week	579	13.9
▶ 5–15 hours/week	229	5.5
▶ House husband/wife	533	12.8
▶ Unemployed	114	2.7
▶ Pensioner due to reduction in earnings capacity	141	3.4
▶ Old-age pensioner	1 480	35.5
▶ Not employed for other reasons	90	2.2
▶ No info	123	3.0

Table 2 Sample characteristics. (Continued)

	n	%
Health insurance		
▶ Statutory health insurance	2 974	71.4
▶ Statutory and additional private insurance	684	16.4
▶ Private health insurance – fully insured	468	11.2
▶ No info	40	1.0
Spouse		
▶ Yes	2 945	70.7
▶ No	1 119	26.9
▶ No info	102	2.4
Children		
▶ Yes	3 284	78.8
▶ No	744	17.9
▶ No info	138	3.3
UICC classification		
▶ Stage 0	270	6.5
▶ Stage 1	1 550	37.2
▶ Stage 2	1 254	30.1
▶ Stage 3	376	9.0
▶ Stage 4	108	2.6
▶ No info	608	14.6
ASA classification		
▶ ASA 1	1 672	40.1
▶ ASA 2	1 749	42.0
▶ ASA 3	435	10.4
▶ ASA 4	5	0.1
▶ ASA 5	2	0.0
▶ No info	303	7.3
Officially recognised disability		
▶ Yes	931	22.3
▶ No	3 136	75.3
▶ No info	99	2.4
Concomitant illness		
▶ None	1 240	29.8
▶ 1	1 360	32.6
▶ 2	764	18.3
▶ ≥ 3	528	12.7
▶ No info	274	6.6

Independent variables – concomitant illnesses

Table 3 describes the frequency distribution of the independent concomitant illness variables. 29.8% had no concomitant illness in addition to breast cancer. The most frequent concomitant diagnosis was high blood pressure (38.9%), followed by “Other illnesses” (25.1%). Furthermore, 7.2% of breast cancer patients suffered from a mental illness.

Association between psychosocial information requirements and the number of concomitant illnesses

Table 4 compares the frequency distribution of the unfulfilled psychosocial information requirements in accordance with the CAPIN distribution in patients with one, two and three or more further concomitant illnesses in patients without concomitant illnesses. Significant changes in the frequency distribution were observed in the CAPIN-work and CAPIN-treatment groups. In CAPIN-work, the information requirements fall continuously as the number of concomitant illnesses increases. In CAPIN-treatment, the patients with two further concomitant illnesses displayed larger unfulfilled information requirements, which increased even further for those with three further concomitant illnesses.

Association between psychosocial information requirements and selected concomitant illnesses

By using the CAPIN classifications, Table 5 illustrates the frequency distribution of the psychosocial information requirements of patients without concomitant illnesses and patients that suffer from a specific condition. In CAPIN-work, there was a significantly lower need for information for all concomitant illnesses tested. Higher information requirements could be observed in patients with mental illnesses in all CAPIN groups except for CAPIN-work. Patients whose concomitant illness fell under the “Other illness” category displayed higher information needs in CAPIN-everyday life and CAPIN-treatment. This was also the case in patients with renal diseases. In patients with cardiovascular or rheumatological illnesses, no other information needs were observed. This was also the case in patients with chronic bronchitis.

Discussion

The objective of this study was to depict unfulfilled psychosocial information requirements during the inpatient hospitalisation of breast cancer patients in general and in relation to further concomitant illnesses. In this study, we surveyed 4000 breast cancer patients in North Rhine Westphalian breast centres to see whether the information requirements of patients who had no further concomitant illness differ from those who have one, two or three or more further concomitant illnesses. We also dealt with the question as to whether certain concomitant illnesses go hand in hand with specific needs for information. In our sample, 63.6% of patients had a further concomitant illness in addition to breast cancer and therefore fell under the definition of multimorbid patients [5]. This largely corresponds to the statements made by Marengoni et al. [7], which summarised study results from various countries in a review, according to which approx. 50% of the older population suffered from at least two different illnesses. Not all unfulfilled information needs necessarily result in direct effects on treatment and the success of therapy, but unmet requirements are generally a greater predictor of the quality of

Table 3 Concomitant illnesses.

Variables	n	%
Diabetes mellitus	335	8.0
Kidney disease	110	2.6
Hypertension	1621	38.9
Stroke	100	2.4
Cardiovascular disease	454	10.9
Arthritis or rheumatism	470	11.3
Chronic bronchitis	302	7.3
Mental illness	298	7.2
Other illness	1044	25.1
No concomitant illness	1240	29.8
No info	274	6.6

life of patients and are therefore relevant [15]. The majority of breast cancer patients felt well-informed in all aspects. The well-met information needs with regard to treatment and illness can be attributed to the fact that the certification criteria of the breast centres explicitly require patients to be involved in their treatment and to be informed during the diagnosis about treatment options and planned therapeutic measures [23]. Furthermore, many patients surveyed had their own children and partners. Against the backdrop of the family playing an important role in psychosocial support [29] and relatives being able to fulfil the need for information through encouragement and actively searching for information, this may also have contributed to low unmet information requirements, for example through tackling the illness in everyday life. The predominately fulfilled information requirements regarding work-related matters are largely due to the fact that only 40.5% of patients pursued professional activity, and it is to be assumed that only employed patients have an interest in related information. Should this assumption be followed, almost half of all employed patients had an unmet information requirement for at least one item on the work sub-scale. Our data shows that 40% of employed patients had at least one unfulfilled information need. This indicates that healthcare providers underestimate work-related issues immediately following inpatient treatment, as the majority of survivors only resume work from 24 months following diagnosis [30]. Against the backdrop of the increase in cancer survivors returning to work [30] and the positive effects associated with professional activity, such as a feeling of normality and an increase in feelings of self-worth [31], the significance of sufficient information supply regarding professional queries is emphasised. One explanation for the major unfulfilled needs with regard to health behaviour may lie in the fact that the requirements for breast centres generally lie only in the provision of informational material, but the content of the information is not precisely defined [23]. On the other hand, patients fighting their illness are searching for answers to the questions of how they can tackle adverse effects associated with their illness to regain control of the situation after receiving a cancer diagnosis [32]. The contrary observations regarding the impact of multimorbidity on the psychosocial information requirements of breast cancer patients with regard to treatment-related and work-related issues can be explained as follows. Multimorbidity increases with age [33], meaning that for multimorbid patients a higher age and lower employment can be assumed, which explains the significantly lower information needs regarding work-related issues. This is also suggested when psychosocial information requirements are considered based on individual illnesses, whereby professional information needs of multimorbid

Table 4 Associations between psychosocial information requirements and the number of concomitant illnesses.

Concomitant illnesses (n)	Health behaviour			Work			Everyday life			Illness			Treatment		
	n	%	p-value	n	%	p-value	n	%	p-value	n	%	p-value	n	%	p-value
1	702	53.1		252	19.7		321	25		339	25.1		455	34.3	
2	396	52.5		129	18.5		188	26.7		211	27.9		278	36.8	
≥ 3	290	55.9		57	12.1		148	30.6		147	28.1		209	40.7	
None	690	55.8	0.327	316	26.3	0	329	27.2	0.128	360	29.2	0.127	425	34.5	<0.05

Table 5 Associations between psychosocial information requirements and selected concomitant illnesses.

Concomitant illnesses	Health behaviour			Work			Everyday life			Illness			Treatment		
	n	%	p-value	n	%	p-value	n	%	p-value	n	%	p-value	n	%	p-value
Diabetes mellitus	161	49	<0.05	38	13	<0.05	80	24	0.34	96	29	0.95	126	39	0.19
Kidney disease	62	58	0.69	15	15	<0.05	41	40	<0.05	37	34	0.33	51	50	<0.05
Hypertension	786	50	<0.05	217	15	<0.05	353	24	0.05	366	23	<0.05	512	32	0.24
Stroke	50	52	0.52	9	11	<0.05	28	31	0.46	28	29	1	34	36	0.82
Cardiovascular disease	232	53	0.24	42	11	<0.05	109	27	1	105	23	<0.05	160	37	0.41
Arthritis or rheumatism	265	57	0.7	69	16	<0.05	118	27	0.9	135	29	1	179	39	0.11
Chronic bronchitis	166	56	1	50	18	<0.05	93	33	0.06	86	29	0.94	109	37	0.46
Mental illness	189	65	<0.05	54	19	<0.05	95	33	<0.05	106	36	<0.05	135	46	<0.05
Other illness	602	59	0.2	213	22	<0.05	316	32	<0.05	328	32	0.22	440	43	<0.05
No concomitant illness	690	56		316	26		329	27		360	29		425	35	

* The psychosocial information requirements of breast cancer patients with concomitant illnesses are significantly higher than (↑), smaller than (↓) or the same as (=) patients without concomitant illnesses.

patients are consistently lower regardless of the specific concomitant illness. In terms of treatment-related issues, the significantly higher information needs of patients with at least two further concomitant illnesses suggest that concomitant illnesses lead to more complex consequences from surgical breast cancer treatment measures, which lead to greater information needs. In concomitant illnesses, primarily renal illnesses, mental disorders and “Other illnesses” played a role, as these illnesses were also associated, in the consideration of individual illnesses, with greater information needs in terms of treatment. With regard to health behaviour, Choi et al. were unable to detect any greater information needs in multimorbid patients, which broadly corresponds to our results [20]. This suggests that further illnesses lead to information needs that are either well met or not recognised by the patient as a relevant issue. This was also the case in patients with cardiovascular or rheumatological illnesses. Mental illnesses were associated with a greater need for information in almost all areas, which corresponds to the study by Park et al. [15] that concluded that greater information requirements could be determined in patients suffering from depression. Furthermore, worry and anxiety disorders that frequently arise in cancer patients [34] led to the greatest information requirements. Anxiety regarding the consequences of treatment, which are associated with restrictions in everyday life, were described by Mehnert et al. [35] and would be able to explain the information requirements patients with renal diseases and “Other illnesses” have in terms of everyday issues. Health competence studies show that these requirements are lower in older patients [36]. With an average age of 61 years, it is possible that older breast cancer patients are not in the position to take in and understand medical information. This possibly leads to a greater need for information. Of course, this in no way releases health professionals from their responsibility to inform patients well and most importantly according to their specific needs. It may also be the case that the breast centres do not provide sufficient information. Here, the interpersonal level plays a significant role – the patients who receive information from medical professionals are the most satisfied [29]. An excellent staff-patient relationship is shown to be an important predictor of there being no unfulfilled requirements [21]. Due to the large sample size of over 4000 participants and the high response rate and additional clinical data from hospital staff, the data is of high quality. The following restrictions should be considered in interpreting the study results: This is a cross-sectional study and no causal conclusions can therefore be drawn. Information requirements change over the course of the illness [37]. This study recorded only the information needs of breast cancer patients during their inpatient hospitalisation. Our data does not show how they change afterwards. For example, a need for further information may arise following discharge, as adjuvant treatment concepts are often only specified following discharge. It is also uncertain whether patients were referring solely to their inpatient hospitalisation or treatment as a whole when answering the questions. The depiction of unfulfilled psychosocial information requirements for selected concomitant illnesses does not take into consideration the influence of a potential further illness that has not been recorded here. No measurement of the severity of the illness via CIRS (cumulative illness rating scale) was carried out, as no data was available for this. The survey was conducted at certified breast centres in North Rhine Westphalia and was designed to record the information requirements of breast cancer patients. Whether the results can be transferred to other oncological centres, other care structures

and patient populations is questionable. At 73.85%, the response rate lay within a good range, meaning that it can be assumed that the survey dealt with a subject relevant to breast cancer patients. As far as the non-responders were concerned, it can only be speculated that these take part in surveys less frequently due to lower health competence and generally have higher information requirements.

Implications for Clinical Practice and Research

▼ The majority of breast cancer patients felt well-informed in all aspects. An exception was presented by information on health behaviour and work, where there were significant unfulfilled information requirements. Multimorbid breast cancer patients displayed other information needs. They had more extensive unmet information requirements regarding treatment than patients without further illnesses. Information regarding work-related topics was asked about less frequently by multimorbid patients, in contrast. Furthermore, patients with mental illnesses and renal disorders had greater psychosocial information requirements. Here, improved routine screening methods may be useful to identify a need for support. Furthermore, it can be advantageous for multimorbid patients to be treated in oncological and specialist centres in which specialist staff and specific informational material is available. Further research is necessary and should deal with the issue of how the supply of information can best be adapted to individual requirements. The results of our study clarify the complexity and heterogeneity of information requirements of patients in oncological care and should help to design the supply of information to be more patient-oriented.

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Conflict of Interest

▼ None.

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In **Table 1** the column “scales” has been supplemented by the groups “Work” and “Everyday life”.