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Cross-national differences in patient satisfaction in oncology: A comparative study of Poland and Germany

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ABSTRACT

Cancer remains a leading cause of morbidity and mortality worldwide. Treatment adherence and clinical outcomes partly depend on patient satisfaction, which is recognized as a key indicator of healthcare quality. This cross-sectional, questionnaire-based survey assessed differences in satisfaction between Polish and German oncology patients. The study included 153 patients treated within the previous 12 months and examined four domains: access to care, interpersonal interactions, organizational quality, and psychological support. Responses were rated on a five-point Likert scale. Statistical analyses included χ^2 , with significance set at $p < 0.05$. German patients reported better access to specialist consultations than Polish patients (88% vs. 66%, $p = 0.0014$) and higher overall care quality (87% vs. 70%, $p = 0.012$). Organizational issues were more prevalent in Poland than in Germany (50% vs. 33%, $p = 0.0321$). Empathy and respect from healthcare personnel were rated highly in both countries (>83%). Self-medication without physician consultation was more common in Poland than in Germany (61% vs. 29%, $p = 0.001$), whereas trust in physicians was higher in Germany than in Poland (88% vs. 76%, $p = 0.048$). Women more frequently sought online health information and rated access to care more positively, whereas older women reported greater dissatisfaction with staff availability. Psychological support was rated higher in Germany than in Poland (72% vs. 47%, $p = 0.018$), with physician-initiated support more common in Germany. This study identifies cross-national differences in oncology patient satisfaction, with systemic efficiency, care coordination, and integration of psychological services contributing to higher ratings in Germany. These findings suggest actionable improvements for Poland, including proactive communication about psychological support and measures to reduce self-medication.

INTRODUCTION

Malignant neoplasms remain one of the leading causes of mortality worldwide and represent a significant challenge for clinical medicine and public health. According to the World Health Organization, the incidence of cancer in Europe is expected to increase by more than 20% by 2045 compared with 2022, when approximately 20 million new cases were reported [1]. Cancer is characterized by the uncontrolled proliferation of abnormal cells, which can form tumors and disseminate to distant organs, disrupting

physiological homeostasis and ultimately compromising survival. Timely detection and effective treatment remain decisive factors in improving prognosis [2].

Poland and Germany, although both subject to European Union health policy frameworks, differ markedly in the financing and structural organization of their healthcare systems. These systemic differences also extend to oncological care, a complex, multistage process encompassing diagnostics, therapeutic interventions, and long-term follow-up. Patient satisfaction has emerged as a critical indicator of healthcare quality, integrating subjective perceptions with objective measures of service delivery [3,4]. Beyond reflecting individual experiences, it is increasingly recognized as

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a determinant of therapeutic adherence, treatment efficacy, and overall clinical outcomes [5,6].

Effective communication and trust between physicians and patients are widely acknowledged as foundations of high-quality care. Shared decision-making and empathic engagement exert a particularly strong influence in oncology, where the emotional burden is high [7,8]. Regular assessment of patient satisfaction provides essential feedback for improving service delivery, enabling the identification of deficiencies in diagnostic timeliness, coordination of multidisciplinary care, and provision of psychological support [9]. Comparative analyses between countries with different health system structures are especially valuable for identifying context-specific barriers and transferable best practices.

Against this background, the present study aimed to evaluate and compare oncology patient satisfaction in Poland and Germany, focusing on access to specialized care, perceived comfort, and the level of empathy demonstrated by healthcare professionals. It also examined clinical determinants, including time to diagnosis and treatment duration, and explored psychological dimensions such as the use of mental health support and anxiolytic or antidepressant therapy. By integrating sociodemographic, clinical, and psychosocial factors, this study provides a comprehensive cross-national perspective on the determinants of patient satisfaction. Comparative studies addressing this issue remain limited, particularly between Eastern and Western European healthcare systems. The present findings not only identify systemic strengths and weaknesses but also provide actionable insights for policymakers and clinicians seeking to optimize oncological care and improve patient-centered standards across Europe.

MATERIALS AND METHODS

Study design and setting

This study used a cross-sectional, questionnaire-based design to assess and compare oncology patients' satisfaction with medical care in Poland and Germany. Data were collected between November 2024 and March 2025 using an anonymous, self-administered survey. Participation was voluntary, and no financial or material incentives were offered [10,11].

Participants

A total of 153 adult oncology patients participated in the study, including 84 respondents from Poland and 69 from Germany. The eligibility criteria were as follows: (i) a confirmed diagnosis of malignant neoplasm, (ii) ongoing or completed oncological treatment within the previous 12 months, and (iii) the ability to provide informed consent and complete the questionnaire in either Polish or German. Patients younger than 18 years of age and those with cognitive impairments preventing reliable completion of the survey were excluded. Recruitment was conducted through patient advocacy networks in both countries.

Survey instrument

The survey was developed by the research team based on a review of validated patient satisfaction questionnaires,

including domains derived from EUROPEP and HCAHPS and adapted to the context of oncology care. The instrument consisted of closed-ended questions grouped into four thematic domains: (1) access to medical care and timeliness of diagnostic procedures; (2) interpersonal aspects of care, including communication, empathy, and perceived competence of medical personnel; (3) comfort and organizational aspects of healthcare facilities; and (4) psychological well-being and access to psychological or pharmacological support. The Polish version was translated into German by a bilingual medical professional. A pilot test was conducted in a small cohort ($n = 10$) from each country to assess clarity, cultural appropriateness, and internal consistency.

Data collection procedure

Surveys were administered electronically through a secure online platform. Respondents provided informed consent before beginning the questionnaire. The system prevented multiple submissions from the same device to help maintain data integrity.

Variables and measures

Primary outcome measures included patient-reported satisfaction scores for each domain, rated on a Likert scale from 1 ("very dissatisfied") to 5 ("very satisfied"). Secondary measures included sociodemographic data (age, gender, education level, and place of residence), clinical characteristics (time since diagnosis and duration of the diagnostic process), and use of psychological support. The relatively small sample size limited the possibility of conducting more detailed statistical analyses that simultaneously accounted for demographic variables such as nationality, gender, and age. Therefore, satisfaction with medical care was analyzed by gender and age without accounting for potential differences associated with nationality.

Statistical analysis

Statistical analysis was performed on 153 correctly completed questionnaires using Statistica 13.3 PL software (StatSoft). Pearson's χ^2 test was used to assess associations between variables measured on nominal scales. Statistical significance was set at $p < 0.05$. The statistical power of selected tests was also estimated. Assuming an expected proportion of approximately 20% (0.20) for a given response category, the estimated statistical power was $1 - \beta = 0.80$.

Ethical considerations

The survey did not require approval from a bioethics committee [6,7]. All participants provided informed consent before participation, and all data were anonymized to ensure confidentiality.

RESULTS

Sociodemographic characteristics

A total of 153 oncology patients were included in the analysis, comprising 84 respondents from Poland (54.9%) and 69 from Germany (45.1%). Women constituted the majority in both cohorts, accounting for 73% of the total sample ($n = 111$), including 75% ($n = 63$) of respondents

in Poland and 70% (n = 48) in Germany. Men represented 27% of the study population (n = 42).

The age distribution showed that the largest group in both countries comprised patients aged 51-70 years, accounting for 40.5% (n = 34) of Polish respondents and 60.9% (n = 42) of German respondents. The next most common age group was 30-50 years (Poland: 39.3%, n = 33; Germany: 24.6%, n = 17). In Poland, the least represented group consisted of respondents younger than 30 years (7.1%, n = 6), whereas in Germany, it consisted of respondents older than 70 years (5.8%, n = 4).

Educational attainment differed markedly between the two cohorts. In Poland, more than half of the respondents (57.1%, n = 48) had completed higher education, followed by secondary education (38.1%, n = 32) and vocational or primary education (4.8%, n = 4). In Germany, secondary education predominated (49.3%, n = 34), followed by higher education (39.1%, n = 27) and vocational or primary education (11.6%, n = 8).

Regarding place of residence, urban residence was more common in Poland (71.4%, n = 60) than in Germany (59.4%, n = 41), whereas respondents living in rural areas or small towns accounted for 28.6% (n = 24) and 40.6% (n = 28), respectively. Table 1 presents the sociodemographic characteristics of the study participants.

Table 1. Sociodemographic characteristics of the respondents

Variables		Poland (N=84)		Germany (N=69)	
		N	%	N	%
Gender	Female	63	75.0%	48	69.6%
	Male	21	25.0%	21	30.4%
Age	<30	6	7.1%	6	8.7%
	30-50	33	39.3%	17	24.6%
	51-70	34	40.5%	42	60.9%
	>70	11	13.1%	4	5.8%
Education	Primary/Vocational	4	4.8%	8	11.6%
	Secondary	32	38.1%	34	49.3%
	Higher	48	57.1%	27	39.1%
Residence	Rural/Small town	24	28.6%	28	40.6%
	Urban	60	71.4%	41	59.4%

Regarding the place of treatment, Polish patients received care in public institutions, including regional (n = 35), academic (n = 26), district (n = 17), and military hospitals (n = 5). Most German patients were also treated in public hospitals, including general public (n = 34), specialist (n = 18), and academic hospitals (n = 11), whereas the remaining patients (n = 6) received treatment in private facilities.

In Poland, the diagnostic timeframe most frequently ranged from 6 to 8 weeks (50%, n = 42), whereas the majority of German patients (73.9%, n = 51) reported receiving a diagnosis within 3 weeks. A comparison of diagnostic intervals between patients in Poland and Germany is presented in Figure 1.

Regarding the duration of ongoing therapy at the time of the study, nearly half of Polish respondents (48.8%, n = 41) had been receiving treatment for more than 1 year, whereas in Germany, the most frequently reported treatment duration

was 6-12 months (31.9%, n = 22). Detailed data on treatment duration in both cohorts are presented in Figure 2.

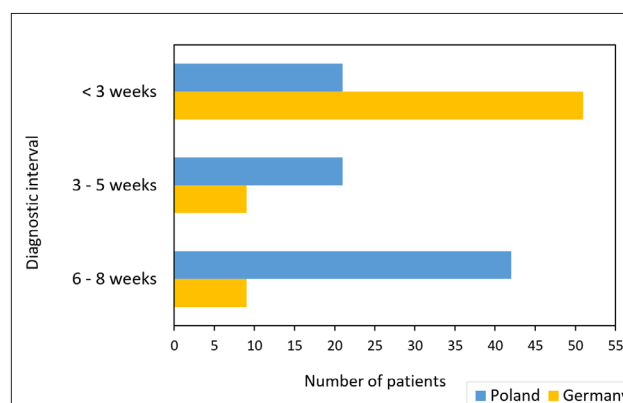


Figure 1. Comparison of diagnostic intervals among patients in Poland and Germany

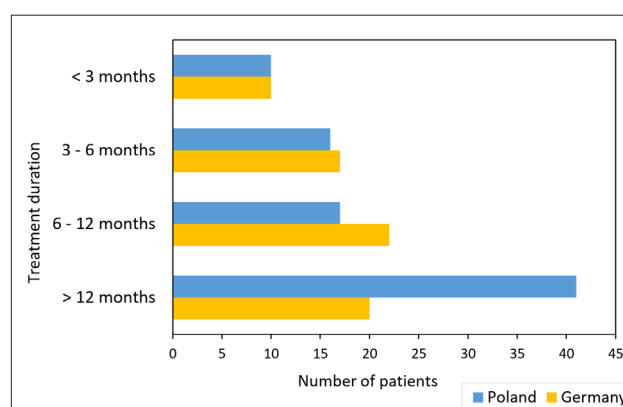


Figure 2. Comparison of ongoing treatment duration among patients in Poland and Germany

Comparative analysis of patient satisfaction between Poland and Germany

Access to specialist appointments within a reasonable time frame was rated positively by 66% (n = 55) of Polish respondents compared with 88% (n = 61) of German respondents ($p = 0.0014$; $1 - \beta = 0.86$), indicating a statistically significant difference. The perceived quality of medical care was also rated more favorably in Germany (87%, n = 60) than in Poland (70%, n = 58) ($p = 0.012$; $1 - \beta = 0.65$). Organizational problems, such as delays in scheduling, insufficient coordination between departments, or repeated rescheduling, were reported by half of Polish patients (50%, n = 42) compared with one-third of German patients (33%, n = 23) ($p = 0.0321$; $1 - \beta = 0.50$).

Respect and empathy from healthcare personnel were reported at comparably high levels in both groups, with 83% (n = 69) of Polish respondents and 85% (n = 59) of German respondents rating these aspects positively. Participants also reported high levels of comfort during interactions with physicians and nurses, with positive responses from 86% (n = 71) of Polish respondents and 89% (n = 61) of German respondents. No statistically significant difference was observed between the two countries.

Self-administration of over-the-counter (OTC) medications or dietary supplements without medical consultation was significantly more prevalent among Polish patients

(61%, $n = 50$) than among German patients (29%, $n = 20$) ($p = 0.001$). Trust in physicians' ability to select the most appropriate treatment was higher in Germany (88%, $n = 61$) than in Poland (76%, $n = 63$) ($p = 0.048$). These results are presented in Figure 3.

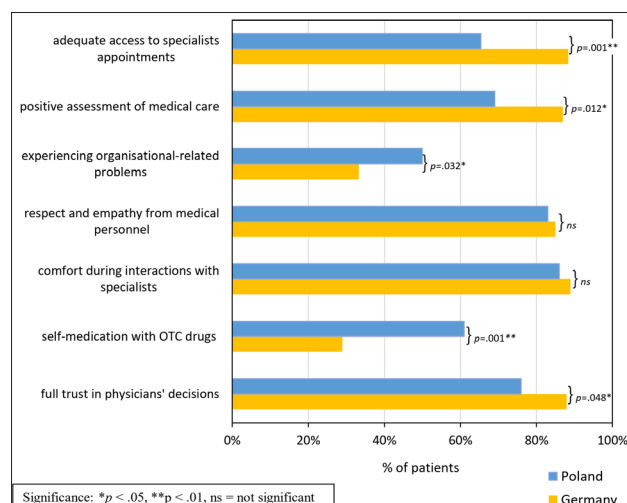


Figure 3. Comparison of treatment experiences among patients in Poland and Germany

In Poland, respondents aged 30-70 years sought additional consultations with other oncology specialists more frequently than respondents in other age groups ($p = 0.0088$). The frequency of additional oncology consultations among Polish patients according to age group is presented in Figure 4. Educational level was also significantly associated with this behavior: 77% ($n = 36$) of respondents with higher education sought second opinions compared with 41% ($n = 13$) of those

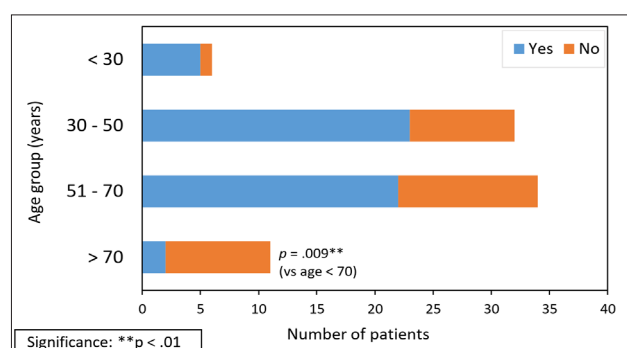


Figure 4. Prevalence of additional oncology specialist consultations among Polish patients by age

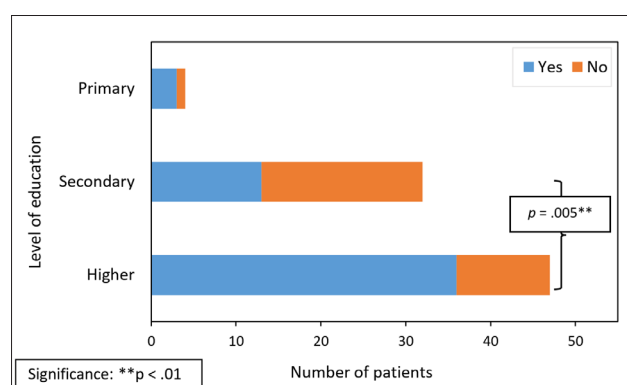


Figure 5. Prevalence of additional oncology specialist consultations among Polish patients by education level

with secondary education ($p = 0.0045$). Additional consultations with oncology specialists according to educational level are presented in Figure 5. In Germany, no significant differences were observed in patients' tendency to consult additional specialists according to age or educational level.

Differences in satisfaction by gender

The analysis included all respondents, regardless of country of residence (Poland or Germany), because the sample size was insufficient to allow a reliable country-specific comparative analysis. Comparison of responses by gender showed that women rated access to specialist care more positively than men, with 67.3% ($n = 74$) of female respondents expressing satisfaction compared with 48% ($n = 20$) of male respondents ($p = 0.0257$). Women were also significantly more likely to seek health information online, with 93% ($n = 102$) reporting this behavior compared with 55% ($n = 23$) of men ($p = 0.0244$). Satisfaction levels by gender across the entire study population are presented in Figure 6.

Among women aged 51-70 years, negative assessments of staff availability were more common (16%, $n = 18$) than in younger age groups ($p = 0.0316$), as shown in Figure 7. Dissatisfaction with the attention received from medical staff was also more frequent in this age group (14%, $n = 15$; $p = 0.0231$).

Among men, perceived quality of care varied significantly according to educational level. No negative ratings were recorded among those with primary education, whereas 42% ($n = 8$) of men with higher education reported dissatisfaction ($p = 0.0368$). Furthermore, men with higher education were more likely to seek additional consultations than those with lower levels of education (84%, $n = 16$ vs. 44%, $n = 7$; $p = 0.0246$).

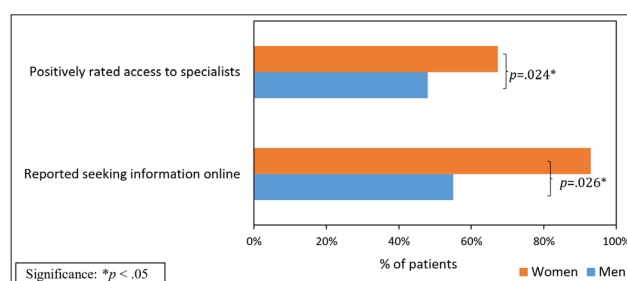


Figure 6. Gender-based differences in the perception of oncological care among the combined Polish and German cohorts

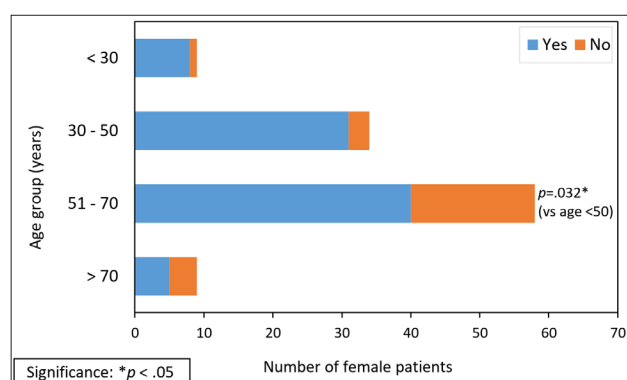


Figure 7. Assessment of medical personnel availability among women by age, combined data from Polish and German cohorts

Psychological aspects of oncological care

Feelings of fear and anxiety before treatment were prevalent in both cohorts, reported by 88.1% ($n = 72$) of respondents in Poland and 91.3% ($n = 63$) in Germany, with no statistically significant difference between the groups. In Germany, 53% ($n = 18$) of patients reported that their physician had informed them about available psychological support, compared with only 35% ($n = 16$) in Poland. However, use of psychological support services was more common in Poland (35.7%, $n = 29$) than in Germany (29%, $n = 20$).

The perceived adequacy of psychological support differed significantly between the two countries: 72.4% ($n = 21$) of German patients rated it positively compared with 47% ($n = 15$) of Polish patients ($p = 0.018$; $1 - \beta = 0.85$). A comparison of psychological support-related aspects between Poland and Germany is presented in Figure 8.

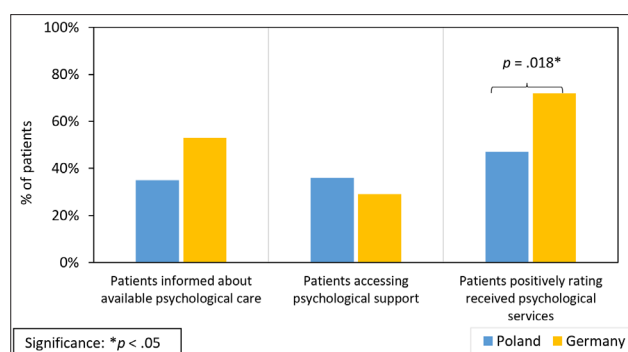


Figure 8. Comparison of psychological support during oncological treatment between countries

In Poland, the use of psychological or psychiatric assistance decreased with age ($p = 0.044$). Only 9.1% ($n = 1$) of respondents older than 70 years used such services, compared with 26.5% ($n = 9$) of those aged 51-70 years and 38% ($n = 8$) of those aged 30-50 years. These results are presented in Figure 9. In Germany, no significant age-related differences were observed in the use of psychological support. The use of antidepressant or anxiolytic medication during treatment was similar in both cohorts, at 36% ($n = 30$) in Poland and 36% ($n = 25$) in Germany.

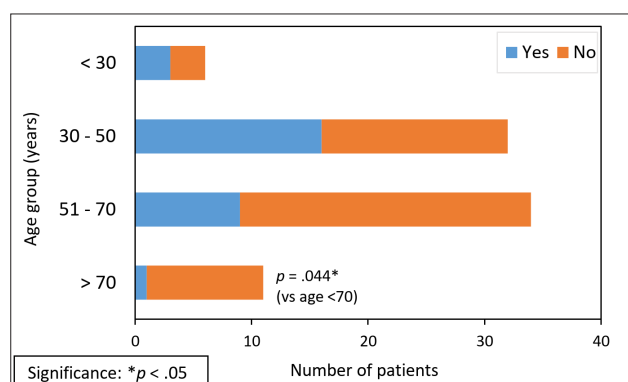


Figure 9. Utilisation of psychological care during treatment in Poland by age

DISCUSSION

The findings of this comparative study provide new insights into differences in patient satisfaction with oncological care between Poland and Germany, revealing both systemic disparities and shared challenges. Consistent with previous reports, German patients rated access to specialist consultations and the overall quality of care more positively than Polish patients [8,12,13]. Previous studies have linked shorter waiting times and more efficient diagnostic pathways in Germany to structural differences in healthcare financing, higher per capita healthcare expenditure, and greater availability of oncology specialists [14,15]. Unrestricted access to healthcare, particularly to screening services, is associated with reduced cancer mortality, highlighting the essential role of secondary prevention [16]. In the present study, only two-thirds of Polish respondents rated access to medical specialists positively, underscoring the need for systemic measures to improve access to healthcare. In Poland, prolonged waiting times for specialist consultations and diagnostic procedures remain a substantial concern.

Respect and empathy from medical staff were reported at similarly high levels in both cohorts, which aligns with international literature emphasising the centrality of interpersonal communication in oncology care [17,18]. Nonetheless, Polish patients more frequently reported organisational challenges, which may indirectly influence perceived trust in healthcare providers. The higher rate of self-administration of OTC medications and supplements in Poland confirms prior findings on self-medication behaviours in Central and Eastern Europe [19,20], potentially reflecting differences in patients' health literacy, accessibility of non-prescription products, and cultural norms surrounding self-care.

Respect and empathy from medical staff were reported at similarly high levels in both cohorts, consistent with international literature emphasizing the central role of interpersonal communication in oncology care [17,18]. Nevertheless, Polish patients more frequently reported organizational challenges, which may indirectly affect their trust in healthcare providers. The higher prevalence of self-administration of over-the-counter (OTC) medications and dietary supplements in Poland is consistent with previous findings on self-medication behaviors in Central and Eastern Europe [19,20], potentially reflecting differences in patients' health literacy, accessibility of non-prescription products, and cultural norms surrounding self-care.

Trust in physicians was notably higher among German respondents, consistent with studies indicating that healthcare systems with fewer administrative barriers and greater continuity of care may foster stronger patient-physician relationships [21,22]. Trust in specialists may also be strengthened through patient-centered communication, in which physicians prioritize patients' individual needs and capacities, thereby enhancing their sense of security. Bridging the communication gap between clinicians and patients through clear and accessible information may help reduce cancer-related anxiety and promote more active patient engagement in the treatment process [23].

Additional specialist consultations were reported more frequently among Polish participants with higher education. This finding may reflect a greater tendency to seek confirmation of medical information or insufficient clarity in patient-physician communication. It may also be associated with lower levels of trust in physicians, as suggested by previous studies [24]. In the present study, Polish patients with higher education appeared to adopt a more critical attitude toward physicians. These findings may indicate differences in perceptions of the patient-physician relationship, particularly with regard to shared decision-making. Individuals with higher education may be more likely to prefer active participation in therapeutic decisions, whereas those with lower educational attainment may place greater trust in the physician's judgment.

This association was less apparent in Germany, where the proportion of respondents with higher education was lower than in Poland. German respondents predominantly had secondary education, whereas additional specialist consultations were sought mainly by respondents with higher education.

The study revealed gender-specific differences in patients' behavior and perceptions of the care they received. Women rated access to care more positively and reported a significantly higher frequency of seeking health information online. This finding is consistent with previous evidence indicating that women are more proactive in seeking health information and engaging with digital health resources [16]. However, women aged 51-70 years reported greater dissatisfaction with staff availability, which may reflect generational differences in expectations or the greater complexity of care needs in this age group.

The prevalence of anxiety was high and did not differ significantly between the two cohorts. Previous research suggests that anxiety levels may be associated with patients' information needs regarding treatment, including medication effects and the likelihood of recovery. Reducing anxiety through psychological support or appropriate anxiolytic treatment may increase patients' willingness to engage in the therapeutic process and improve treatment adherence [25]. Although German patients were more frequently informed about the availability of psychological support, use of psychological support services was more common in Poland. However, German patients rated the adequacy of such support significantly more positively than Polish patients.

The age-related decline in the use of psychological or psychiatric services may indicate barriers to accessing mental health support, including possible stigma. These findings emphasize the important role of hospitals, physicians, other healthcare professionals, and nonprofit organizations in ensuring access to high-quality psychological support. This is particularly relevant given the risk of misinformation being disseminated online by individuals without appropriate qualifications [26].

Inadequate psychological support during oncological treatment may be particularly problematic for immigrants with limited proficiency in the host country's language because of the limited availability of mental health professionals who are fluent in relevant foreign languages. A study by Ricetti *et al.* (2023) conducted in Germany found that

more than half of the surveyed medical specialists reported insufficient access to appropriate mental health support for their non-German-speaking patients. To address these disparities, efforts to expand the availability of psychological services should also take patients' linguistic and cultural diversity into account [27].

These results identify specific areas requiring further improvement. More efficient organization and coordination of multidisciplinary care in Poland may improve patient satisfaction and strengthen trust in healthcare professionals. Educational interventions aimed at reducing self-medication limit the risk of ADRs and adverse interactions with cancer treatment. In addition, expanding systemic access to psychological support and its active promotion by medical staff will reduce the psychological distress of cancer patients, particularly in older people.

This study has several limitations. The cross-sectional design captures patients' perspectives at a single point in time and therefore does not account for changes that may occur over the course of treatment. Although the sample was relatively balanced between the two countries, it may not fully represent the diversity of oncology patients, particularly those living in rural areas. Recent studies have reported no significant cross-national differences in patients' information needs and healthcare preferences [28]. Moreover, patients' perceptions of healthcare cannot be attributed solely to national or cultural background [29]. Reported cultural differences in healthcare experiences appear to be more pronounced in the context of ethnic or national minority groups [30]. The survey did not include an assessment of participants' clinical status, which may have influenced both their therapeutic needs and perceptions of treatment satisfaction. In addition, self-reported measures are subject to recall bias and social desirability bias. The online format of the survey may also have excluded patients with limited digital skills. Nonetheless, the inclusion of two healthcare systems with distinct organizational structures and the use of structured survey instruments provide a valuable comparative perspective with strong validity of the findings.

CONCLUSIONS

This pilot study highlights the complex nature of patient satisfaction in oncology care, which is influenced by both healthcare system-related factors and individual patient characteristics. Compared with respondents from Germany, patients from Poland more frequently reported longer waiting times for treatment initiation, limited access to specialists, and difficulties with care coordination, which were associated with lower levels of satisfaction.

Patients in Germany reported higher levels of trust in physicians, whereas self-medication was more common in Poland. Demographic variables, including gender, age, and educational level, were significantly associated with evaluations of care. Women were more actively engaged in the therapeutic process, older patients more frequently reported dissatisfaction, and higher educational attainment was associated with a more critical assessment of healthcare services.

Better integration of psychological care in Germany was associated with higher patient satisfaction, whereas access

to such support in Poland appeared to be more limited. The study also highlights the importance of communication with healthcare providers while taking patients' gender and age into account. Strengthening trust in physicians in Poland may help reduce the need for additional specialist consultations and the prevalence of self-medication.

Addressing the identified areas for improvement, particularly in Poland, may contribute to better perceptions of oncological care, improved adherence to therapeutic recommendations, more favorable treatment outcomes, and a better quality of life for patients.

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