

**The Quality of Care in Oncologic Patients from  
the Perspective of German General Practitioners  
- a cross-sectional survey**

**Die Versorgungsqualität Onkologischer Patienten  
aus der Sicht von Deutschen,  
Allgemeinmedizinischen Hausärzten  
- eine Querschnittsstudie**

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Ort, Datum, Unterschrift

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## Abstract

**Introduction** While oncologic patients require interdisciplinary care, general practitioners (GPs) are often the first point of contact as well as coordinator of further care proceedings. Although GPs play multiple roles, there is limited research on the status quo general practitioners' challenges and needs when caring for oncologic patients in Germany. The objective of this thesis was to explore GPs' perceptions and experiences in the management of oncological patients. In a further step, an explorative approach was used to check for potential associations. Consequently, this research seeks to address the concerns and potential resolutions identified by GPs in the realm of oncological care.

**Methods** A 24-item, web-based questionnaire was distributed via emails to German GPs. This cross-sectional study covered demographic information and qualifications, GPs' experiences and views, including perceived patient expectations, and knowledge of patients' symptoms and involvement in decision-making. An additional section asked specifically about radiotherapy follow-up care and the SAPV network, as well as communication practices with other specialists and GPs' main roles in oncology care. The survey was open from July 4th to August 9th, 2023. Analyses were carried out descriptively. Chi-square was applied to check for associations between additional qualifications and a) GPs' knowledge on symptoms, b) GPs' knowledge on needs, and c) the number of years clinically working.

**Results** The survey represents the opinions and experiences of 606 GPs with most commonly either having an additional qualification in palliative care (25.2%) or none at all (22.1%), and representing people having their own office (46.5%). GPs consider their patients' expectations regarding GP care to be the following: psycho-oncologic support (74.4%), and treating the patient oneself (67.7%). 54.6% reported a 4 out of 5 point Likert scale and 53.8% reported the same scale on how confident they feel in knowing the patients' symptoms and needs, respectively. The supply (48.8%) and the communication (39.3%) with SAPV networks seem to work very well. While 72.3% are content with their degree of involvement in palliative care, only 50.8% reported a barrier-free communication with the oncologist and only 41.7% experienced a sufficient information about follow up care. However, GPs stated to be only moderately (45.6%) to a little (26.1%) involved into radio-therapeutic care plans. Only 4.3% felt very confident in how to handle radio-therapeutic side effects. Further, direct one-on-one medical interaction is perceived to be the main tasks for GPs (45.6%). Key challenges compromised poor communication and underestimation of GPs role. Proposed solutions included implementation of e-medical reports and further training. Besides, having no additional qualifications seems to influence how knowledgeable GPs are in terms of patients' symptoms ( $\chi^2 = 13.30$ ,  $p=0.01$ ). Specifically, medical tumor therapy and palliative medicine show associations with both symptoms and needs, while psychotherapy and naturopathic therapy seem to not have an association on either of both. However, no associations were found between any of the investigated additional qualifications and the number of years clinically working.

**Conclusion** The enduring bond between a GP and their patient is irreplaceable, underpinning the need for mutual recognition and ongoing education to understand each other's needs. GPs' diverse roles and willingness for greater integration in oncology care can lay the groundwork for a network that alleviates specialists' workload and communication, thereby potentially improving care quality and safety.

## List of abbreviations

ASI	Age-Standardized Incidence
ASM	Age-Standardized Mortality
GP	General Practitioner
MVZ	Medizinisches Versorgungszentrum/ ambulatory health care center
SAPV	Spezialisierte Ambulante Palliativversorgung/ specialized palliative home care system

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# 1. Introduction

## 1.1. Cancer burden

### 1.1.1. Epidemiology

According to the World Health Organization (2023), non-communicable diseases account for 74% of all deaths worldwide. Besides cardiovascular health issues, cancer contributes by 9.1 million annual deaths (World Health Organization, 2023). The most affected areas of the body are breasts, lung, rectum and prostate. While many different factors, such as the type, size, location, and stage of the cancer, as well as personal characteristics, such as age, can affect the prognosis (NIH, 2019), in the United States, lung cancer (21%), followed by colon and rectum cancers (9%), pancreatic (8%), and breast cancer (7%), make up for almost 50% of all cancer deaths (NIH/ SEER, 2023). Among the most common cancer entities, the least relative survival is displayed in pancreatic cancer (12.5%). In addition, it must be kept in mind that survival is also dependent on early diagnosis as an early treatment affects the above-mentioned factors of a potential higher grading, stage or metastasis situation (NIH/ SEER, 2023).

Comparing the commonly referenced data from the United States with Germany, we see a similar trend. In 2018, the following cancer entities were the ones reported with the highest standardized incidence rate: breast (112,6), colon (32,7), lung (31,5) for females, and prostate (99,1), lung (55,3), colon (52,1) for males. The death rates were found in breast (women: 16.7%) and lung (men: 22.8%) (RKI, 2021).

These numbers remain impactful when looking at the calculated age-standardized incidence (ASI) and mortality (ASM) rates which displays that breast (ASI = 82.2, ASM = 16.0), prostate (ASI = 66.0, ASM = 10.6), lung (ASI = 31.9, ASM = 23.1), and colorectum (ASI = 25.8, ASM = 9.9) cancers were the top four cancer entities in Germany in 2020 (IARC, 2021).

### **1.1.2. Factors influencing cancer outcome**

Many cancer patients grapple with comorbidities stemming from their treatment regimens or pre-existing multi-morbidities even before their cancer diagnosis. Cancer, being a chronic, and often times a progressive, disease in its own right, is further complicated by these additional ailments which can complicate timely and accurate diagnosis and treatment initiation. Such comorbidities can influence the patient's engagement in cancer screening, their health-seeking behaviors, or even a clinician's choice of diagnostic tools tailored to the individual's condition (Renzi et al., 2019). Specific pre-existing conditions, particularly those affecting the cardiovascular, pulmonary, or neurological systems and psychological disorders, are known to negatively impact preventive health behaviors. Conversely, individuals with hypertension or certain musculoskeletal, or gastrointestinal diseases are more likely to seek medical help, pay attention to their symptoms, and therefore potentially receive an earlier cancer diagnosis (Renzi et al., 2019).

The presentation of symptoms for a cancer diagnosis can be influenced by ethnicity, as certain cancers manifest more frequently in specific ethnic groups. For example, prostate cancer incidence rates are notably higher in non-Hispanic black populations, while non-Hispanic white populations see a greater prevalence of female breast cancer (NIH/SEER, 2023). Post-diagnosis, the experience of treatment side effects can also vary by sex, leading to different efficacies and toxicities (Kim et al., 2018). Research by Oertelt-Prigione et al. (2021) found that female cancer survivors are more prone to the loss of physical and cognitive functions, whereas male survivors are more impacted by losses in role and social functioning. Furthermore, symptoms like depression and fatigue are reported more frequently among male patients. These distinctions are crucial for oncologists and general practitioners alike, who may be integral in the initial symptom presentation, diagnosis, and follow-up care. Such insights underscore the need to equip all physicians, including general practitioners (GPs), with

comprehensive patient profiles, encompassing both personal and symptomatic information for better healthcare outcomes.

### **1.1.3. Survivorship**

Cancer is often characterized as a chronic condition, frequently accompanied by comorbidities that exist prior to diagnosis and can give rise to further health challenges during and post-treatment. The concept of "survivorship" lacks a consistent definition, varying by country, healthcare providers, and patients themselves. It generally pertains to the period following a primary diagnosis and is marked by shifts in an individual's priorities, values, future outlook, and interpersonal relationships (Marzorati et al., 2017).

Miller et al. (2008) have delineated potential phases of cancer survivorship: transitional, extended, and permanent. The transitional phase encompasses the shift from active treatment to ongoing monitoring and adjustments—both medically and emotionally—for reintegration into daily life. In the extended phase, patients' experiences diverge, involving (1) continued treatment for recurring or advanced cancer, (2) remission with ongoing therapy, or (3) complete remission with a positive prognosis. The final phase—permanent survivorship—occurs if the cancer is considered "defeated," yet this stage can still involve varied experiences, such as being "cancer-free but not free of cancer," dealing with long-term consequences (like financial burdens, toxicities, fatigue, mood disorders, or the risk of relapse) (Marzorati et al., 2017), facing a new cancer unrelated to the initial one, or confronting a secondary cancer linked to the first cancer or its treatment. It is common for these stages and aftereffects to overlap, illustrating the complex nature of cancer survivorship.

Esser et al. (2021) offered further distinctions, differentiating between long-term sequelae that begin early and persist for years and late effects that emerge years or decades later, underscoring the multifaceted and enduring impact of cancer survivorship.

Regardless of the definitions or stage-distribution, it is clear that more attention and awareness must go to not only the acute phase of a disease but also towards a long-term perspective with connecting all stakeholders and the patient's life. Due to the complex interplay of multiple stakeholders and the heterogeneity of the disease, it becomes apparent that the patient's self-management of the disease becomes increasingly important. On one hand, this means that the clinician is responsible for providing enough information material, on the other hand, the patient should be trained to develop the health literacy, meaning to filter relevant health information from irrelevant or even unserious ones (Esser et al., 2021). Nevertheless, in giving this kind of information and training until the patient develops enough health literacy to live a happy and health promoting lifestyle, it requires a good number of professionals and their time to provide this kind of service. Taking into account that there are work force shortages, including Germany and the United States, it puts an even higher burden on the current active physicians who have to deal with an increasing number of cancer patients and cancer survivors. The results of a recent online survey revealed that medical wise, when it comes to the question of cancer recurrence or late-effect management, most patients prefer an oncologist compared to their general practitioner. In contrast, while only one quarter was seeing their general practitioner for survivorship care at that time, the ones who did were happily in their care and confident in the general practitioner's abilities. This indicates that a full transition of care from oncologist to general practitioner is still not embraced by the patients (Attai et al., 2022). Of note, there are country specific differences in follow up and survivorship care. For example, in Germany it is still not common practice that the general practitioner is much involved in the aftercare (Lang et al., 2017).

In the context of evolving mass technologies and digital advancements, the potential for patient empowerment is substantial, necessitating that patients make choices aligned with professional medical advice. Given the variance in access to these technologies and the diverse nature of cancer patient populations, a standardized "one size fits all" approach to

survivorship care is insufficient. Survivorship programs should incorporate certain key elements to enhance the patient's self-management capabilities:

1. An early initiation, ensuring that survivorship care begins soon after diagnosis and treatment initiation.
2. A tailored approach that personalizes the program to the individual patient's needs, preferences, and circumstances.
3. A holistic strategy that considers the full spectrum of a patient's daily life, acknowledging the various dimensions that contribute to well-being.
4. A collaborative framework that involves interdisciplinary communication and coordination among all physicians and stakeholders pertinent to the patient's care (Esser et al., 2021).

These principles aim to foster a more effective and responsive survivorship care model that can adjust to the nuanced and evolving needs of each cancer survivor.

## 1.2. Radiotherapy in focus

Besides surgery and medicinal tumor therapy, radiotherapy is one of the three main pillars of a cancer treatment. While radiotherapy and surgery describe a local treatment regime, medicinal tumor therapy acts as a systemic therapy which affects the whole bodily system. Often times, a combination of these pillars might be more efficient to treat the cancer. One differentiates between neoadjuvant (preoperative) and adjuvant (postoperative) radiotherapy. Neoadjuvant therapies may have the advantage of decreasing the size of the tumor before removing it surgically – commonly applied at rectum (Glimelius, 2013) or esophagus cancers (Lewis et al., 2022). Patients receiving adjuvant radiotherapy may benefit from a decreased risk of relapse due to residual tumor cells. This is a common procedure in the treatment of breast cancer (Valente et al., 2020). However, the choice to administer adjuvant radiotherapy may also be dependent on the presence or absence of certain risk factors. On another note, for some aggressive tumors there might be given the indication of radiotherapy treatment only.

Some other tumors might have the same benefits when either choosing radiotherapy or surgery. For example, this might be the case for prostate cancer in the early to medium stages. However, while the healing outcome might be comparable with both treatment options, they might pose different risks that are to be weighed up. In other cases, surgery would be the first line treatment but due to comorbidities it may not be possible. An equally important decision is the wish of the patient after the physician has given a clear statement and sufficient information of the options (Baumann et al., 2021).

In terms of functionality, it must be noted that, although radiotherapy causes breakages in the DNA, the bodily cells are capable of running their own repair system which works better in healthy cells than in tumor cells. Hence, radiotherapy uses this mechanism which is why the ionizing radiation has a bigger impact on the tumor cells than the healthy surrounding ones (Majeed et al., 2023).

The goal of radiotherapy is either curative or palliative outcomes. Curative radiotherapy may also be applied if there is no visible tumor but there might be indications for some rest tumor cells. Palliative care aims to ease the symptoms and can sometimes result in prolonging lifetime (Chaput et al., 2021). For instance, in 80% of cases it can ease the pain when suffering from metastases in the bones (Baumann et al., 2021).

### 1.3. Current practices of dealing with side effects of treatments and identifying issues of care management

Patients with cancer constitute a diverse group, whose care involves routine monitoring and often necessitates the collaboration of various medical specialists and support personnel. While cancer mortality has decreased over the past three decades (Santucci et al., 2020), and survival rates have improved in high-income countries (Arnold et al., 2019), there is an

increased emphasis on the quality of life, which can be a relevant factor for up to 26 years post-diagnosis (Firkins et al., 2020). Therefore, addressing the disease itself is as critical as the subsequent aftercare and follow-up.

Even when patients are deemed cured, they may experience long-term effects from their treatments, including the necessity for psychological support due to the persistent fear of cancer recurrence, which can impede the return to everyday life. Furthermore, the perceived quality of life post-treatment can differ based on factors such as the type of treatment received and the patient's age. For instance, breast cancer survivors may report an improved quality of life over time, while those who have had prostate cancer might experience a decline (Bloom et al., 2007). This variability underscores the necessity for personalized care approaches in managing cancer survivors, as there is no universal strategy that is applicable to all.

To enhance the likelihood of a successful outcome, treatments may be combined, known as neoadjuvant or adjuvant therapies. Side effects from these treatments are diverse, ranging from gastrointestinal issues, sleep disturbances, fatigue, and hair loss to peripheral neuropathy, organ inflammation, blood cell deficiencies, and even non-specific pain (National Cancer Institute, n.d.; Gegechkori et al., 2017). The severity and duration of these symptoms can vary greatly, as can the risk of secondary cancers and long-term side effects.

Radiation therapy is estimated to contribute to about 5% of secondary cancer cases, but its exact incidence is difficult to determine due to various influencing factors such as age, radiation dose, volume, type of irradiated tissue, and technique used (Dracham et al., 2018).

Moreover, primary cancers treated with radiation, like breast cancer, are associated with a higher risk of secondary malignancies including leukemia, cancer in the opposite breast, or lung cancer (Majeed et al., 2023). In addition to traditional treatments, the advent of targeted therapies, including immune checkpoint inhibitors and CAR-T cells, introduces new risks of cardiotoxicity and thromboembolism (Mudd et al., 2021).

Current research is not only investigating treatments for cancer but also their side effects and the subsequent impact on patients' long-term satisfaction with life (Kroker et al., 2019). Consequently, there is a growing emphasis on empowering and educating patients about managing symptoms effectively. One critical area of patient education involves where to obtain reliable, evidence-based information, with GPs being a focal point for this guidance.

Complementary and Alternative Medicine (CAM), which encompasses a wide variety of practices including the use of vitamins, probiotics, acupuncture, and magnetotherapy, is often sought by patients to alleviate treatment side effects both during and post therapy (Berretta et al., 2017). While the efficacy of CAM is debated and expectations for its success vary, it is often directed at vulnerable groups, including palliative care patients. In addition, it is important to recognize that the impact and side effects of any treatment can vary widely among patients, even when the treatment modality is the same across individuals.

The impact of treatment modalities on quality of life are compounded by the issue of patients being lost to follow-up. The main aim of follow-up care is to monitor for cancer recurrence, yet it is estimated that approximately 65% of cancer survivors do not attend these important check-ups with their oncologists (Gill et al., 2018). This could be due to the inconvenience or, in some healthcare systems, the prohibitive cost of regular doctor visits. Consequently, there have been suggestions to implement follow-up strategies involving non-specialists. However, the data on the effectiveness of such strategies is scant. For instance, the impact of non-specialist-led follow-up on patient quality of life, as compared to specialist-led follow-up, remains ambiguous (Høeg et al., 2019).

In light of varied expectations for cancer outcomes and the plethora of options available that can sometimes mislead patients, there is a recommendation for the provision of thorough education and information regarding follow-up care (O'Malley et al., 2016).



## 1.4. Involvement of GPs in cancer care in Germany

The care of oncologic patients involves a multidisciplinary approach, necessitating a detailed examination of who is principally responsible for overseeing the patient's comprehensive health outcomes. As per the German Cancer Society (DKG, 2015), a significant majority of palliative care patients and survivors, including those of breast cancer, predominantly seek advice and care from their GP. In rural areas, this figure is as high as 80% of patients considering their GP as the initial point of contact (DKG, 2015).

The German Ministry of Health, recognizing the critical gaps in cancer care, introduced the National Cancer Plan in 2008 with objectives to enhance early detection, care, and management of cancer. This plan accentuates patient autonomy and aims to fortify care infrastructures, elevate care quality, and improve communication and collaboration among various healthcare stakeholders. These entities, integral to the German healthcare system, are entrusted with the duty to consult and deliver actionable recommendations and include the German Association of General Practitioners (German Ministry of Health, 2017).

Nonetheless, these strategies are often articulated in broad strokes, and in practice, a communication and coordination void between general practitioners and oncologists persists, as noted by Klabunde et al. (2013) and Johansson et al. (2000). Additionally, bureaucratic hurdles and procedural delays stand as significant obstacles to the effective dissemination and execution of these recommendations.

GPs commonly serve as the initial healthcare professionals that patients approach when experiencing symptoms, as established by Wilkinson et al. (2004). The role of the GP encompasses a diverse range of responsibilities that include primary care, secondary care at hospital levels, management within the healthcare system as noted by Dormael (1995), and liaising with family caregivers (Schoenmakers et al., 2009). Although oncologists tend to

delineate their roles as distinct from those of GPs—with oncologists primarily engaged in biomedical domains and GPs providing psychosocial support—Engler et al. (2017) indicates that this distinction is not always clear-cut in practical scenarios, as echoed by Lang et al. (2017). In 2020, Kaiser and colleagues published a book with interdisciplinary information about the scenarios GPs are being confronted with oncologic patients and GPs' diverse roles and responsibilities they face. They highlight that after the initial cancer diagnosis and for the future proceedings, it is crucial to have a regular and proper communication between GP and the oncologist or clinic to ensure a high-quality and mutual consensus (Kaiser, 2020).

GPs might have to talk to various stakeholders from different subjects and fields. In Germany, there are oncologic top centers (“Spitzenzentren”) empowered by the integrative network of Comprehensive Cancer Center (CCC) which offer high-quality ambulatory and stationary care. While medical research and care has improved a lot over the last few years, the quality of care is very differently distributed across Germany. It is based on the above-mentioned National Cancer Plan and has the purpose to steadily increase the quality of care across Germany. So far, they are present in most bigger cities with universities (Stiftung Deutsche Krebshilfe, 2022). Besides, the DKG is also responsible to certify other oncologic care centers as well as centers for one specific organ cancer (DKG, n.d.).

In Germany, the pathway to becoming a primary care specialist encompasses an additional five years post the completion of basic medical studies, involving rotations in ambulatory primary care (*ambulante, hausärztliche Versorgung in der Allgemeinmedizin*), inpatient acute care in internal medicine (*stationäre Akutversorgung auf dem Gebiet der Inneren Medizin*), and a chosen specialty that allows for direct patient care. An obligatory 80-hour course on psychosomatic medicine is also required. Training protocols for primary care specialists are determined by the state medical boards (*Landesärztekammern*), leading to slight variations in the curriculum. However, nationwide content standards are upheld by the Federal Medical Association (*Bundesärztekammer*). These standards cover a range of competencies, including

palliative care management, oncological disorders, counseling on curative versus palliative care options for patients with tumors, and the integration of patient and family preferences alongside the input of all treating physicians. Additionally, during their specialization, primary care physicians gain knowledge of chemotherapy, radiotherapy, and CAM therapies (Hanke, 2023).

## 1.5. Expectations of oncologic patients towards GPs, and patients' needs

In 2016, an Australian study shed light on the GP's expectations of their work and duties in cancer care. By conducting a systematic review, they found out that the confidence in handling this kind of disease very much depended on the stage of the disease, which care domain must be tackled, as well as the disease prevalence depending on the type of cancer (Lawrence et al., 2016).

In the context of palliative care, a Dutch study by Busser et al. (2022) looked into the current practices of GPs which identified that those perceived daily tasks not rarely deviated from supposedly common practices and guidelines. This again highlights the subjective perception of the GPs expectations and responsibilities of their jobs. Another Dutch study from Schellevis et al. (2005) emphasized the gatekeeper role of GPs. Besides their role in cancer or Alzheimer's disease care, it is also described in the setting of other conditions such as elderly care. Hence, in 2018, Grol et al. pointed towards an increasing understanding of GPs towards their role not only to the patient's health journey but also to their involvement in multidisciplinary teams. A Dutch healthcare approach is noted in a study by Geelen et al. which suggests that the Dutch healthcare system is organized in a manner that requires patients to proactively voice their concerns and seek assistance. This is particularly pertinent to experienced side effects, ongoing treatment regimens, and CAMs, with a noted "wait and see" attitude prevalent within the system (Geelen et al., 2014). In addition, a patient survey by Lang et al. (2017)

revealed that it is common practice to have a doctor-patient talk which is usually followed by the subscription of medications. This was also confirmed by an international systematic review by Deckx et al. (2021) as patients would prefer talking-only therapy whereas GPs tend to underestimate that power and giving out medicine, such as antidepressants.

However, yet no study has investigated the status quo of the situation in German GPs' offices in terms of their needs, opinions, and experienced issues – from the GP's point of view. Thus far, only a single German study by Lang et al. (2017) has shed light on the specific needs and expectations that cancer patients have of their GPs within the scope of cancer care. Generally, cancer patients harbor considerable trust in their GPs, prompting a desire for the GPs to play a proactive role throughout the entire therapeutic process. Such involvement is deemed beneficial not only for the patients themselves but also offers significant reassurance to family members and caregivers. This necessitates a structured collaboration between GPs and oncology specialists, in addition to supplementary education for the former. Moreover, there is a preference for an early introduction to palliative care when necessary.

Concurrent findings were echoed in a recent study by Vogel et al. (2022), which highlighted patients' preference for comprehensive information and an in-depth understanding of their medical circumstances by their healthcare providers.

## 1.6. Objectives and goals

Data regarding the views and requirements of GPs is scarce across various regions. This is especially true for Germany, where there is a significant gap in understanding the everyday conditions and responsibilities of GPs in their role as primary healthcare coordinators.

The objective of this thesis was to explore GPs' perceptions and experiences in the management of oncological patients. In a further step, an explorative approach was used to

check for potential associations. Consequently, this research seeks to address the concerns and potential resolutions identified by GPs in the realm of oncological care.

## 2. Methods

### 2.1. Study design and procedure

This cross-sectional study was conducted at the Department of Radio-Oncology and Radiotherapy at the university hospital *TUM MRI Klinikum rechts der Isar*, Munich.

Since the response rate in surveys is usually rather modest, it was decided to actively reach out to family physicians in whole Germany who fit the inclusion criteria.

Prior to initiating the survey, participants were being made aware that their participation and provision of data were to be considered anonymous. They were also informed that their contribution implied consent to the academic use of their data, the research process, and the potential dissemination of study findings. Furthermore, respondents retained the autonomy to discontinue their participation in the survey at any point, without the necessity to justify their withdrawal. Further, it was explicitly pointed out that no secondary interests were pursued except for the pure purpose of contribution to research.

An online survey was distributed via the personalized or office E-Mail of general practitioners in Germany on July 4<sup>th</sup>, 2023. Following an initial waiting time of 20 days due to holiday season and closed practices, one reminder was sent out. On August 9<sup>th</sup>, 2023, the survey was closed, and data analysis began. Only participants who answered the complete survey were considered for analysis.

Participation was voluntary. Responses were recorded, stored and analyzed anonymously.

## 2.2. Study population

The target group should fit the following inclusion criteria:

included German physicians of all ages and sexes who are specialized in general medicine, speak German, and were actively working in either one of the following places:

- Group practice (“Gemeinschaftspraxis”)
- Ambulatory health care center (Medizinisches Versorgungszentrum/ MVZ)
- Joint practice (“Praxisgemeinschaft”)
- Own office (“KV-Sitz”)
- Employed in a practice

No further exclusion criteria were defined as no a priori information about the GPs were accessible.

## 2.3. Database and recruitment

The database *ArztData AG* was chosen to extract the contact details of German general practitioners (<https://www.arztdata.de>). Among other databases, this particular one was preferred due to its data of over half a million addresses of the health care system which covers 99% of it. Hereby it was of utmost importance to set the right filters to address the right target group.

The following filters have been applied:

- ID of type of care provision: BA70 (physician with own office), BA49 (physician working in ambulatory health care center (MVZ)), BA61 (physician employed in a practice), BA49.37 (physician in a MVZ with a managerial capacity).

- ID of type of profession: FG28 (general medicine) – logical connection to other IDs with “or”, meaning that all addresses contain at least “general medicine” as a type of profession.
- ID of further attributes: IDK31 (general practitioner) – logical connection to other IDs with “or”, meaning that all addresses contain at least “general practitioner” as a type of profession.
- Region: whole of Germany
- Additional filters: E-Mail (facultative – with and without E-Mail address); E-Mail addresses contain both personalized as well as group addresses, such as info@, praxis@, kontakt@, etc.

## 2.4. Questionnaire

The construction of the questionnaire was a collaborative effort involving the supervisor of this thesis, Prof. Dr. Andreas Dinkel, and PD Dr. Denise Bernhardt, the study's principal investigator. Additionally, the instrument underwent a review by Prof. Dr. Antonius Schneider, Director of the Institute of General Medicine at TU Munich. The survey was hosted on the online platform Survio, accessible at

[<https://www.survio.com/de/>](<https://www.survio.com/de/>).

A total of 24 questions were posed in this survey, employing a combination of single (n=21) and multiple-choice (n=3) formats. All questions were structured as closed-ended, requiring respondents to select their answer(s) from provided options—with the exception of the final inquiry. This concluding question offered participants the latitude to articulate their thoughts in plain text, addressing any unmentioned issues or needs pertinent to their work with oncological patients, as well as suggestions for enhancements in care that could support healthcare professionals or elevate the quality of oncological patient care. Furthermore, 19 items were designated as compulsory. The majority of the questions (n=21) were formatted to elicit a single-choice response. In addition, six questions—comprising four single-response



and two multiple-response—allowed respondents to select "other" and elucidate their choice via a free-text option.

The survey consisted of five sections:

1. The initial section, encompassing questions one through five, gathered demographic information. Respondents had the opportunity to select multiple responses when indicating their additional qualifications, with options such as "palliative medicine", "naturopathic treatment", "medicinal tumor therapy", "special pain therapy", "psychotherapy", "none", or "others". Additionally, they were required to provide details regarding their practical work experience duration, workplace type, gender, and age.
2. The second section, encompassing questions six to ten, concentrated on the GPs' specific experiences and perspectives. The initial two inquiries addressed the primary reason for patient consultations: whether it related directly to their cancer or if the consultation was for a different issue and the individual happened to be a cancer survivor. Questions eight and nine sought to assess the physician's level of experience by querying the number of oncology patients they encounter and the frequency of these consultations. Additionally, the survey gauged the GPs' familiarity with the patients' expectations, distinguishing between tasks such as referring to an oncology specialist, managing symptoms independently, offering psychosocial support, overseeing follow-up care or survivorship, or addressing "other" responsibilities.
3. The third section, spanning questions eleven to 21, was specifically focused on the physicians' confidence in their decision-making when proceeding with the care of oncologic patients. This included two questions probing the GPs' views on the Specialized Palliative Home Care system (SAPV). Question eleven evaluated the GPs' literacy concerning the symptoms presented by patients, while the subsequent question delved into their knowledge of the patients' needs. Questions 14 through 16

were optional, acknowledging that not all respondents might have experience with palliative care patients or SAPVs. Similarly, question 17 was optional as it related to the preceding question and depended on a specific response choice. Subsequent inquiries explored the GPs' comfort and sense of well-being while working with oncologic patients, whether they find it burdensome, and their preference for treating more or fewer cancer patients. Question 19 assessed the extent of the GPs' involvement in cancer patients' follow-up care, and questions 20 and 21 specifically investigated their confidence in managing the side effects of radiotherapy and whether they perceive a need for additional information and training.

4. Questions 22 and 23 of the survey were focused on elucidating the specifics of the care environment in the respondents' practices. Question 22 inquired about the preferred modes of communication employed by the GPs to consult with oncologists. Question 23 sought to clarify what the GPs consider as their primary responsibilities when managing patients diagnosed with cancer. The choices available were singular and included "direct medical treatment by the GPs themselves," "psycho-oncologic care," "coordination and liaison with oncologists," "socio-medical support – including interactions with family members, insurance companies, rehabilitation centers, etc.," or "other."
5. For the final open-ended question of the survey, the aim was to capture additional insights that might not have been covered by the previous questions.

The full survey can be accessed in the appendix under 7.1.

## 2.5. Statistical analysis

The total end number of physicians was put into IBM SPSS Statistics (version 29.0.0.0 (241)). Since age was the only ratio variable, the mean age with standard deviation was calculated. For all other nominal and ordinal variables, the modus and respective frequency of the answers were noted. Analyses were carried out descriptively. In an exploratory analysis, potential associations were investigated via the Chi<sup>2</sup> test which allows for a first investigation of potential associations between variables – but does not give directions. Chi-square was applied to check for associations between additional qualifications and a) GPs' knowledge on symptoms, b) GPs' knowledge on needs, and c) the number of years clinically working. Besides, it was of interest to test the level of involvement with palliative patients against the additional qualification "palliative care."

The last, open-ended question was of an exploratory nature. Responses were categorized by SL, based on obvious similarity in content. In case of uncertainty, there was the opportunity to reach consensus with the study team (AD and DB). Consequently, this allowed for the identification of agreement between GPs and particularly important themes deemed significant by the respondents.

## 2.6. Ethical Commission

The ethical proposal was submitted to the ethical committee of the Technical University of Munich on the 11.02.2023. Approval with the number 2023-99-S-S-KK was received on the 16.03.2023.

The approved vote is to be found in the appendix under 7.2.

## 3. Results

A total of 15 639 emails were sent out, of which 3599 (23.0%) could not be delivered. Of the remaining 12 039 emails, 742 (4.7%) people visited the website of the survey, and 606 (5.0%) answered the survey which resulted in a completion rate of 81.7%. It must be noted that the number of email addresses do not equal to the number of physicians being targeted. Some practices might have had multiple contact information. Hence, some physicians might have received a double invitation.

### 3.1. Survey section 1

The demographic characteristics of the participants showed a mean age of 58.5 ( $\pm 8.3$ ) years. The survey represented the opinion and experiences of 351 male GPs ( $n=57.9\%$ ) and 249 female GPs ( $n=41.1\%$ ). Five (0.8%) GPs identified as diverse. Most people were having their own office ("KV-Sitz") ( $n=282$ , 46.5%). This was closely followed by people working in a group practice ("Gemeinschaftspraxis") ( $n=245$ , 40.4%). The rest worked either in a joint practice or was employed in a practice. Only a few people worked in an Ambulatory health care center ("Medizinisches Versorgungszentrum"/"MVZ") ( $n=16$ , 2.6%). Twenty respondents utilized the "other" type-in function of the question concerning their workplace. The vast majority indicated they were employed in a private practice setting, with a single individual noting their work at a medical center affiliated with the Federal Armed Forces.

Considering the higher age range represented in this study, most respondents ( $n=365$ , 60.2%) have been working in their field for more than 20 years. 172 people (28.4%) worked between ten up to 20 years.

In addition, the most commonly listed additional qualification was palliative care ( $n=153$ , 25.2%), closely followed by the statement of not having any additional qualification ( $n=134$ , 22.1%), and by naturopathic treatment ( $n=121$ , 19.9%). 315 respondents added other

additional qualifications that they acquired. The most named one was emergency medicine (n=68), closely followed by acupuncture (n=66), and chiropractic (n=50). Sports medicine ranked fourth (n=43) while homeopathy, manual medicine, and psychosomatic medicine were listed by n=26, n=20, and n=19 respondents, respectively. Other qualifications can be extracted from table 2.

A detailed description of all the characteristics of respondents is found in Table 1.

*Table 1: characteristics of participants (n=606), age was grouped with data from n=594 participants who provided valid age data.*

<b>Age</b>	<b>N</b>	<b>%</b>
Below 35	1	0.02
35-50	82	13.8
50-65	371	62.5
65+	140	23.5

<b>Sex</b>	<b>N</b>	<b>%</b>
male	351	58.0
female	249	42.1

<b>Sex</b>	<b>N</b>	<b>%</b>
diverse	5	0.8

<b>Place of work</b>	<b>n</b>	<b>%</b>
Group practice (“Gemeinschaftspraxis”)	245	40.5
Ambulatory health care center (Medizinisches Versorgungszentrum/ MVZ)	16	2.6
Joint practice (“Praxisgemeinschaft”)	21	3.5
Own office (“KV-Sitz”)	282	46.6
Employed in a practice	21	3.5

<b>Duration of work</b>	<b>n</b>	<b>%</b>
<1 year	2	0.3
1-5 years	16	2.6

<b><i>Duration of work</i></b>	<b><i>n</i></b>	<b><i>%</i></b>
5-10 years	50	8.3
10-20 years	172	28.4
>20 years	365	60.3

<b><i>Additional qualifications</i></b>	<b><i>n</i></b>	<b><i>%</i></b>
Palliative medicine	153	25.3
Naturopathic treatment	121	20.0
Psychotherapy	58	9.6
Special pain therapy	27	4.5
Medicinal tumor therapy	5	0.8
Others	315	52.1
None	134	22.1

*Table 2: GP's additional qualifications.*

<b>qualifications</b>	<b>n</b>	<b>%</b>
emergency medicine	68	21.5
acupuncture	66	20.9
chiropractic	50	15.8
sports medicine	43	13.6
homeopathy	26	8.2
manual medicine	20	6.3
psychosomatic medicine	19	6.0
nutrition	17	5.3
diabetology	16	5.0
geriatric medicine	16	5.0
addiction medicine	15	4.7
travel medicine	13	4.1
occupational medicine	11	3.4
rescue medicine	6	1.9
phlebology	5	1.5
traffic medicine	4	1.2
anesthesiology	4	1.2
environmental medicine	3	0.9
balneology	3	0.9
osteopathy	3	0.9
men medicine	3	0.9
intensive care	3	0.9
prevention	3	0.9
antropomorphistic medicine	3	0.9



<b>qualifications</b>	<b>n</b>	<b>%</b>
climatology	2	0.6
hematologic therapy	1	0.3
urology	1	0.3
kinesiology	1	0.3
orthopedics	1	0.3
body therapy	1	0.3
rehabilitation care	1	0.3
tropical medicine	1	0.3
transfusion medicine	1	0.3
flight medicine	1	0.3
human genetic counselling	1	0.3
forensic medicine	1	0.3
radiation protection	1	0.3
traditional chinese medicine	1	0.3
gastroenterology	1	0.3

### 3.2. Survey section 2

The main reasoning for consultation is often about issues stemming from the cancer or its respective treatment itself (n=369, 60.9%). Nevertheless, 30.9% of GPs reported that cancer patients seek advice about problems experienced independent of their cancer diagnosis where the cancer is just a secondary diagnosis. The additional type-in function of the question addressing the most common reason for consultation of the GP (n=49) revealed that it is challenging to determine the most prevalent consultation reason as it varies by case. The tasks most frequently mentioned were: laboratory tests, blood levels, psycho-oncologic topics (e.g.,

depression, anxiety), pain, questions about diagnosis, therapy procedure, or side effects of the therapy, and seeking CAM or holistic approaches.

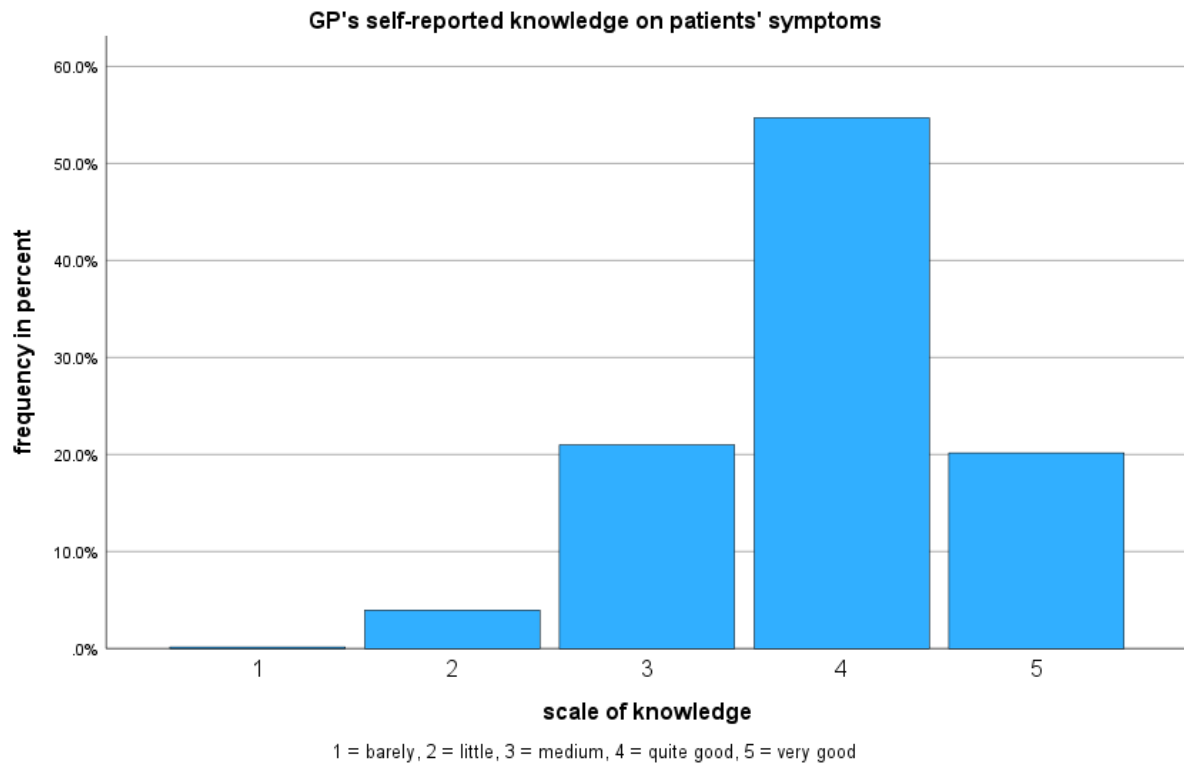
However, with this patient group, their secondary cancer diagnosis *often* comes up during the consultation (n=385, 63.5%). In contrast, others reported that the past cancer diagnosis *always* (n=131, 21.6%) or *sometimes* (n=64, 10.6%) comes up. Moreover, this survey represented GPs who were treating more than 15 cancer patients (n=292, 48.2%) at the time of the survey as well as GPs who were seeing those patients a couple of times per month (n=292, 48.2%). Besides 126 GPs reporting that they see their patients once a month, there were still 74 (12.2%) and 91 (15.0%) GPs stating that this patient group visits once or even multiple times a week, respectively.

In terms of the patients' expectations towards the GP, these seemed to be quite outbalanced without much prioritization: psycho-oncologic support (n=451, 74.4%) as well as treating the patient oneself without transferring him/ her to another specialist (n=410, 67.7%) seem to be the most relevant duties of GPs. This is closely followed by survivorship (n=316, 52.1%) as well as transferal to another specialist (n=278, 45.9%). The additional type-in function revealed the following tasks: seeking a more detailed description of their treatment, discussing and monitoring the medication plan, getting a second opinion, simultaneous supportive measurements during treatment, such as laboratory tests or social medicine, inclusion of family, and handling of comorbidities.

### 3.3. Survey section 3

When being asked about how knowledgeable GPs feels themselves in the symptoms that this patient group – patients suffering from the disease itself or from its treatment – experiences, 331 (54.6%) people responded with a 4/5 scale. Only 24 (3.9%) people did not seem to be confident. The others were medium (n=127, 20.9%) or very (n=122, 20.1%) confident in their

knowledge. A similar trend can be observed in the question asking for how confident GPs feel in their patients' needs. Again, about half of the participants (n=326, 53.8%) responded with 4/5, whereas even a quarter (n=160, 26.4%) of respondents felt very confident with 5/5. Those questions are graphically displayed in Figure 1.





*Figure 1: participant's knowledge about the symptoms (a), and needs (b) of cancer patients, respectively.*

Since only 20 (3.3%) of participants did not engage with palliative patients at the time of the survey, the answer of the follow up questions are representative for these GPs. Generally, participants seemed to be very happy (5/5) with the supply (n=293, 48.8%) as well as communication (n=239, 39.6%) of the SAPVs. However, when it comes to working with palliative patients, GPs reported great differences in whether they feel informed about the plans of follow up care (n=253 versus n=252, 41.7% versus 41.6%). A similar picture can be seen when asking about an easy communication between the GP and oncologist. Here, only 308 (50.8%) were reporting a barrier-free communication. The clearest statement can be made about the inclusion of the GP in the palliative care: 438 (72.3%) respondents were content

about the degree they are involved in palliative care of their patients. Details are graphically shown in Figure 2.

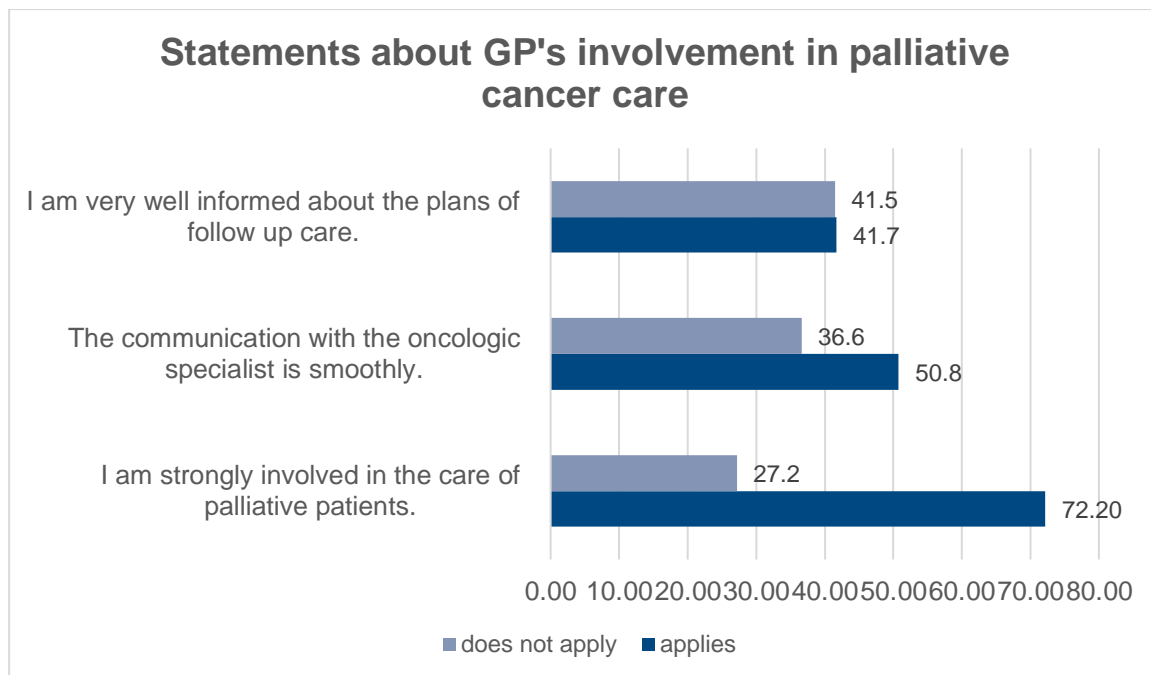


Figure 2: Percentage number of respondents agreeing/ disagreeing with statements about their involvement in palliative care.

Speaking of cancer patients in general, most participants (n=321, 52.9%) reported that they do find the work with this particular patient group a little bit wearing while 229 (37.8%) find it to be not wearing at all. These answers seem to be also in line with the next question when it was asked about a desired change of the amount of cancer patients caring for. Thus, a strong number of 544 (89.8%) responded that they do not seek any change.

When specifically being asked about the radio-therapeutic area, respondents seemed to have stronger opinions towards their involvement in follow up care of these patients as well as how to manage radio-therapeutic side effects. Regarding the involvement, GPs reported that they are only moderately (n=276, 45.6%) to a little (n=158, 26.1%) involved (see Figure 3). Simultaneously, they felt moderate to confident about side effects. Only 24 (4.0%) people were very strongly integrated in the after care while only a small number of GPs felt very confident

(n=26, 4.3%) about how to manage radio-therapeutic side effects. This is well reflected in the 391 (67.3%) respondents who felt confident to a moderate degree or less (see Figure 4).

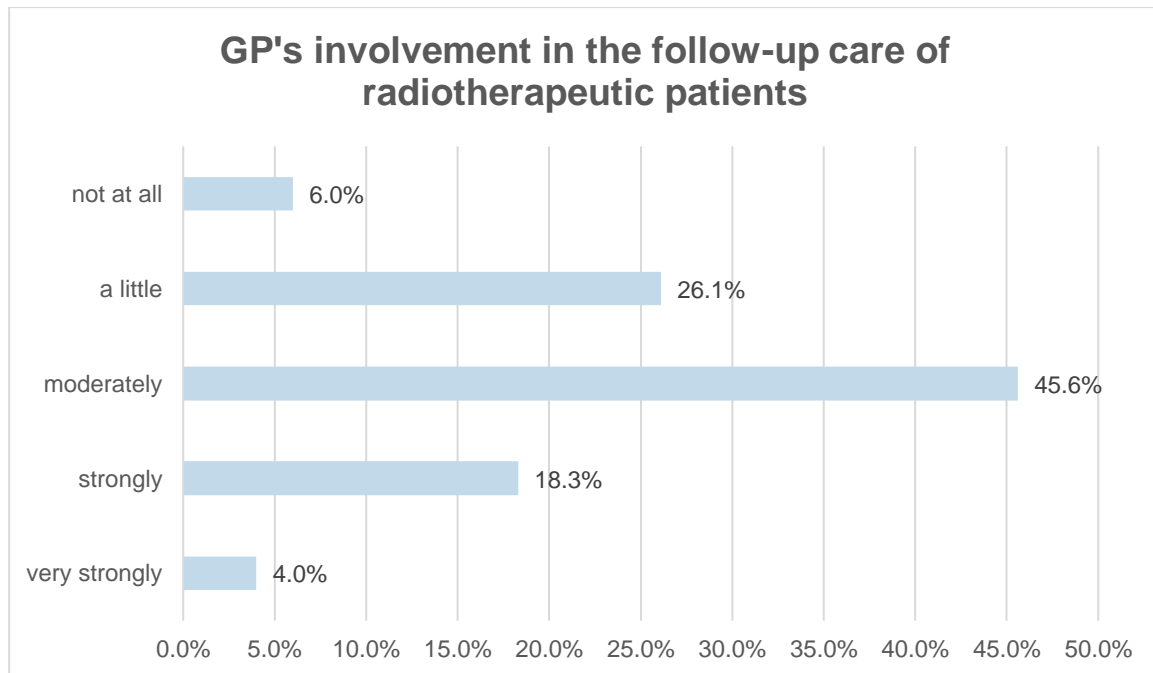


Figure 3: GP's involvement in the follow-up care of radiotherapeutic patients.

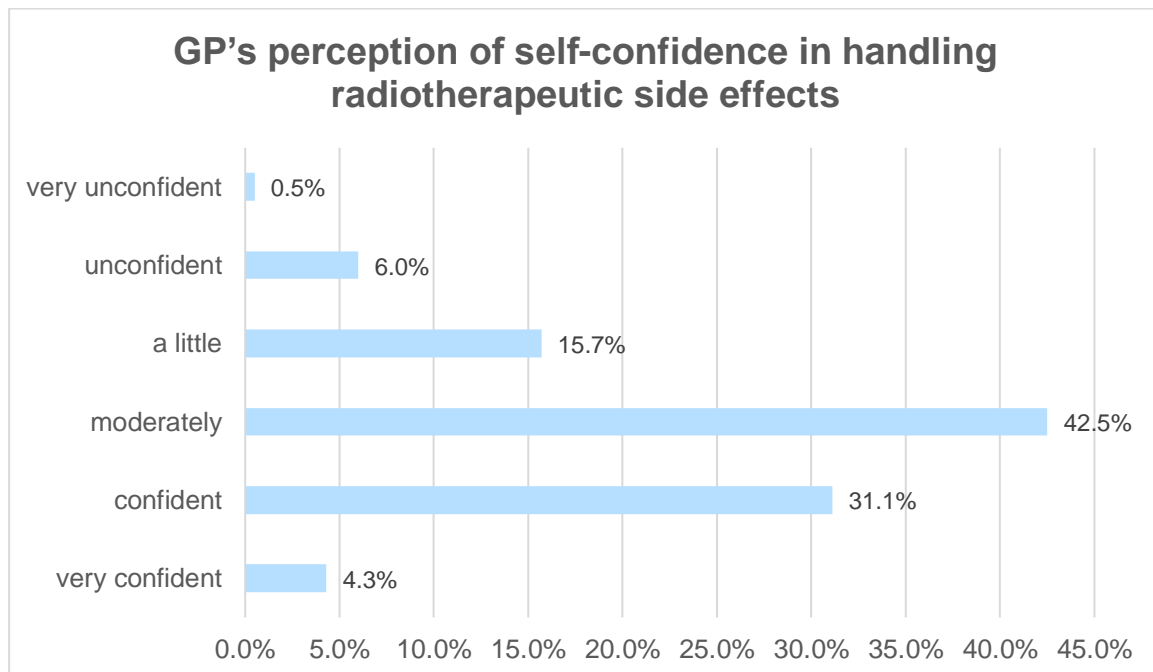


Figure 4: GP's perception of self-confidence in handling radiotherapeutic side effects.

### 3.4. Survey section 4

Moreover, communication between the survey's target population and the oncologists happens through all channels. Nevertheless, the use of the electronic patient file was only reported by two people. The by far most commonly used communication tool is the medical report (n=448, 73.9%). Other tools include the telephone (63, 10.4%) and e-mail/ fax (n=49, 8.1%). Some participants elaborated further on the communication tool by the type-in function. It became apparent that, while all media devices – sometimes depending on the urgency of the situation – are being used to make communication between the GP and the oncologist happening, the electronic patient file is almost nowhere implemented. Only two German respondents reported using this tool. Often it depends on the patient's will if communication should happen between his/her respective GP and the specialist as usually the GP seems to reach out to the specialists to seek further, updated information – but rarely the other way around.

Lastly, GPs perceive their main task with this particular patient group to be the direct, medical care one-on-one. Besides, other tasks seem to be ranked as having a similar level of importance: coordination and communication with the respective oncologist (n=117, 19.3%), psycho-oncologic care (n=89, 14.7%), social-medical support (n=67, 11.1%) (see Figure 5).

### GP's main tasks with oncologic patients

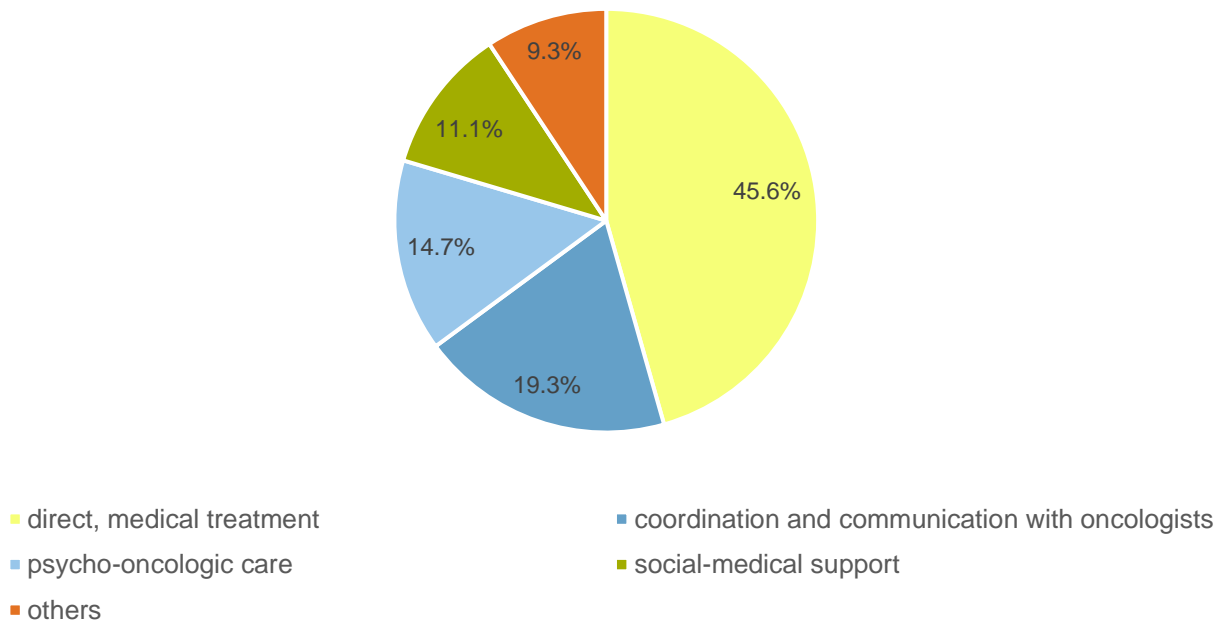


Figure 5: GP's main tasks with oncologic patients.

The type-in responses to the question about "other" primary tasks of GPs (n=56) indicate that prioritization is often difficult, but certain responsibilities are consistently significant in their work with cancer patients. These responsibilities include coordinating and referring to other specialists, providing conflict- and symptom-centered support, preventative measures to protect patients from overtreatment, supportive measures during therapy like palliative care or pain management, support for family members, and offering holistic assistance. A categorized summary is outlined in the following:

- **Second opinion** - including medication plan, detailed information about treatment, CAM/ holistic options, protection against over therapy.
- **Coordination, communication, and transferal to other specialists** - including getting up-to-date treatment plan.
- **One-on-one medical support** - including laboratory tests, handling comorbidities/ side effects, psychological support, and **handling social medicine** - including talk with family, conflict-centered support.



### 3.5. Survey section 5

In the survey, 340 respondents (56.1%) utilized the option to provide detailed responses to the last question. The majority of respondents provided information generally within one or two sentences.

#### 3.5.1. Key issues

The analysis of these comments identified key issues affecting the work of GPs: poor communication, inadequate staffing, limited time, and a perceived undervaluation of their role.

Firstly, a prominent concern was the communication gap between GPs and specialists, particularly oncologists in university hospitals. GPs reported that they often receive incomplete information or encounter delays in getting medical reports. Sometimes, they would get lab results without sufficient context. Even when medical reports were received, GPs faced the challenge of deciphering the myriad of abbreviations used by various medical specialties.

Secondly, the survey responses highlighted the issue of inadequate staffing and the pressure it places on the limited number of physicians who must manage an increasing number of patients, including those with cancer. Consequently, many respondents advocated for higher fees for treating cancer patients, particularly during palliative care phases, where intensive and quality interactions are crucial.

The shortage of time hinders the ability to discuss a patient's needs comprehensively and provide clear information about their condition and treatment options. This challenge is not exclusive to GPs but extends to clinic staff as well, often leading to GPs spending extra time to explain and clarify what was not adequately communicated by other specialists due to their own time constraints.

The survey also noted differences in physician-patient interactions across different settings. For example, in medical care centers (MVZs), patients are seen by any available doctor, which

can be stressful for both patients and Doctors. Doctors must quickly familiarize themselves with new patients' histories, while patients lack a consistent and personal relationship with a single specialist who is thoroughly familiar with their case.

Some responses indicated that GPs sometimes disagree with the aggressive treatment plans proposed by oncologists. They expressed that in certain cases, an earlier shift to palliative care might be more aligned with the patients' needs and the well-being of their families, suggesting a need for greater consideration of less intensive treatment options and the timing of end-of-life care.

Third, general practitioners feel that their role is often misunderstood or undervalued by their specialist colleagues. GPs bring to the table a unique long-standing relationship with their patients, fostering a level of trust that is difficult to replicate, especially during the management of chronic illnesses like cancer that necessitate a complex web of care providers. GPs have expressed frustration about being left out of ongoing care plans and not being kept informed by specialists or by palliative care networks, which tend to take over patient care quite swiftly. Several GPs also highlighted the lack of invitations to participate in tumor boards, which would allow them more direct involvement in the care of cancer patients. Besides, there is an expectation from the specialists for the GPs to be readily available to handle emergencies, which is challenging when the GPs have not been provided with sufficient information.

The burden of bureaucracy was another issue raised, as GPs are responsible for managing various administrative tasks such as submitting applications to insurance providers. Patients also seem to have unrealistic expectations of GPs' medical knowledge, assuming they can address all medical queries, including highly specialized ones.

Despite this, the comprehensive care that GPs provide, including ongoing and follow-up care, and their psychological and psychosocial support, is undervalued. The established doctor-patient relationship is crucial and often missing in other medical specialties. For instance,

during chemotherapy, there is often no consistent point of contact for the patient, which GPs could fill.

GPs also note the necessity of providing accurate and ample information about psychosocial support and alternative therapies, ensuring patients are legally informed to make shared decisions about their treatment. While palliative care networks are seen as valuable, there is a call for more room to accommodate individual patient wishes within the treatment protocol.

### **3.5.2. Proposed solutions**

Some GPs even suggested possible solutions which was summarized by the following key points: implementation of e-medical reports, further training, increase in their fees, more staff, and inclusion of relatives.

At the outset, to enhance the flow of communication between general practitioners and oncologists/specialists, it was proposed that an electronic medical reporting system, such as "e-Arztbrief" or "e-Patientenakte," should be universally adopted. This system would ensure that all medical personnel involved in a patient's care have immediate and comprehensive access to treatment updates and medication changes while safeguarding this sensitive information from political entities and health insurance companies to maintain the focus on optimal patient care.

In addition to electronic records, patients should be provided with a clear and concise follow-up plan and information sheet about their therapy, copies of which would be included in their medical reports, keeping GPs fully informed.

Another suggestion is to facilitate more immediate access to physicians, perhaps through a dedicated hotline for communicating urgent treatment changes or important patient updates. Implementing coordination checkpoints could solve the issue of managing this information, streamlining the transfer and collection of patient data.

Clear definitions of each healthcare provider's responsibilities could result in a reduction of bureaucratic burdens on GPs and help patients understand who to approach with questions or concerns.

Finally, to further boost time efficiency and minimize disturbances commonly found in clinical settings, the practice of conducting home visits should be emphasized and increased.

Moreover, the necessity for ongoing education was a significant concern raised. There's a call for comprehensive training programs to address knowledge gaps on both sides: GPs are eager to deepen their understanding of the side effects associated with specific treatment regimens, including checkpoint inhibitors and immunotherapies.

Furthermore, while GPs are committed to addressing the psychological aspects of cancer care, there's a consensus that oncologists could enhance patient experience by receiving additional training focused on the emotional impacts of cancer treatment. Such educational advancement could be facilitated through mutual training sessions where general practitioners and oncologists share insights and expertise.

Additionally, there's a need to make the fields of psychotherapy and psycho-oncology more appealing to potential entrants, with the goal of reducing the waiting times for patients to receive therapy sessions. This involves creating more enticing opportunities for those interested in specializing in these areas.

Thus, many respondents emphasized the need for a potential increase in remuneration for treating cancer patients, acknowledging that these cases demand more time and effort, particularly in the realm of psychosomatic medicine, which should be more highly valued in financial terms. Currently, there are only additional billing numbers for palliative care patients, not for oncological patients at large, which general practitioners could use to appropriately charge for the intensive workload they handle. Additionally, the system is burdened by the bureaucratic requirements imposed on general practitioners, who are compelled to write detailed and lengthy justifications to insurance companies to secure full coverage of costs.

Lastly, the critical role of involving and transparently communicating with the patient's family and relatives must not be overlooked. Their potential influence on the decision-making process can be substantial, especially depending on the severity of the patient's condition. Beyond their decision-making input, relatives can provide invaluable support as they often know the patient intimately and can more effectively convey the patient's preferences and wishes. This knowledge is crucial for both the general practitioner and the treating oncologist. Establishing specialized ambulatory counseling centers focused on social medicine could be beneficial in facilitating this aspect of care.

### 3.6. Calculations of association

In a first step, it was differentiated between “no additional qualifications” and “additional qualification”: potential associations were investigated for the variable “no additional qualifications” and “knowledge on patients’ symptoms” and “knowledge on patients’ needs.” The  $\chi^2$  value of 13.30 indicates that having no additional qualifications may influence the knowledge that GPs have on their patients’ symptoms ( $p = 0.01$ ) – but may have no effect on the expected needs of patients ( $\chi^2 = 5.48$ ,  $p = 0.24$ ).

This stands in contrast to physicians who have at least one additional expertise. In a second step, in comparison to having no additional qualifications, the most common additional qualifications were being looked at separately:

1. The additional qualification of medicinal tumor therapy seems to have an impact on how certain physicians are about their patients’ needs ( $\chi^2 = 10.91$ ,  $p = 0.03$ ). Borderline results were presented with a potential association between medical tumor therapy and knowledge on symptoms ( $\chi^2 = 9.41$ ,  $p = 0.05$ ).

2. Psychotherapy seemed to neither change the GP's knowledge on the symptoms ( $X^2 = 0.57$ ,  $p = 0.97$ ) nor the needs ( $X^2 = 3.38$ ,  $p = 0.51$ ) of their cancer patients.
3. Similar to psychotherapy, no influence on the knowledge of symptoms and needs was detected for naturopathic treatment ( $X^2 = 1.97$ ,  $p = 0.74$ , and  $X^2 = 1.68$ ,  $p = 0.79$ , respectively).
4. Special pain therapy seems to show a significant influence on the knowledge of symptoms ( $X^2 = 27.38$ ,  $p < 0.001$ ). However, no associations were found with the knowledge on patients' needs ( $X^2 = 1.87$ ,  $p = 0.76$ ).
5. Holding an additional certificate of palliative medicine shows clear directions into an association with impacting the knowledge of both the symptoms ( $X^2 = 20.28$ ,  $p < 0.001$ ) and needs ( $X^2 = 12.10$ ,  $p = 0.02$ ) of cancer patients.

In a third step, an explorative investigation was done with the most common additional qualifications and work experience. However, no associations were found between any of the investigated additional qualifications and the number of years clinically working:

1. Holding an additional qualification in medicinal tumor therapy seems not to influence the number of years GPs are clinically active ( $X^2 = 0.81$ ,  $p = 0.98$ ).
2. No associations were found for psychotherapy and the number of years working ( $X^2 = 4.70$ ,  $p = 0.45$ ).
3. No association was found between the additional qualification of naturopathic treatments and the number of years working ( $X^2 = 13.33$ ,  $p = 0.21$ ).
4. The additional qualification of special pain medication seems to not have an influence on the number of years working as a GP ( $X^2 = 1.22$ ,  $p = 0.94$ ).

5. Similar results were calculated for palliative medicine and the number of years working ( $\chi^2 = 2.70$ ,  $p = 0.75$ ).

In a last step, when testing palliative care against all other additional qualifications, palliative care showed significant results ( $\chi^2 = 40.45$ ,  $p < 0.001$ ) with the level of involvement with palliative patients whereas this was not the case for any other qualification taken together.

## 4. Discussion

### 4.1. Summary of results

This nationwide, cross-sectional study was conducted to evaluate the current state of oncologic patient care as seen by GPs, while also identifying common issues.

By doing so, it starts filling the research gap of how GPs experience their work with oncologic patients and how they perceive their role in a complex network of care management because the majority of studies so far has focused on the patients' perspectives.

The main result of this study is that cancer patients consistently seek advice from their GP at every stage of survivorship for diverse reasons. Yet, the insufficient communication between GPs and other medical specialists leads to ambiguity in the allocation of responsibilities and a deficit of comprehensive patient information available to the GP.

The majority of participants report that quite often the cancer diagnosis and treatment procedures come up during consultation times, they see more than 15 cancer patients and check up on them multiples times a month. Additionally, the GPs reported feeling confident about understanding their patients' needs and the symptoms they experience, with the majority being satisfied (rating their satisfaction as 5/5 or 4/5) with the services provided by SAPV networks and their communication with them. Nearly all of the surveyed GPs were actively caring for palliative patients at the time, with about three-quarters heavily involved in palliative care. The GPs generally expressed contentment with the number of cancer patients under their care.

In terms of post-radiotherapy follow-up care, almost half of the GPs felt they were only moderately involved and expressed a desire for further education in this area. The survey also highlighted a consensus that medical reports are the primary mode of communication between



GPs and specialists, and that direct medical interaction with the patient is considered the GPs' central responsibility from their own point of view.

However, different results were seen in the most common reason for consultation at the GP. Additionally, the expectation of cancer patients towards their respective GP is very diverse which was reflected in the multiple-choice answers. Bigger similarities between the respondents were also seen when being asked about a smooth communication between them and the oncologists, and about the sufficient provision of up-to-date information on the patients' current treatment plan. Additionally, about half of the GPs described their work with cancer patients as somewhat burdensome. In contrast, the majority did not report significant concern. Lastly, there was considerable variation among the respondents concerning their confidence in managing symptoms related to radiotherapy.

Besides, statistical analysis revealed that having additional qualifications may have an influence on how knowledgeable GPs feel about their patients' symptoms and needs. Also, clear associations were presented for palliative medicine and the level of involvement of GPs in palliative care. However, no associations were found between any of the investigated additional qualifications and the number of years clinically working.

Responses to additional questions in the survey, including the option to provide detailed answers for "other" selections and an open-ended question at the end, highlighted a common theme: GPs often find themselves filling gaps in care due to time and staff shortages. They frequently initiate conversations with oncologists to obtain the latest information on treatment plans, which allows them to provide continuous or supportive care.

GPs expressed a desire for more education on managing the side effects of chemotherapy and radiotherapy. They also noted a need for training in psycho-oncology for other medical professionals, particularly oncologists, to improve psychological care. The greatest

communication challenges were reported with oncologists in university hospitals or medical care centers, where staff turnover can be rapid.

Lastly, the GPs indicated that considering the intensive work they do with cancer patients, as opposed to other patients, they believe they should receive better compensation for their services to oncologic patients.

## 4.2. Comparison to other studies

### 4.2.1. Tasks of a GP

The responsibilities of GPs include more than treating diseases; they are deeply involved in the overall care of their patients. This was highlighted by Phillips et al. in 2001, who stated, “Family physicians do not treat diseases; they take care of people” (p. 274). When dealing with severe illnesses such as cancer, the role of GPs becomes particularly critical. Their tasks include coordinating care, managing side effects, offering emotional support, and promoting health knowledge and self-management among patients. Continuous learning and access to updated courses and qualifications are essential for GPs to remain effective in these roles.

This study supports prior research indicating that GPs, despite their various administrative responsibilities, prefer engaging in the medical aspects of care, such as diagnosis and management of illnesses and side effects. This is consistent with findings from a survey by Halvorsen in 2013, which suggested that GPs find these clinical tasks most rewarding.

Ensuring high-quality care from GPs involves clear communication with specialists in the field. This study, along with research by Jefford et al. (2020) and Suija et al. (2016), underscores the importance of this collaboration. Mitchell (2008) also pointed out the need to define and discuss the overlapping roles of GPs and specialists to avoid confusion about who is responsible for what aspects of patient care.

Finally, the Canadian study by Easley et al. (2017) identified similar communication challenges and the need for ongoing education for GPs. They also uncovered an additional concern: specialists sometimes find it difficult to access GPs, which can lead to specialists stepping in to cover areas typically managed by GPs, thereby complicating the continuum of care for patients. In contrast to that, the participants of our current study reported that they are often the ones who have to reach out to the respective oncologists in order to get up to date patient information which is perceived as cumbersome.

Incorporating General Practitioners more extensively into cancer care could potentially alleviate their workload, enhance the efficiency of the overall healthcare system, and diminish the burden on other specialists.

When it comes to the mental and emotional support for cancer patients, known as psycho-oncologic support, there's a gap in utilization. Despite being readily available, over half of the distressed cancer patients don't seek this support. The reasons might be personal, like not having enough social support, or systemic, such as not being fully informed about the support available (Pichler et al., 2022). Who should inform the patient about these services remains a question—is it the job of the, e.g., radiotherapist, or the GP?

Our study indicates that hurdles are not just about informing patients but also include financial barriers and a lack of staff. Effective collaboration with specialists is crucial here. Digital services could also significantly improve psycho-oncologic care and communication among healthcare providers. It is also important to incorporate recommendations from the S3-guideline on Psycho-Oncology more vigorously into patient care. Active distress screenings and openly discussing the patient's needs could lead to better health outcomes and help reduce the stigma of seeking mental health support (Pichler et al., 2022).

This not only may result in a better health outcome but also help de-stigmatization of patients seeking psycho-oncological support (Pichler et al., 2022). Although a cancer patient might not

always fulfill all indices of a psychologic disorder, their psychological distress must be taken seriously as it also may have clinical significance. The risk of distress might be especially occurring after the initial diagnosis. Nevertheless, fear of progression or fear of cancer recurrence may persist long after that and even for a lifetime – and this, over time, might overlap with a pathological worry and daily worry as determinant for fear of progression (Dinkel et al., 2021).

#### **4.2.2. SAPV networks**

SAPV networks represent intricate organizational structures with multi-professional teams whose responsibilities span from consultation to collaboration with primary caregivers, up to comprehensive care programs. Although SAPV networks are obliged to provide basic services, specific arrangements such as compensation or service details are negotiated between care providers and the relevant health insurance entities. This can lead to standard contracts applicable to all or necessitate negotiations with regional teams (Nauck et al., 2018).

The sentiments from our survey are comparatively more optimistic than those from a survey conducted in Saxony, which inquired about GPs' experiences with SAPV networks. While the GPs valued communication and cooperation with SAPV teams, a higher willingness to share care responsibilities with SAPV was noted among younger and female GPs, those with less work experience, and those working in group practices. However, there was skepticism about the effectiveness of SAPV. GPs appreciated the idea of consultation and collaborative service provision with SAPV but were reluctant to let SAPV completely take over patient care (Schneider et al., 2011). While the SAPV concept is deemed very useful and crucial and its services and landscape have expanded since its inception in 2007 (KBV, 2023; Blaschke et al., 2020), challenges in implementation persist. Notably, significant stress for family caregivers and poor communication with other specialists pose barriers to seamless care programs

(Götze et al., 2010). The current study confirms these issues, finding even more pronounced communication problems between GPs and oncologists or other specialists as compared to communication within SAPV teams.

#### **4.2.3. Communication between GPs and radiotherapists**

Our investigation highlighted that communication between GPs and oncologists, along with GPs' involvement in follow-up care and information provision, is markedly limited. GPs have a critical role in both short-term and long-term care of cancer patients. Sandell et al. (2022) explored the agreement on care between GPs and radiotherapists, finding a consistent underestimation and misunderstanding of GPs' roles and capabilities, aligning with the findings of this study. Our study additionally suggests GPs are generally open to obtaining further qualifications or training, particularly regarding the side effects of radiotherapy and chemotherapy.

In research set in a different healthcare system, a Dutch study by Vulto et al. (2009) assessed GPs' knowledge of palliative radiotherapy and discovered GPs considered their knowledge as subpar, with only 10% having prior education in radiotherapy. Moreover, Sandell et al. (2022) looked into the potential benefits of GPs receiving care guidelines from radio oncologists. Such guidelines could foster mutual confidence in each profession's expertise.

The patient's acceptance of a shared follow-up care model is higher when there is effective communication between the GP and oncologist, as per Schütze et al. (2018). The introduction of health technologies to facilitate two-way communication between GPs and radio oncologists was suggested by Sandell et al. (2021) to enhance information sharing about the patient. The outcomes of this initiative, however, remain to be seen, and further intensive research is required to define how these technologies or guidelines should operate. Nonetheless, according to Sandell and colleagues (2023), the implementation of a shared follow up model of cancer care should consider the following target groups first to achieve a high acceptance

from the patients: radiotherapy-only patients, less than three years of patients' preferred follow-up time, and travel time to the regional travel center exceeds 20 minutes. Moreover, the first target groups for this implementation should understand the benefits of a shared care model.

The general lack of education for GPs in radiotherapy has been addressed by a nation-wide, Australian on-site education program where knowledge, referral pathways, and self-reported referral behavior was put focus on. While in Australia the barriers to a potentially curative radiotherapy are availability of affordable and adequate radiotherapy, it faces similar problems of other countries, such as the referral practices of GPs and their believe in the effectiveness of radiotherapy (Morris et al., 2018). The referral to radiotherapy specifically for palliative patients was discussed in a systematic review by Livergant et al. (2019). They agreed with the results of Morris et al. (2018) and showed that one of the greatest barriers for referral is the referrer's lack of knowledge on the risks and benefits of radiotherapy. Furthermore, Livergant and colleagues' (2019) systematic review the cumbersome bureaucracy of referral processes and the "perceived inconvenience of treatment."

#### **4.2.4. Current (additional) education of GPs in Germany**

Currently, there are approximately 56 recommendations guiding the selection of qualifications for medical physicians, but the determination of specific requirements is left to individual regions, such as whether an exam is mandatory after course completion. Additionally, certain advanced qualifications may be restricted to specific medical specialties or must be relevant to the physician's direct patient care experience. Notably, in 2022, homeopathy was removed as a recognized additional qualification (Ziegler, 2022). With the emergence of new treatment modalities like immune checkpoint inhibitors, there is a growing necessity to be familiar with a new range of potential side effects, previously unknown. Therefore, it is not just oncologists who need to grasp the intricacies of specialized medicine; GPs also must be sufficiently

integrated to the extent that they have unrestricted access to accredited courses and certifications in these new medical areas.

#### **4.2.5. Charting future directions**

Addressing the challenges of changing fees, increasing the number of medical students, and implementing a nationwide electronic patient file will require political resolve and the ability to navigate bureaucratic obstacles. However, the medical community can independently initiate certain solutions now.

To improve communication between oncologists and GPs, it might be helpful establishing voluntary workshops to foster mutual learning. For instance, oncologists could educate GPs about the side effects of both traditional and more novel treatments, while GPs could offer guidance on psycho-hygiene. These sessions could also help demystify the medical jargon prevalent in oncology reports and serve as a forum for discussing daily routines and expectations regarding oncology patient care.

Additionally, it would prove advantageous for both GPs and patients to receive documents outlining anticipated side effects, the prevailing treatment protocol, and subsequent follow-up procedures.

Given the time constraints often experienced by both medical specialists during consultations, an early collaborative sit-down approach at the initial diagnostic stage to delineate specific responsibilities could be a viable strategy. However, such coordination is challenging in multidisciplinary healthcare centers (MVZs), where patients may encounter various physicians at different appointments. In these settings, at least one practitioner should explicitly articulate their preferred role and responsibilities. This should be meticulously documented in the patient's records, facilitating open communication if needed. This approach is particularly

critical when determining accountability for communicating with family members or liaising with other experts involved in oncological care, such as dermatologists or gynecologists. Clear communication of these roles to the patient is essential to circumvent a convoluted referral process and ensure that patients understand whom to approach for specific concerns.

Furthermore, the formulation of guidelines could foster a smooth exchange of information. These recommendations could encompass the implementation of educational workshops that promote mutual understanding of each specialty, the adoption of digitized patient records to bypass the challenge of deciphering illegible handwriting, and the distribution of concise medical reports following each treatment phase. They could also propose a defined schedule for updating the patient's medication or treatment status through email or telemedicine, the consolidation of credentials for continuous professional development for each clinician type, and standardized templates for routine procedures and documentation to enhance workflow, comprehension, and collaboration.

However, guidelines are theoretical, whereas the concept of a digital coordination platform for specific regions could be practically realized. While electronic health records centralize personal medical information, such a dedicated portal could streamline the arrangement of subsequent specialist consultations.

Lastly, establishing a portal for family caregivers could significantly reduce the pressures on physicians, as it would provide a centralized repository of information, mitigating the influx of inquiries and allowing healthcare providers to concentrate on clinical care.

### 4.3. Limitations

The study presents several limitations. Firstly, the inherent concerns of response rates in survey research are acknowledged. Despite this, we believe our approach, which encompassed the entirety of Germany and involved sending one reminder, allowed us to gather meaningful data.



Methodology-wise, only a descriptive analysis was chosen which does not allow to make any conclusions about cause-effect relationships between features. However, we still believe that our data provides value since it is a study of explorative nature which may lay the groundwork for future studies into that field.

Additionally, some email addresses provided by *ArztData AG* were outdated, belonging to retired professionals or individuals not involved in medical practice. These contacts were subsequently removed from the reminder list. Recipients who indicated a new email address were immediately updated for the subsequent reminder. However, the old email addresses were retained alongside the new ones for the duration of their transition period, maximizing potential survey exposure.

Another limitation was the exclusion of postal mail-outs, due to time constraints, which could have expanded the physician reach.

The number of undeliverable emails, 1,229 in total, was not adjusted after the first survey distribution, to save time and with the hope that some might eventually be delivered.

It is also pertinent to note that not all email addresses corresponded to GPs, and some physicians may have been contacted through multiple addresses. This is not seen as a limitation; rather, it increases the likelihood of successful contact.

In quantifying undelivered emails, some discrepancies may have occurred. An Outlook export function was employed to identify failed deliveries using “Zustellung” (engl. “delivery”) as a specific keyword. However, the actual number of failed emails could be higher, rendering the true response rate uncertain.

Early in the survey process, a modification was made to include an additional text field in response to two physicians' feedback, which improved answer options for question three. This

change is not considered a major limitation, as it occurred early enough not to impact the overall survey results significantly.

Content-wise, for some participants this questionnaire might have implied that there is a “one size fits all” approach for cancer patients, which is not the case, as treatments and follow-up care vary significantly. The survey intended to provide a preliminary understanding of the challenges faced by GPs. Future studies should focus on specific patient groups to gain deeper insights. Here, it must be highlighted that depending on the type of patient and the clinical picture that they present, some tasks may be more relevant than others and generalizability becomes difficult.

Moreover, while the survey aimed solely at GPs (“Facharzt Allgemeinmediziner/-in”), some responses from other specializations may have been included inadvertently. Nevertheless, it is believed that these occurrences are minimal and do not significantly impact the study's findings.

In conclusion, further research should extend to other medical specialties, such as internal medicine, to explore the intricate dynamics of the healthcare network that encompasses GPs, oncologists, SAPV networks, and caregivers in the management and communication of oncologic patient care. In addition, since Chi-square does only allow to investigate potential associations between variables but no concrete directions, this should be further investigated. However, due to its explorative nature, the present study lays the ground work for further analyses on potential causal correlations.

#### 4.4. Strengths

This study's most notable strength lies in the breadth of the targeted population. Although the actual number of survey deployments was lower due to certain limitations, it still successfully reached a substantial segment of physicians throughout Germany.

Furthermore, although the study employs a cross-sectional design, it begins to bridge the research gap concerning oncologic patient care and the role of GPs. As such, it establishes a solid foundation for more detailed future research, which could greatly enhance service provision, ultimately easing the caregiving process for all involved parties.

## 5. Conclusion and future outlook

This cross-sectional study conducted across Germany explored the current landscape of general practitioners' challenges and needs when caring for oncologic patients.

Oncologic patients constitute a diverse cohort requiring extended care through various cancer stages. The level and nature of care, along with the array of involved parties, vary significantly based on patient needs at different cancer stages.

Effective care for these patients necessitates a collaborative network with transparent communication among all stakeholders, from initial treatments and therapies to coordinating with relatives, healthcare proxies, oncologists, specialists, and GPs in diverse settings. The enduring bond between a GP and their patient is irreplaceable, underpinning the need for mutual recognition and ongoing education to appreciate and understand each other's roles, intentions, and needs. However, high-quality care also hinges on trust among specialists themselves, which is foundational for effective communication. GPs and oncologists must embrace each other's contributions, streamlining care and reducing strain on both parties.

Moreover, establishing seamless connections between GPs and other specialists is imperative, calling for accelerated digitalization within the German healthcare system, particularly in advancing an accessible electronic patient file system.

Recognizing the individuality of cancer management is vital since a "one size fits all" approach is inapplicable. Future research should delve into specific patient demographics and incorporate a wider spectrum of stakeholders and networks. Additionally, regional disparities ought to be examined to pinpoint gaps and inform actionable policies that could be adopted or modified elsewhere. Methodologically, extensive qualitative interviews would be beneficial to comprehensively capture the complexity of the patient and provider experiences in oncologic care.

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# 7. Appendix

## 7.1. Survey



## Hausarztbefragung

Sehr geehrte Damen und Herren,

Herzlichen Dank für die Teilnahme an dieser Umfrage zu der Versorgungslage von Krebspatienten. Als Hausärztin oder Hausarzt nehmen Sie diverse Rollen ein, und stellen für Patientinnen und Patienten oft die erste, medizinische Ansprechperson dar.

In welchem Umfang Sie als Hausärztin oder Hausarzt in die Versorgung von Patienten mit Krebserkrankungen involviert sind, ist bislang wenig untersucht.

Das Ziel dieser Umfrage ist es, den Status quo, Bedürfnisse und mögliche Problematiken der Hausärzte/\*innen zu erfragen, um daraus Angebote und Empfehlungen zu entwickeln, die Sie als Hausärzte entlasten und eine bedarfsgerechte Versorgung Ihrer onkologischen Patienten fördern sollen.

Diese Umfrage dauert weniger als 10 Minuten.

Ihre Antworten werden anonym gespeichert. Mit der Durchführung der Umfrage willigen Sie in eine wissenschaftliche Aufarbeitung und mögliche Publikation der Ergebnisse ein.

Es werden keine sekundären Interessen verfolgt. Die Befragung dient somit rein wissenschaftlichen Zwecken.

### 1 Wie alt sind Sie?

### 2 Wählen Sie bitte Ihr Geschlecht.

Fragesupport: *Wählen Sie eine Antwort*

- Weiblich
- Männlich
- Divers

### 3 Wo sind Sie als Facharzt für Allgemeinmedizin tätig?

Fragesupport: Wählen Sie eine Antwort

- Gemeinschaftspraxis     Medizinisches Versorgungszentrum (MVZ)     Praxisgemeinschaft     Eigener KV-Sitz     Angestellt in einer Praxis
- Andere...

### 4 Wie lange sind Sie bereits als Facharzt für Allgemeinmedizin tätig?

Fragesupport: Wählen Sie eine Antwort

- <1 Jahr  
 1-5 Jahre  
 5-10 Jahre  
 10-20 Jahre  
 >20 Jahre

### 5 Welche Zusatzqualifikationen weisen Sie auf?

Fragesupport: Wählen Sie eine oder mehr Antworten

- Medikamentöse Tumortherapie  
 Palliativmedizin  
 Spezielle Schmerztherapie  
 Naturheilverfahren  
 Psychotherapie  
 Keine  
 Andere...

### 6 Was ist Ihrer Erfahrung nach der häufigste Konsultationsanlass von Patienten mit einer Krebserkrankung?

Fragesupport: Wählen Sie eine Antwort

- Beschwerden, die direkt auf den Krebs oder die Krebstherapie zurückzuführen sind.     Beschwerden, die unabhängig von der Krebsdiagnose stehen. Patient hat die Tumordiagnose als Nebendiagnose.
- Andere...

7 Falls die Konsultation nicht primär mit der Krebsdiagnose zusammenhängt, spielt diese dennoch eine Rolle im Arztgespräch?

Fragesupport: Wählen Sie eine Antwort

- Immer  Oft  Manchmal  Selten  Nie

8 Wie viele Patienten befinden sich aktuell aufgrund ihrer Krebserkrankung in Ihrer Behandlung?

Fragesupport: Wählen Sie eine Antwort

- 0  <5  <10  <15  ≥15

9 Wie oft sehen Sie Patienten, die wegen ihrer Krebserkrankung und damit zusammenhängender Beschwerden kommen (nachfolgend "Patientengruppe")?

Fragesupport: Wählen Sie eine Antwort

- Mehrmals pro Woche  Einmal pro Woche  Mehrmals pro Monat  Einmal pro Monat  Alle paar Monate

10 Was sind die Erwartungen, die diese Patientengruppe an Sie als Hausarzt/\*ärztin und nächstliegende, ärztliche Vertrauensperson hat?

Fragesupport: Wählen Sie eine oder mehr Antworten

- Weiterleitung des Patienten an einen Facharzt  Symptombehandlung ohne Weiterleitung an einen Facharzt  Psycho-onkologische Unterstützung  Nachsorge/ Survivorship
- Andere...

11 Wie gut kennen Sie sich mit den Symptomen dieser Patientengruppe aus?

Fragesupport: 1 Stern: weniger gut; 5 Sterne: sehr gut

- ☆☆☆☆☆  / 5

12 Wie gut kennen Sie sich mit den Bedürfnissen dieser Patientengruppe aus?

Fragesupport: 1 Stern: weniger gut; 5 Sterne: sehr gut

- ☆☆☆☆☆  / 5

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**13 Betreuen Sie auch Krebspatienten, bei denen Palliation im Vordergrund steht?**

Fragesupport: Wählen Sie eine Antwort

- Ja  
 Nein

**14 Wie schätzen Sie das Angebot der Spezialisierten, Ambulanten Palliativversorgungs-Netzwerke (SAPV) ein?**

Fragesupport: 1 Stern: ungenügend; 5 Sterne: sehr gut

☆☆☆☆☆  / 5

**15 Wie schätzen Sie die Kommunikation zwischen Ihnen und den SAPV Netzwerken ein?**

Fragesupport: 1 Stern: ungenügend; 5 Sterne: sehr gut

☆☆☆☆☆  / 5

**16 In wie weit treffen folgende Aussagen in Bezug auf Ihre Tätigkeit mit palliativen Krebspatienten zu?**

Fragesupport: Wählen Sie eine Antwort in jeder Zeile

	trifft zu	trifft nicht zu
Ich bin stark in die palliative Betreuung der Patienten eingebunden.	<input type="radio"/>	<input type="radio"/>
Die Kommunikation mit dem zuständigen, onkologischen Facharzt läuft reibungslos.	<input type="radio"/>	<input type="radio"/>
Ich bin sehr gut über die konkreten Nachsorgepläne des Patienten informiert.	<input type="radio"/>	<input type="radio"/>

**17 Die Versorgung von Patienten mit einer Krebserkrankung empfinde ich als...**

Fragesupport: Wählen Sie eine Antwort

- ...sehr belastend    ...etwas belastend    ...nicht belastend

### 18 Ich würde gerne...

Fragesupport: Wählen Sie eine Antwort

- ...mehr Krebspatienten behandeln.  ...weniger Krebspatienten behandeln.  ...keine Veränderung des Anteils anstreben.

### 19 Wie stark sind Sie in die Nachsorge von Krebspatienten involviert, die zuletzt eine Strahlentherapie hatten?

Fragesupport: Wählen Sie eine Antwort

- Sehr stark  Stark  Mittel  Mäßig  Gar nicht

### 20 Wie sicher fühlen Sie sich im Umgang mit strahlentherapeutischen Nebenwirkungen?

Fragesupport: Wählen Sie eine Antwort

- Sehr sicher  Sicher  Mittel  Mäßig  Unsicher  Sehr unsicher

### 21 Sehen Sie für sich Weiterbildungsbedarf im Umgang mit strahlentherapeutischen Nebenwirkungen?

Fragesupport: Wählen Sie eine Antwort

- Ja.  Nein.

### 22 Wie erfolgt die Kommunikation zwischen Ihnen und dem/ der behandelnden Onkologen/-in?

Fragesupport: Wählen Sie eine Antwort

- Arztbrief  Telefon  E-Mail/ Fax  Elektronische Patientenakte  
 Andere...

### 23 Was sehen Sie als Ihre Hauptaufgabe in der Betreuung Ihrer Krebspatienten an?

Fragesupport: Wählen Sie eine Antwort

- Unmittelbare, ärztliche Versorgung  Psychoonkologische Versorgung  Koordination und Kommunikation mit den behandelnden Onkologen  Sozialmedizinische Unterstützung (z.B. Rücksprache mit Arbeitgeber, Krankenkassen, Rehakliniken, Angehörigen, Antragsstellungen)  
 Andere...

24 Weitere Anregungen/ Probleme/ Lösungsansätze:

## 7.2. Vote of Ethic Commission



Technische Universität München | Ethikkommission

Klinikum rechts der Isar Technische Universität München  
Klinik und Poliklinik für RadioOnkologie und Strahlentherapie  
Frau Sophia Leiß  
Ismaninger Str. 22  
81675 München

Cc.: PD Dr. med. Denise Bernhardt

München, 16.03.2023

Unser Zeichen: **2023-99-S-KK** (bitte bei Schriftwechsel angeben)

**Beratung nach § 15 Berufsordnung für Ärzte in Bayern**

Studientitel: Versorgungslandschaft und Fort-/Weiterbildungsbedarf onkologisch-therapeutischer Nebenwirkungen in der hausärztlichen Allgemeinmedizin.  
Antragssteller: Sophia Leiß  
Studienleiter: PD Dr. med. Denise Bernhardt

Sehr geehrte Frau Leiß,

die Ethikkommission hat Ihren Antrag vom 11.02.2023 auf der Basis der vorgelegten Unterlagen geprüft.

**Die Ethikkommission erhebt keine Einwände gegen die Durchführung der Studie.**

Die ethische und rechtliche Verantwortung für die Durchführung dieser Studie verbleibt bei Ihnen. Änderungen in Organisation und Ablauf sind der Ethikkommission zur erneuten Prüfung einzureichen.

Technische Universität München  
Ethikkommission

Prof. Dr. Georg Schmidt  
Vorsitzender

Prof. Dr. Kurt Ulm  
Stellvertretender Vorsitzender

Prof. Dr. Christian Peschel  
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2023-99-S-KK

Die Ethikkommission erwartet, dass jedes Forschungsvorhaben mit Versuchspersonen vor Rekrutierungsbeginn in eine öffentlich zugängliche Datenbank eingetragen wird.

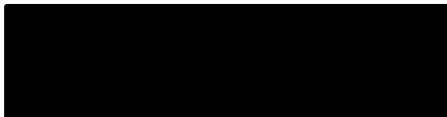
Datenschutzrechtliche Aspekte von Forschungsvorhaben werden durch die Ethikkommission grundsätzlich nur kursorisch geprüft. Dieses Votum / diese Bewertung ersetzt mithin nicht die Konsultation des zuständigen betrieblichen oder behördlichen Datenschutzbeauftragten.

Die Ethikkommission empfiehlt bei Kooperationen mit anderen Einrichtungen grundsätzlich eine vertragliche Regelung. Wenden Sie sich zur weiteren Beratung bitte an Ihre für Verträge zuständige Abteilung.

Die Leitung des Klinikums rechts der Isar erwartet bei Studien, die durch die öffentliche Hand oder Stiftungen gefördert werden, die Datensicherheit über das medizinische Datenintegrationszentrum MeDIZ sicherzustellen. Wenden Sie sich deshalb in diesen Fällen an das Institut für Medizinische Informatik, Statistik und Epidemiologie unter [www.mediz.med.tum.de](http://www.mediz.med.tum.de).

Bitte beachten Sie, dass dieses Votum nur für die im Zuständigkeitsbereich der Ethikkommission der TUM tätigen Ärzte und Wissenschaftler gültig ist.

Mit freundlichen Grüßen



Prof. Dr. Georg Schmidt  
Vorsitzender der Ethikkommission  
Technische Universität München

Vorgelegte Unterlagen:

- 1) Stellungnahme des Klinikdirektors.pdf vom 11.02.2023
- 2) Antragsformular\_Sonstige\_Studien.pdf vom 11.02.2023
- 3) Studienprotokoll.pdf vom 11.02.2023
- 4) CV\_Dr. Denise Bernhardt.pdf vom 11.02.2023
- 5) CV\_Sophia Leiss.pdf vom 11.02.2023
- 6) Anschreiben Ethik TUM.pdf vom 11.02.2023
- 7) Fragebogen\_Draft.pdf vom 26.02.2023

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