

# Symptom burden in palliative care patients: perspectives of patients, their family caregivers, and their attending physicians

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## Abstract

**Rationale** The purpose of this study was to prospectively evaluate the perspectives of palliative care patients, their family caregivers, and their attending palliative care specialists on frequency, intensity, distress, and treatment requirement of the patient's physical and psychological symptoms.

**Patients and methods** Forty advanced cancer patients and their family caregivers were recruited through a palliative care inpatient ward within 24 h after admission. Patients, caregivers, and physicians completed a modified version of the Memorial Symptom Assessment Scale (including perceived treatment requirement).

**Results** Thirty-nine patients (98 %) suffered from at least one symptom frequently or almost constantly (median number 5; range, 0–9). Most frequent symptoms were lack of energy (95 %), tiredness (88 %), and pain (80 %), which were scored correspondingly by patients, caregivers, and physicians to be the most intensive, distressing, and treatment requiring. Treatment requirement was determined by symptom intensity or distress in patients and physicians, but by distress in caregivers. Significant differences in symptom burden between patients, caregivers, and physicians were found with regard to pain

( $p=.007$ ), tiredness ( $p=.037$ ), lack of energy ( $p<.05$ ), anxiety ( $p<.05$ ), and sadness ( $p<.05$ ). Physicians underestimated 60 % of symptom dimensions, while the caregivers overestimated 77 %; however, overall median scoring differences were limited with  $-.10$  (range,  $-.55$  to  $+.25$ ) between patients and physicians and  $+.33$  (range,  $-.78$  to  $+.61$ ) between patients and family caregivers.

**Conclusions** While physicians tended to underestimate, family caregivers tended to overestimate the patient's symptoms. Therefore, adequate symptom treatment can only be successful in a close dialog between patients, their caregivers, and a multidisciplinary team.

**Keywords** Palliative care · Physical symptoms · Psychological symptoms · Burden · Distress · Family caregiver · Physician

## Introduction

Patients with advanced cancer admitted to specialized inpatient palliative care wards usually suffer from multiple physical and psychological symptoms such as pain, dyspnea, fatigue, nausea, and anxiety. In the past years, several studies have evaluated the prevalence, frequency, and/or intensity of physical and psychological symptoms in palliative care patients [1–8]. Some of these studies have focused on burden and distress caused by these symptoms. However, it remains unclear whether the overall symptom distress is mainly caused by frequency or intensity of different symptoms. In addition, less is known about which symptom dimensions, frequency, intensity, or symptom distress would mostly determine the patient's, family caregiver's, or attending physician's subjective perspective on treatment requirement. Daily clinical practice usually demonstrates differences in the patient's subjective perspective on treatment requirement for different

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symptoms. This raises the question: which among frequency, intensity, or distress caused by each specific symptom, the patient's subjective point of view on treatment requirement is based from?

In daily palliative care practice, the attending physician's evaluation of treatment requirements of the patient's symptoms seems to differ occasionally from the patient's perspective. However, less is known about the possible moderating or mediating factors influencing these differences. It also remains unclear which symptoms might be of particular higher risk for over- or underestimation by the attending palliative care specialist. In this respect, it would be helpful to better understand which symptom dimensions, frequency, intensity, or distress would have a significant impact on the physician's perspective towards treatment indication and whether the physician's perspective would differ from the patient's perspective.

The inclusion of relatives and family caregivers into a comprehensive cancer care approach represents a basic feature of palliative care. The family caregiver's perspective on the patient's symptom burden is usually integrated in symptom assessment and palliative care treatment decisions. Previous studies have evaluated different perspectives of patients and their relatives, family caregivers, or other related persons [9–13]. However, less is known about the specific characteristics of the caregivers' perspective, the impact of frequency and intensity on their perspective on symptom burden and treatment requirements, as well as possible influencing factors.

Therefore, the purpose of this cross-sectional study was to evaluate the perspective of the patient, the family caregiver, and the attending physician on frequency, intensity, distress, and the resulting treatment requirement of the patient's physical and psychological symptoms. This study aims to provide information to better understand the basic factors leading to treatment decisions in palliative care patients.

## Patient and methods

### Study design

All consecutive patients being admitted to the inpatient palliative care ward of the University Medical Center Hamburg-Eppendorf were able to enter this study between November 2010 and September 2011. Admission to the inpatient palliative care ward was possible for patients suffering from incurable and progressive malignant or nonmalignant diseases with presence of significant physical and psychosocial symptoms prohibiting further care at home or in nonspecialized inpatient wards.

Further inclusion criteria were age over 18 years, sufficient cognitive function, and adequate knowledge of

German language to provide written informed consent and to complete a modified version of the Memorial Symptom Assessment Scale (MSAS), a validated self-report questionnaire. Simultaneously, the patient's next family caregiver was asked to complete a corresponding version of the MSAS as well as additional questionnaires measuring anxiety and depression (data published elsewhere) [14] demonstrating their perspective on the patient's symptom burden. Family caregivers and patients were instructed not to exchange information or communicate with each other while answering the questionnaire.

In addition, the attending physician, exhibiting at least 1 year of specialization in palliative care, completed a corresponding version of the modified MSAS to demonstrate his/her perspective of the patient's symptoms. The physicians were allowed to perform their clinical routine symptom assessment and physical examination prior to answering the questionnaire.

All three person groups had to fulfill questionnaire analyses within 24 h after admission to the palliative care ward to ensure that no beginning treatment effects could influence symptom assessment. In addition, a period of 24 h was considered to be long enough for adequate symptom assessment prior to treatment initiation.

### Measures

Basic sociodemographic variables of both patients and family caregivers were obtained via self-reporting, patient information about diagnosis, prior and current disease, performance status (WHO and Karnofsky), and symptomatic treatments were taken from the patient's case files.

Symptom burden was measured using a modified German version of the MSAS [15]. With consideration for the limited capacities of the severely ill patients, the requested symptoms of the MSAS were restricted to 12 symptoms. Preliminary analysis revealed that the vast majority of patients were not able to answer the questions concerning three specific symptoms: "thirst," "hunger," and "problems with urination." Therefore, these three symptoms were excluded. In the final modified version, nine of them addressed physical symptoms (pain, shortness of breath, tiredness, lack of energy, dry mouth, lack of appetite, nausea, constipation, difficulty sleeping) and three of them reported psychological symptoms (irritability, anxiety, and sadness). The three categories of the MSAS, symptom frequency ("How often did you have it?"), symptom intensity ("How severe was it usually?"), and symptom distress ("How much does it distress or bother you?"), were extended to include a fourth category: perceived treatment requirement ("How important is treatment of this symptom?"). The standard MSAS categories frequency, intensity, and distress were rated on a scale from 0 to 4 (0="not at all," 4="almost constantly"/"very

severe”/“very much”). Treatment requirement was rated from 0 to 3 (0=“not at all,” 3=“strongly required”).

### Statistical methods

Statistical analyses were performed using the Statistical Package for the Social Sciences version 18.0 (IBM, USA). Dependent variables (dimension of symptom burden) were tested for differences between any of the three groups (patients, caregivers, and physicians) using analysis of variance (ANOVA). For significant results, Scheffé post hoc tests were used to search for reliable group differences. Bivariate associations between variables were calculated using Pearson’s Product–moment or Spearman’s correlation coefficient. Two-tailed significance tests were conducted using a significance level of  $p < .05$ . Cohen’s standardized effect size ( $\eta^2$ ) was calculated in order to provide an estimate of the magnitude of effect.

## Results

### Participants

A total of 40 patients with a median age of 63 years (range, 37–88) entered this study. All patients suffered from malignant diseases with a median previous disease duration of 16 months (range, 1–96). At the time point of study inclusion, six patients (15 %) were still undergoing palliative oncologic treatment: palliative chemotherapy in four patients, as well as radiotherapy and antihormonal therapy in one patient each. Detailed information on patient characteristics is given in Table 1.

Corresponding questionnaires were evaluable from all 40 family caregivers and attending physicians. Sixty-seven percent of family caregivers were female and were spouses in 46 %, siblings in 18 %, friends in 18 %, children in 12 %, and parents or cousins in 3 % each. The median duration of the relationship was 23 months (SD=17, range, 2–58).

### Symptom burden evaluated by patients

A total of 39 patients (98 %) suffered from at least one symptom frequently or almost constantly with a median number of 5 symptoms (range, 0–9): four physical (range, 1–8) and one psychological (range, 0–3) symptom. Overall prevalence of symptoms is presented in Fig. 1. There was no significant association between the prevalence of symptoms and the patients’ age, gender, performance status, type of malignant disease, number of metastases, or prior disease duration ( $p > .05$ ).

Patients gave the highest scores for daily frequency in lack of energy, tiredness, and pain. Correspondingly, these

three symptoms were also scored to be the most intensive, the most distressing, and the symptoms with the highest treatment requirement (see Table 2). The average scores over all symptoms were  $M=1.7$  (SD=.6) for frequency,  $M=1.7$  (SD=.7) for intensity,  $M=1.7$  (SD=.7) for distress, and  $M=1.2$  (SD=.6) for treatment requirement. Total symptom frequency, intensity, distress, and treatment requirement was not significantly associated with gender, age, or treatment duration.

Statistical analysis confirmed a significant internal correlation within the patient scores for the categories frequency, intensity, distress, and treatment requirement over all symptoms (range,  $r=.63$ – $r=.95$ ;  $p < .001$ ).

Correlation with symptom distress was higher for symptom intensity than for frequency in pain, shortness of breath, lack of energy, dry mouth, lack of appetite, nausea, difficulty sleeping, huffiness, anxiety, and sadness. Only in tiredness and constipation symptom distress seemed to depend more on frequency than on intensity. With the comparison of the correlations with the patients’ perspective on treatment requirements, correlations were found to be lowest for frequency in all evaluated symptoms. Highest correlation between treatment requirement and intensity was found for difficulty in sleeping ( $r=.95$ ), shortness of breath ( $r=.92$ ), loss of appetite ( $r=.89$ ), and anxiety ( $r=.82$ ) ( $p < .001$ ). However, in the majority of symptoms, treatment requirement correlated highest with symptom distress in constipation ( $r=.96$ ), nausea ( $r=.94$ ), pain ( $r=.92$ ), irritability ( $r=.89$ ), dry mouth ( $r=.87$ ), sadness ( $r=.78$ ), tiredness ( $r=.74$ ), and lack of energy ( $r=.66$ ) ( $p < .001$ ). The highest correlation between total symptom distress and total treatment requirement was found with feelings of sadness ( $r=.59$ ,  $p < .001$  and  $r=.55$ ,  $p < .001$ ).

### Symptom burden evaluated by family caregivers

Similar to patients, family caregivers gave the highest scores in all four categories for lack of energy, tiredness, and pain. Internal correlations between the scorings of the four different categories within each symptom were statistically significant in almost all symptoms ( $r=.67$ – $r=.95$ ,  $p < .001$ ). For lack of energy, there was no significant correlation between the scorings for frequency and distress ( $p=.23$ ) as well as treatment requirement ( $p=.06$ ).

In the family caregivers’ scoring, treatment requirement showed the highest correlation with symptom distress in all symptoms: shortness of breath ( $r=.97$ ), difficulty in sleeping ( $r=.97$ ), dry mouth ( $r=.95$ ), constipation ( $r=.93$ ), irritability ( $r=.92$ ), nausea ( $r=.92$ ), anxiety ( $r=.89$ ), sadness ( $r=.87$ ), loss of appetite ( $r=.87$ ), pain ( $r=.83$ ), tiredness ( $r=.78$ ), and loss of energy ( $r=.62$ ). Correlation with frequency and intensity was consistently lower demonstrating that the family caregivers’ main point of reference for

**Table 1** Patient characteristics (N=40)

		N (patients)	Percent
Gender	Female	22	55
	Male	18	45
Performance status	WHO	Median 3 (range, 1–4)	
	Karnofsky Index	Median 40 (range, 10–80)	
Malignant disease	Lung cancer	12	30
	Gynecologic cancer	6	15
	Gastrointestinal cancer	6	15
	Cancer of unknown primary	5	13
	Pancreatic cancer	4	10
	Urologic cancer	3	7
	other	4	10
Metastases	Bones	23	58
	Lungs	21	52
	Liver	16	40
	Lymph nodes	13	33
	Peritoneal carcinosis	9	24
	Brain	7	18
	Other	11	28
	No (locally advanced)	1	3

WHO World Health Organization

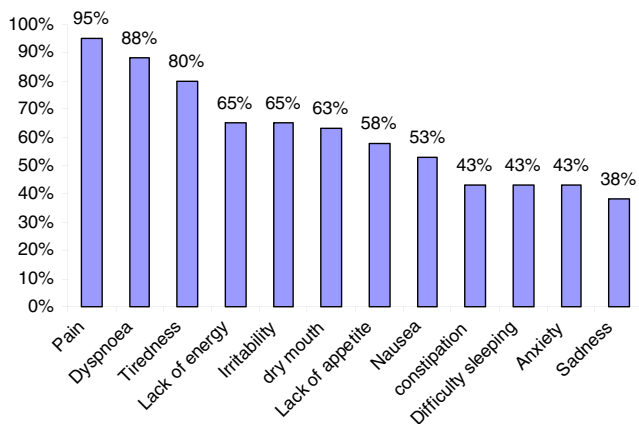
treatment requirement represents their perspective on the patients’ distress.

Symptom burden evaluated by physicians

The attending palliative care specialist graded lack of energy, tiredness, and pain to be the three most frequent, the most intensive, the most distressing, and the most treatment-requiring symptoms (Fig. 1). Physician scores also showed significant internal correlations within frequency, intensity, distress, and treatment requirement for all evaluated symptoms ( $r=.35-r=.93, p<.05$ ). Equally to the patient, the physician scoring for treatment requirement correlated

lowest with frequency in all symptoms. Highest correlation with treatment requirement showed intensity and distress in about half of the symptoms each. While intensity correlated strongly with treatment requirement which is higher in shortness of breath ( $r=.91$ ), pain ( $r=.88$ ), constipation ( $r=.86$ ), irritability ( $r=.82$ ), and lack of energy ( $r=.55$ ), correlation of distress was higher with nausea ( $r=.91$ ), sadness ( $r=.84$ ), loss of appetite ( $r=.83$ ), anxiety ( $r=.82$ ), dry mouth ( $r=.74$ ), difficulty in sleeping ( $r=.74$ ), and tiredness ( $r=.71$ ).

Differences in symptom burden evaluated by patients, caregivers, and physicians



**Fig. 1** Overall prevalence of symptoms

Significant mean differences (ANOVA) in symptom burden evaluated by patients, family caregivers, and physicians were found in pain distress; treatment requirement for tiredness; frequency, intensity, distress, and treatment requirement for lack of energy; and frequency and intensity of anxiety as well as distress and treatment requirement for sadness (Table 2).

Post hoc tests (Scheffé) revealed significant differences between the family caregivers’ and the physicians’ evaluation in pain distress ( $p=.007$ ), treatment requirement for tiredness ( $p=.039$ ), frequency of lack of energy ( $p=.044$ ), distress by lack of energy ( $p=.002$ ), and treatment requirement for lack of energy ( $p=.001$ ), as well as distress ( $p=.040$ ) and treatment requirement for sadness ( $p=.004$ ). Family caregivers significantly overestimated the frequency ( $p=.002$ ) and intensity of lack of energy ( $p=.042$ ) compared

**Table 2** Mean differences (ANOVA) in symptom burden between patients, family caregivers, and physicians

Symptom		Patients		Caregivers		Physician		<i>p</i> value	$\eta^2$
		<i>M</i>	SD	<i>M</i>	SD	<i>M</i>	SD		
Pain	Frequency	2.50	1.43	3.14	1.11	2.75	1.13	.116	–
	Intensity	2.53	1.45	3.21	1.07	2.53	1.20	.051	–
	Distress	2.85	1.55	3.46	1.07	2.40	1.26	.007	.091
	Treatment	2.30	1.22	2.71	.81	2.17	.96	.100	–
Shortness of breath	Frequency	1.08	1.42	1.62	1.54	1.50	1.24	.207	–
	Intensity	1.08	1.42	1.69	1.53	1.42	1.26	.180	–
	Distress	1.15	1.66	1.91	1.73	1.32	1.33	.116	–
	Treatment	.98	1.35	1.62	1.41	1.03	1.03	.064	–
Tiredness	Frequency	2.85	1.29	3.34	.87	2.83	.93	.077	–
	Intensity	2.80	1.27	3.06	.84	2.50	1.01	.087	–
	Distress	2.53	1.47	2.75	1.48	2.05	1.11	.082	–
	Treatment	1.48	1.26	1.94	1.16	1.25	.93	.037	.059
Lack of energy	Frequency	3.00	1.09	3.72	.52	3.23	.70	.001	.114
	Intensity	2.90	1.06	3.41	.67	2.93	.69	.021	.068
	Distress	2.95	1.13	3.41	.76	2.60	.90	.002	.104
	Treatment	2.08	.97	2.41	.67	1.65	.86	.001	.115
Dry mouth	Frequency	1.55	1.50	1.21	1.47	1.25	1.01	.483	–
	Intensity	1.42	1.39	1.12	1.43	1.08	.94	.415	–
	Distress	1.07	1.40	.91	1.28	.85	.89	.692	–
	Treatment	.65	1.08	.70	1.08	.38	.71	.290	–
Lack of appetite	Frequency	1.95	1.60	2.52	1.44	2.31	1.20	.229	–
	Intensity	1.85	1.53	2.36	1.41	2.26	1.12	.229	–
	Distress	1.73	1.55	2.18	1.42	1.90	1.25	.390	–
	Treatment	1.30	1.27	1.67	1.19	1.18	1.10	.206	–
Nausea	Frequency	1.15	1.31	1.28	1.22	1.40	1.26	.679	–
	Intensity	1.38	1.44	1.44	1.34	1.30	1.20	.909	–
	Distress	1.55	1.66	1.56	1.56	1.27	1.30	.644	–
	Treatment	1.33	1.37	1.34	1.23	.97	1.07	.339	–
Constipation	Frequency	.97	1.29	1.23	1.36	1.15	1.00	.667	–
	Intensity	1.08	1.38	1.29	1.40	1.13	1.02	.770	–
	Distress	1.03	1.51	1.26	1.51	.88	.99	.493	–
	Treatment	.92	1.27	1.03	1.30	.80	.88	.699	–
Difficulty sleeping	Frequency	1.73	1.65	1.55	1.56	1.48	1.15	.736	–
	Intensity	1.72	1.57	1.61	1.64	1.48	1.11	.742	–
	Distress	1.70	1.65	1.64	1.75	1.28	1.11	.409	–
	Treatment	1.35	1.37	1.18	1.36	.80	.82	.116	–
Irritability	Frequency	1.05	1.45	1.09	1.42	1.02	1.10	.976	–
	Intensity	1.03	1.42	1.12	1.43	.88	1.02	.711	–
	Distress	.72	1.32	.87	1.36	.53	.75	.442	–
	Treatment	.50	1.04	.63	1.04	.40	.71	.598	–
Anxiety	Frequency	.93	1.29	1.27	1.38	1.70	1.04	.022	.067
	Intensity	.90	1.30	1.33	1.45	1.65	1.08	.034	.060
	Distress	.93	1.40	1.48	1.58	1.40	1.11	.160	–
	Treatment	.62	1.08	1.12	1.32	.95	1.04	.168	–
Sadness	Frequency	1.72	1.45	2.03	1.36	1.70	1.16	.511	–
	Intensity	1.80	1.49	2.24	1.46	1.60	1.06	.124	–
	Distress	1.80	1.56	2.24	1.50	1.40	1.08	.039	.057
	Treatment	1.08	1.33	1.70	1.26	.75	.93	.004	.097

to patients. Physicians significantly overestimated the frequency ( $p=.002$ ) and intensity of anxiety ( $p=.034$ ) compared to patients. Compared to the patients' evaluation, family caregivers overestimated and physicians underestimated the symptom burden in the variables pain distress, treatment requirement for tiredness, distress by and treatment requirement for lack of energy, as well as distress and treatment requirement for sadness.

Overall, physicians underestimated 29 out of 48 symptom dimensions (60 %), while family caregivers underestimated 11 dimensions (23 %). In contrast, overestimation was more frequent in family caregivers than in physicians (77 vs. 40 %). The median differences in dimension scores over all symptoms were  $-.10$  (range,  $-.55$  to  $+.25$ ) between patient and physician demonstrating a trend in physicians to underestimate the patient's symptoms, while family caregivers tended to overestimate with  $+.33$  (range,  $-.78$  to  $+.61$ ) between patient and family caregiver.

Evaluating the number of discordant scorings between patient and physician or family caregivers, discordance was significantly more frequent in physicians in 32 out of 48 dimensions (67 %) than in family caregivers with discordance in 24 dimensions (50 %). Discordant scoring by physicians from family caregivers was not significantly associated with the patients' gender ( $p=.69$ ), age ( $p=.19$ ), kind of malignant disease ( $p=.14$ ), or disease duration ( $p=.40$ ). In contrast, the amount of the discordance of the physician to the patient scoring correlated significantly with the patients' age ( $r=.32$ ,  $p=.046$ ).

## Discussion

This cross-sectional study investigated the perspectives of 40 palliative care patients, their family caregivers, and their attending palliative care specialists on the patients' symptom burden and the resulting treatment requirement within 24 h after admission to an inpatient palliative care ward. The primary aim of this analysis was to evaluate mechanisms leading to treatment decisions in palliative care patients with focus on differences between the three perspectives of the evaluated groups.

In this cohort of advanced cancer patients, 98 % of patients complained about at least one physical and/or psychological symptom frequently or constantly within 24 h after admission to the palliative care ward with a median number of 5 symptoms. The symptoms with the highest prevalence were lack of energy, tiredness, and pain, which were also consistently evaluated by all three groups to be the three most frequent, intensive, distressing, and treatment-requiring symptoms. These results are similar to previous research reporting a median number of 3–8 symptoms, depending on the number of evaluated symptoms in comparable cohorts of palliative care patients [1–5]. In addition,

many previous studies have demonstrated pain and the group of symptoms including lack of energy, tiredness, and fatigue to be the most frequent and/or distressing symptoms [1–6, 16]. However, in contrast to earlier studies which have demonstrated clear correlations between symptom prevalence and primary tumor site [1, 7, 8], age, gender [8, 17], as well as performance status [6, 8, 17], we found the patients' perspective on their symptoms being independent from gender, age, performance status, malignant primary disease, location of metastases, or the previous disease duration. Thus, our findings suggest that prevalence, frequency, and intensity should be distinguished from distress. Corresponding with our results, a previous study from Al-Shahri et al. had also reported a lacking correlation between suffering from symptoms and biographic or tumor-specific factors [2]. In addition, Kirkova et al. reported a lacking correlation between distress and primary tumor site after control for symptom severity. They also reported a high correlation between symptom severity and distress [8]. This corresponds to our results demonstrating that the patient's subjective symptom distress was mainly influenced by symptom intensity, but not by frequency alone.

The inclusion of the subjective perspective of treatment requirement into symptom assessment provides valuable additional information for palliative care. Treatment requirement showed lowest dependency from symptom frequency in all three groups. Symptom distress showed the highest impact on treatment requirement in 75 % of symptoms in the patients', 50 % in the physicians', and 100 % in the family caregivers' evaluation, which demonstrates that treatment indication is mainly caused by symptom distress, but less by frequency and rarely by intensity.

In our study, comparatively few significant differences in symptom burden between patients, caregivers, and physicians were found—mostly between family caregivers and physicians—in pain, tiredness, lack of energy, anxiety, and sadness. For most of the significant differences, but also as an overall trend, physicians tended to underestimate patients' symptom burden whereas family caregivers tended to overestimate the patients' symptom burden. Detailed analysis revealed a higher discordance between the patients' and the physicians' scoring in 67 % of all symptom categories than between patients and family caregivers with a discordance in 50 %. Despite of the absolute number of discordant scorings, the physicians tended to be closer to the patients' perspective than the caregivers with median scoring differences of  $-.10$  between patient and physician and  $+.33$  between patient and family caregiver. Overall, physicians tended to underestimate the patients' symptoms (60 %), while the caregivers overestimated most symptoms (77 %). The subjective perspective of family caregivers and physicians seems to be close to the patients' perspective in most symptoms. However, these results might also reflect

the emotional distress experienced by family caregivers in this difficult situation that has been documented by various studies in family members of persons with cancer [18–22].

Lobchuk and Degner had performed a similar analysis on symptom assessment using the MSAS questionnaire comparing patients and their family caregivers [9]. They also demonstrated a trend to overestimation by the caregivers but with limited absolute differences of about one scoring point, which corresponds to our median difference ranging from  $-.78$  to  $+.61$ . In addition, they showed a higher correlation between family caregivers and patients for physical than for psychological symptoms, which also strengthens our results with low correlation for anxiety, difficulty with sleeping, and loss of energy. Of course, the last two represent primarily physical symptoms, but some with high psychological influences.

In an analysis on symptom assessment in cancer patients prior to chemotherapy, Silveira et al. revealed also a 50 % discordance between the cancer patients and their family caregivers and a 94 % rate of overestimation by the caregivers [10]. Other previous studies on symptom assessment also described about 50 % correlations between patients and their family caregivers, a trend to overestimate symptom burden by family caregivers, and lower differences for physical than psychological symptoms [11, 12, 23]. Corresponding to the apparent difficulties of family caregivers to evaluate the patients' psychological symptoms, a study of Robinson and Crawford had demonstrated a substantial magnitude of discrepancies between the patients and their family caregivers concerning the patients' psychological functioning [13].

The limited number of previous studies comparing symptom ratings of patient and health-care professionals has been mostly performed with nurses [24, 25]. In a study in cancer patients undergoing palliative chemotherapy, Akin and Durna also reported a strong agreement between patients and their family caregivers with a trend towards overestimation by caregivers and an underestimation by health-care professionals [24]. Rhondali et al. revealed a poor association between symptom intensity reported by patients in an acute palliative care ward and the specialized palliative care nurses [25].

Two studies including the physicians' perspective in patient assessment demonstrated a trend to underestimate the reduction of the patients' performance status in physicians compared to nurses [26] and an only moderate agreement between physician and family caregiver concerning the patient's quality of life [27]. Overall, these studies could only demonstrate some early and heterogeneous aspects on the different perspectives of patients, their caregivers, and different health-care professionals on the patients' symptoms, distress, performance status, or quality of life. Therefore, further systematic studies including the perspective of other health-care professionals in the assessment of the patients' symptom burden, treatment requirement, quality of life, and various

other aspects in this issue are warranted. In addition, different assessment scales have been used in these trials, making interpretation of their results even more difficult. The diversity of assessment scales evaluable for symptom assessment in palliative care patients has to be taken into account when further analyses on this issue are interpreted [28].

A limitation of our current analysis is the restriction to only one professional person group from the multidisciplinary palliative care team. It would have been interesting to include the perspective of the corresponding palliative care nurse or the psycho oncologist, especially with respect to the previously reported difficulties in the assessment of psychological symptoms. Further limitation includes the small sample size and the lack of a longitudinal evaluation of these symptoms after further treatment. It might have been interesting to investigate if treatment requirement could be successfully addressed for the different symptoms in correlation to distress, intensity, and frequency. In addition, possible differences between the perspective of treatment requirement between the different person groups and the success of following treatment procedures would have been of interest.

In conclusion, this prospective questionnaire analysis represents the first study analyzing three corresponding perspectives of palliative care patients, their family caregivers, and their attending palliative care specialists on the patients' symptom burden and the resulting treatment requirement. This study confirmed the high burden of distressing physical and psychological symptoms in patients with advanced cancer admitted to an inpatient palliative care ward showing the highest prevalences for lack of energy, tiredness, and pain. Treatment requirement seems to depend mainly on symptom distress than on intensity or frequency. Detailed analysis demonstrated that physicians tended to underestimate the patients' symptoms, while the family caregivers tended towards overestimation. The awareness of these effects, especially in patients suffering from pain, tiredness, lack of energy, anxiety, or sadness, seems to be of significant relevance in daily clinical practice. Overall, adequate symptom treatment in palliative care patients can only be successful in a close dialog between patients, their family caregivers, and the multidisciplinary palliative care team.

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