

## Original Article

### *Symptoms Burden in Elderly Female Patients Receiving Palliative Care*

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#### **Abstract**

**Background:** A high-quality symptom assessment is crucial to providing patient-centred palliative care resulting in positive outcomes for patients and their families.

**Objective:** To study the symptom burden in elderly female patients receiving palliative care at the geriatric palliative care unit; from the patient's, caregiver's, and physician's perspective.

**Subjects and Methods:** This cross-sectional study included ninety-five (95) elderly female patients. Female patients admitted to the palliative care unit (due to cancer and non-cancer conditions) and fulfilling the recruitment criteria were included. They were subjected to comprehensive geriatric assessment and detailed symptom inquiry utilising the abbreviated version of the Memorial Symptom Assessment Scale (MSAS-SF). We inquired about the most distressing symptom affecting the quality of life from the caregiver's perspective and the attending physician's perspective.

**Results:** The most prevalent symptoms were lack of appetite, pain, difficulty concentrating, and lack of energy. The participants had a mean total MSAS score of 1.91. Participants reported an average of 22.9 symptoms. From caregivers' perspective, the most distressing symptoms were pain, lack of appetite and dyspnea. From the attending physicians' perspective, the most distressing symptoms were pain, dyspnea, and lack of energy. Symptom burden was associated with functional dependence and depression. Lung cancer patients had the highest total MSAS score. Patients with end-stage renal disease had the highest number of symptoms.

**Conclusion:** Elderly female patients admitted to the geriatric palliative care unit experience significant symptom burden. Supportive care for patients in palliative care settings should be personalized, taking into account specific patient groups that may require more extensive symptom management.

**Keywords:** Elderly, palliative care, cancer, memorial symptom assessment scale.

#### **Introduction**

Effective holistic palliative care revolves around meticulous assessment and management of symptoms, crucial for positive patient and family outcomes. In instances such as advanced cancer, most of the symptoms can be well addressed through a combination of

pharmacological and non-pharmacological methods <sup>(1)</sup>.

Patients facing advanced cancer commonly undergo symptom experiences that tend to escalate as they approach the end of life. Inadequate management of these symptoms

can significantly diminish the quality of life for these individuals <sup>(2)</sup>.

Utilizing standardized questionnaires to gather patient-reported symptoms enhances communication between doctors and patients. The measures for subjective symptoms must be both precise and simple to administer, requiring minimal effort from both the clinician and the patient <sup>(3)</sup>. Multiple researchers have consistently stressed the necessity of thorough symptom assessment as a fundamental requirement for successful symptom management <sup>(4)</sup>.

Symptom burden assessment was proven helpful in non-cancer patients as well; to identify those patients with a high symptom burden who may benefit from consulting the palliative care team <sup>(3)</sup>.

The Memorial Symptom Assessment Scale has demonstrated its utility in detailing symptom epidemiology, understanding symptoms' role in pain, fatigue, and spirituality, predicting survival, and serving as a proxy assessment for pain. This scale has been applied in research involving cancer patients as well as those with advanced medical conditions <sup>(5)</sup>.

Therefore, this work aimed to study the symptom burden in elderly female patients receiving palliative care (for both cancer and non-cancer diagnoses) at the geriatric palliative care unit; considering the viewpoint of the patient, the caregiver, and the attending physician.

## Methods

This was a cross-sectional study that included ninety-five (95) elderly female patients admitted for palliative treatment at the geriatric palliative care unit, Geriatrics Hospital, Ain Shams University Hospitals. We used a convenience sampling method. We screened all patients admitted to the unit for eligibility criteria. Each eligible patient who was willing to participate in the study was included; until we completed a sample size of 95 patients.

**Criteria of admission of cancer patients to palliative care unit were determined by the following scoring system (A value of 5 or more has the best predictive value for palliative care referral) <sup>(6)</sup>:**

- Presence of metastatic/relapsed/refractory or locally advanced cancer (score=2)
- Eastern Cooperative Oncology Group (ECOG) performance status score (score=0-4)
- Presence of one or more of serious complications of advanced cancer (score=1)
- Presence of other conditions with poor prognosis (e.g., end stage renal failure) (score=1)
- Symptoms uncontrolled by standard approaches for more than 3 days (score=1)
- Patient/family/social/psychological/nutritional limitations (score=1)

**For non-cancer conditions, patients were eligible for palliative care in the presence of a serious illness (e.g., advanced heart failure) and one or more of the following <sup>(7)</sup>:**

- New diagnosis of life-limiting illness for symptom control, patient/family support
- Progressive weight loss
- Difficult-to-control physical or emotional symptoms
- Limited social support in setting of a serious illness (e.g., overwhelmed family caregivers)

The research protocol gained approval from the Ethics Board at Ain Shams University (Study Protocol Approval Code: FMASU MS 623/2022). Every participant provided signed informed consent through a written form. Uncooperative patients due to cognitive impairment, disturbed consciousness or any factors interfering with communication were excluded.

All the study participants were subjected to the following:

(1) Comprehensive Geriatric Assessment (CGA) including:

- Detailed full history and physical examination.
- Mini-mental status examination <sup>(8)</sup> for assessment of cognitive function using its Arabic version <sup>(8)</sup>.
- Confusion Assessment Method to exclude delirium <sup>(10)</sup>.
- Screening for depression by geriatric depression scale (GDS) <sup>(11)</sup> using its Arabic version <sup>(12)</sup>.
- Functional assessment using the Activities of Daily Living (ADL) tool <sup>(13)</sup> and Instrumental Activities of Daily Living (IADL) tool <sup>(14)</sup>.
- Mini Nutritional Assessment (MNA) <sup>(15)</sup> using its Arabic version <sup>(16)</sup>.

(2) Detailed symptom inquiry using the abbreviated version of the Memorial Symptom Assessment Scale, known as MSAS-SF <sup>(17)</sup>:

Patients using the MSAS-SF are prompted to indicate if they have experienced any of the 32 symptoms (26 physical symptoms and 6 psychological symptoms) in the preceding week. Presence (plus frequency if applicable), severity, and distress of all symptoms were checked. Total MSAS was calculated (higher score = worse health). The MSAS-SF yielded three subscales: a) Global Distress Index (GDI), encompassing 10 symptoms (Pain, lack of energy, lack of appetite, feeling drowsy, constipation, dry mouth, sad, feeling irritable, feeling nervous, and worrying), b) Physical Symptom Subscale (PHYS), comprising 12 symptoms (Pain, lack of energy, lack of appetite, feeling drowsy, constipation, dry mouth, nausea, vomiting, change in taste, weight loss, feeling bloated, and dizziness), c) Psychological Symptom Subscale (PSYCH), including 6 symptoms (Feeling sad, feeling nervous,

worrying, feeling irritable, difficulty sleeping, and difficulty concentrating).

(3) Inquiry about the most distressing symptom affecting quality of life; considering the viewpoint of the patient, the caregiver, and the attending physician. The level of agreement was determined.

### Statistical analysis

Convenient statistical methods were used to analyze the data. Quantitative data were reported using minimum, maximum, mean, and standard deviation, whereas qualitative data were described using numbers and percentages (IQR). The logistic regression analysis was utilized to determine each variable's crude odds ratio. P-values less than 0.05 were judged to be significant and values less than 0.01 were judged to be highly significant.

### Results

The study sample included ninety-five (95) elderly female patients. The average age of the participants was 69.4 years, with 60.0% widowed, with a notable proportion being illiterate, totaling 60.0%. Malignant cases were 58.9%. A significant portion of the patients were has been living with cancer for 0-5 years, constituting 68.8% of the sample. The most prevalent non-cancer diagnoses were advanced liver disease (13.7%) and advanced heart failure (12.6%), as shown in table (1).

As regards CGA, 37.9% of participants were dependent in ADL and 45.3% dependent in IADL. Almost half of the participants (49.5%) tested positive for depression. Regarding malnutrition, 70.5% were classified as at risk and 28.4% as malnourished, as shown in table (2).

The most prevalent symptoms were lack of appetite, pain, difficulty concentrating, lack of energy, and feeling that "I don't look like myself". On the other hand, sexual problems, itching, and mouth sores were the least

prevalent symptoms among the study population, as shown in Table (3).

The participants had a mean total MSAS score of 1.91, which indicates a significant symptom burden in the studied population. The mean global distress index was 2.59. Breaking down MSAS scores into physical and psychological symptom subscales reveals that both contribute to the overall symptom burden. The physical symptom subscale score was 2.34, while the psychological symptom subscale score was 2.27. Participants reported an average of 22.9 symptoms, as shown in table (4).

From the perspective of the caregivers, the most distressing symptoms were pain (21.1%), lack of appetite (18.9%), and dyspnea (16.8%). From the perspective of the attending physicians, the most distressing symptoms were pain (42.1%), dyspnea (22.1%), and lack of energy (14.7%). The symptoms of cough and oedema exhibited the highest degree of agreement between the attending physicians and the patients, with an agreement level of 100%. Conversely, the symptom of feeling sad displayed the lowest level of agreement, amounting to 33.3%, as shown in Table (5). The symptoms that exhibited the highest agreement between the patients and their caregivers were cough, weight loss, and nausea, with a complete agreement level of 100%. On the other hand, feeling sad was the

symptom that exhibited the lowest level of agreement, with a percentage of 50.0%.

A logistic regression analysis was conducted to identify the predictors of the Memorial Symptom Assessment Scale (MSAS) and its respective subscales. The total MSAS score was independently associated with functional dependence, depression and previous stroke. Functional dependence and depression were found to be independently associated with the MSAS-Global Distress Index (MSAS-GDI) score. The MSAS-physical symptom subscale (MSAS-PHYS) score was independently associated with palliative care diagnosis and stroke. The MSAS-psychological symptom subscale (MSAS-PSYCH) score was independently associated with functional dependence, depression and marital status. The number of symptoms was independently associated with functional dependence, depression, chronic kidney disease (CKD) and stroke. This is shown in table (6).

Survey scores varied according to palliative care diagnosis. Lung cancer patients had the highest total MSAS ( $2.31 \pm 0.247$ ). Statistical significance was marginal (P value=0.053). Gastric carcinoma patients had the highest physical symptom subscale score ( $3.08 \pm 0.386$ ) (P value<0.001). Individuals experiencing end-stage renal disease exhibited the highest number of symptoms ( $28.50 \pm 2.12$ ) (P value=0.001).

**Table (1): Demographic and clinical characteristics of the study population:**

Variables		Mean ± SD	
Age )years(		69.4 ± 8.47	
		Number	Percentage
<b>Marital status</b>	Married	35	36.8
	Widowed	57	60.0
	Divorced	2	2.1
	Single	1	1.1
<b>Malignancy</b>	Yes	56	58.9
	No	39	41.1
<b>Cancer duration</b>	0-5 years	41	73.2
	6-10 years	10	17.9
	> 10 years	5	8.9
<b>Cancer treatment</b>	Surgery	2	3.6
	Radiotherapy	3	5.4
	Chemotherapy	4	7.1
	Hormonal therapy	2	3.6
	Combined	35	62.5
	Supportive only	10	17.9
<b>Non-cancer palliative care illnesses:</b>			
Advanced liver disease		13	13.7
Advanced heart failure		12	12.6
Cerebrovascular stroke		6	6.3
Advanced COPD		6	6.3
End-stage renal disease		2	2.1

SD: Standard deviation; COPD: chronic obstructive pulmonary disease

**Table (2): Comprehensive geriatric assessment of the study population:**

CGA tool	Category	Number	Percentage
<b>ADL</b>	Independent	26	27.4
	Assisted	33	34.7
	Dependent	36	37.9
<b>IADL</b>	Independent	18	18.9
	Assisted	34	35.8
	Dependent	43	45.3
<b>GDS</b>	Positive	47	49.5
	Negative	48	50.5
<b>MNA</b>	Normal	1	1.1
	At Risk	67	70.5
	Malnourished	27	28.4

CGA: Comprehensive geriatric assessment; ADL: Activities of Daily Living; IADL: Instrumental Activities of Daily Living; GDS: Geriatric depression scale; MNA: Mini-Nutritional Assessment.

**Table (3): Prevalence of selected symptoms among the study population:**

Symptom	Number	Percentage
Difficulty concentrating	93	97.9
Pain	93	97.9
Lack of energy	95	100
Cough	58	61.1
Dry mouth	86	90.5
Nausea	84	88.4
Feeling drowsy	89	93.7
Difficulty sleeping	88	92.6
Vomiting	66	69.5
Shortness of breath	68	71.6
Feeling sad	81	85.3
Sexual problem	5	5.3
Itching	35	36.8
Lack of appetite	94	98.9
Mouth sores	45	47.4
Weight loss	84	88.4
Constipation	91	95.8
Swelling of arms or legs	75	78.9
I don't look like myself	93	97.9

**Table (4): The Memorial Symptom Assessment Scale (MSAS) survey scores among the study population:**

Survey score	Minimum	Maximum	Mean	SD
Total MSAS	0.990	2.840	1.913	0.459
Global Distress Index	1.20	3.90	2.592	0.696
Physical Symptom Subscale	0.75	3.50	2.341	0.608
Psychological Symptom Subscale	0.33	3.83	2.274	0.887
Number of symptoms	14.00	30.00	22.958	3.981

MSAS: Memorial Symptom Assessment Scale.

**Table (5): Level of agreement between the patient and the attending physician as regards the most distressing symptom:**

Most distressing symptom	Physician perspective	Patient perspective	Agreement (%)
Cough	3	3	100.0%
Dyspnea	21	16	76.2%
Edema	1	1	100.0%
Feeling sad	3	1	33.3%
Lack of appetite	5	4	80.0%
Lack of energy	14	12	85.7%
Pain	40	34	85.0%
Vomiting	8	6	75.0%

**Table (6): Regression model for the predictors of the memorial symptom assessment scale and its subscales:**

Survey score	Marital status	Palliative care diagnosis	ADL	IADL	GDS	CKD	Stroke
<b>Total MSAS</b>	0.61 (0.24-1.5)	1.3 (0.51-3.1)	3.5 (1.3-9.8)*	5.7 (1.7-19.2)**	11.1 (3.6-34.3)**	2.5 (0.85-7.1)	0.22 (0.06-0.79)*
<b>MSAS-GDI</b>	0.55 (0.30-1.1)	1.7 (0.91-3.1)	3.4 (1.7-7.2)**	3.9 (1.7-9.2)**	16.6 (5.7-47.2)**	1.6 (0.79-3.1)	0.47 (0.21-1.1)
<b>MSAS-PHYS</b>	1.2 (0.58-2.3)	2.4 (1.2-5.0)*	1.6 (0.77-3.4)	2.1 (0.88-4.8)	1.9 (0.97-3.9)	1.4 (0.66-3.1)	0.28 (0.10-0.76)*
<b>MSAS-PSYCH</b>	0.53 (0.32-0.87)*	1.1 (0.65-1.7)	2.7 (1.5-4.8)**	3.1 (1.6-5.9)**	18.6 (6.1-57.1)**	1.5 (0.84-2.5)	0.69 (0.40-1.3)
<b>Number of symptoms</b>	0.98 (0.88-1.1)	1.1 (0.91-1.2)	1.1 (0.97-1.2)	1.2 (1.1-1.3)*	1.3 (1.1-1.5)**	1.2 (1.1-1.4)*	0.84 (0.73-0.98)*

Values represent odds ratio (95% confidence interval). \*Significant at P-value< 0.05. \*\*Significant at P-value< 0.01.

MSAS: Memorial Symptom Assessment Scale; GDI: Global Distress Index; PHYS: Physical Symptom Subscale; PSYCH: Psychological Symptom Subscale; ADL: Activities of Daily Living; IADL: Instrumental Activities of Daily Living; GDS: Geriatric depression scale; CKD: chronic kidney disease

## Discussion

The absence of a comprehensive symptom assessment might lead to underestimating the true extent of symptom burden<sup>(3)</sup>. Therefore, understanding various aspects of symptoms (such as frequency, intensity, or distress) significantly influences a physician's approach to treatment. Additionally, exploring whether the physician's viewpoint differs from that of the patient is equally important<sup>(18)</sup>.

In this cross-sectional study, the aim was to investigate the symptom load experienced by elderly female patients undergoing palliative care at the geriatric palliative care unit, considering the viewpoints of the patient, the caregiver, and the attending physician.

This cross-sectional study investigated 95 female patients receiving palliative care. Among the wide range of palliative care diagnoses, the most prevalent diagnoses were breast cancer (17.9%), advanced liver disease (13.7%) and advanced heart failure (12.6%); and through different causes for admission, the most common reasons for admission to palliative care unit were pneumonia (17.9%), intractable pain (17.9%), and refusal of feeding (13.7%). The most prevalent symptoms in the study population included pain, lack of energy, and lack of appetite. In contrast, sexual problems, itching, and mouse sores were the least prevalent symptoms.

These results were in concordance with many previous studies. Oechsle and colleagues<sup>(18)</sup> reported that symptoms with the most prevalent symptoms were lack of energy, fatigue, and pain, which stood out as the top three in terms of frequency, intensity, distress, and the need for treatment. Kutner and colleagues<sup>(19)</sup> concluded that the most common symptoms noted by hospice staff were lack of energy (83%), pain (76%), and lack of appetite (63%). According to Abu-Saad Huijjer<sup>(20)</sup>, the most prevalent symptom was a lack of energy.

The participants had a mean total MSAS score of 1.91. The global distress index score was

2.592. Breaking down MSAS scores into physical and psychological symptom subscales reveals that both contribute to the overall symptom burden. The physical symptom subscale score was 2.34, which indicates a significant burden due to physical symptoms.<sup>(21)</sup>, while the psychological symptom subscale score was 2.27, which reflects a significant burden due to psychological symptoms<sup>(21)</sup>. Participants reported a mean number of 22.9 symptoms, emphasizing the complexity of their symptom experience.

Prior research has assessed various viewpoints from patients and their family members, family caregivers, or other connected individuals<sup>(22, 23, 24, 25, 26)</sup>. In our study, we inquired about the most distressing symptoms not only from the patient's perspective but also we were keen to know the most distressing symptoms from the perspective of the caregivers, which were pain (21.1%), lack of appetite (18.9%), and dyspnea (16.8%). Moreover, we inquired about the most distressing symptoms from the perspective of the attending physicians. These symptoms were pain (42.1%), dyspnea (22.1%), and lack of energy (14.7%).

The symptoms of cough and oedema exhibited the highest degree of compatibility between the physician's perspective and the patient's symptoms, with an agreement level of 100%. Conversely, the symptom of feeling sad displayed the lowest level of agreement, amounting to 33.3%. On the other hand, the symptoms that exhibited the highest compatibility between the distress reported by the caregiver and the patient's symptoms were cough, weight loss, and nausea, with a complete agreement level of 100%. On the other hand, feeling sadness was a symptom that exhibited the lowest level of agreement, with a percentage of 50.0%.

The results also showed different levels of agreement between physicians and caregivers



in the identification of this distressing symptom. The highest agreement percentage was for dyspnea (57.1%) while feeling sad and lack of energy, exhibit intermediate levels of agreement (33.3% and 35.7%; respectively). As reported by Oechsle and colleagues <sup>(18)</sup>, family caregivers, like patients, rated lack of energy, tiredness, and pain as the most upsetting across all symptom aspects. The attending palliative care physician identified lack of energy, tiredness, and pain as the top three symptoms in terms of frequency, intensity, distress, and treatment necessity. However, notable discrepancies arose between the evaluations of family caregivers and physicians, particularly regarding pain distress. Family caregivers notably overestimated both the frequency and intensity of lack of energy in comparison to patients. Physicians, on the other hand, significantly overestimated both the frequency and intensity of anxiety compared to patients. Relative to the patients' assessments, family caregivers tended to overestimate, while physicians tended to underestimate, the symptom burden in various aspects, including pain distress, treatment necessity for tiredness, distress, and treatment necessity for lack of energy, as well as distress and treatment necessity for sadness.

A logistic regression analysis was conducted to determine the predictors of the Memorial Symptom Assessment Scale (MSAS) and its subscales (MSAS-GDI, MSAS-PHYS, and MSAS-PSYCH), in addition to the number of the symptoms. For the total MSAS score, each unit increase in the total MSAS score was associated with an increase in functional dependence and depression (positive GDS). Conversely, an increase in the total MSAS score corresponded to a reduction in the prevalence of stroke (i.e., participants with previous strokes had lower total MSAS). The MSAS-global distress index (MSAS-GDI) score was independently associated with functional dependence and depression.

An increase in the MSAS-PHYS score was associated with cancer diagnosis (2.4 times) compared to non-cancer participants.

Conversely, each unit increase in the MSAS-PHYS score was associated with a decrease in the prevalence of stroke. Each unit increase in the MSAS-PSYCH score was associated with an increase in functional dependence and depression. Conversely, the married participants had a lower MSAS-PSYCH score compared with the non-married participants. The number of symptoms was independently associated with functional dependence, depression and CKD diagnosis. Conversely, for each unit increase in the number of symptoms, the prevalence of stroke decreased by 0.84 times.

Elements such as comorbidities, physical capabilities, mental well-being, financial concerns, and inadequate social support appear to complicate treatment decisions <sup>(27)</sup> and can potentially diminish the quality of life throughout the cancer journey <sup>(28)</sup>. Numerous studies have indicated that individuals under palliative care encounter significant levels of functional decline, reliance on daily activities, and limitations in mobility. Physical disability impacts crucial facets of life, frequently resulting in depression, diminished quality of life, heightened caregiver demands, and increased healthcare expenses. <sup>(29)</sup>

Depression, a clinically significant psychiatric condition, is prevalent among patients facing advanced diseases. Often overlooked and left untreated <sup>(30)</sup>, depression and psychological distress shouldn't be perceived as typical occurrences in individuals with advanced diseases; instead, they should be screened, diagnosed, and appropriately treated <sup>(31)</sup>.

Numerous individuals with advanced cancer disclose experiencing depressive symptoms <sup>(32, 33, 34)</sup>. Certain research studies on depression among advanced cancer patients suggest a higher likelihood of depression among females <sup>(35, 36)</sup>. These investigations were carried out across various settings including outpatient contexts <sup>(35, 37)</sup>, inpatient palliative care environments <sup>(36, 38)</sup>, and both inpatient and outpatient settings <sup>(39)</sup>.

As regards the burden of comorbidities, older individuals often present with chronic

conditions that complicate the diagnostic and clinical management of cancer (27, 40). Patients with CKD experience substantial symptom burdens, and poorer quality of life. (41)

In contrast to our results, Shi and colleagues (42) reported a considerable symptom burden in participants with stroke within 1 year. In our cohort, fewer symptoms were reported by patients with previous stroke. Post-stroke cognitive deficits (e.g., subtle memory impairment) may decrease the accuracy of symptom recall in patients with previous stroke.

We compared different palliative care diagnoses as regards symptom survey scores. Lung cancer had the highest total MSAS ( $2.31 \pm 0.247$ ). Breast cancer patients had a somewhat lower total MSAS score ( $1.80 \pm 0.452$ ). Statistical significance was marginal (P value=0.053). Regarding the global distress index, lung cancer had the highest score ( $3.45 \pm 0.495$ ) but this was not statistically significant.

On the other hand, gastric carcinoma has the highest physical symptom subscale score ( $3.08 \pm 0.386$ ). As regards the psychological symptom subscale score, lung cancer had the highest score ( $3.42 \pm 0.589$ ) but this was not statistically significant. As regards the number of symptoms, patients with end-stage renal disease had the highest number of symptoms ( $28.50 \pm 2.12$ ).

Deshields and colleagues (43) reported that the spectrum of symptoms differed based on cancer diagnosis, with lung cancer patients reporting the highest number of symptoms at 6 and 9 months. Additionally, breast cancer patients exhibited a significant decrease in symptom burden over time, aligning with our findings. At baseline and 12 months, patients with gynaecological cancer presented with the most significant number of symptoms among all cancer groups; which is contrary with our results that showed that patients with endometrial carcinoma had the lowest number of symptoms. Of note, we included only 4 patients with endometrial carcinoma which is

not representative of this particular group of patients.

Patients with severe COPD experience a substantial symptom burden, comparable to that observed in individuals with cancer (44). The symptom burden faced by breathless patients with severe COPD is considerable, akin to that experienced by individuals with advanced primary and secondary lung cancer. Despite this similarity in symptom burden, patients with COPD typically have a longer survival rate. In our study, we only recruited 6 patients with advanced COPD who reported relatively fewer numbers of symptoms and less symptom burden compared with other palliative care diagnoses. However, we can't draw a solid conclusion from this small group of patients.

The symptom burden in patients with end-stage renal disease (ESRD) may even be similar to that of advanced cancer patients (45). Our findings corroborate this fact, demonstrating that patients with ESRD exhibited a greater number of symptoms, surpassing several types of cancer.

### **Conclusion**

Elderly female patients admitted to the geriatric palliative care unit experience significant symptom burden. There are different levels of agreement between the patients, their caregivers and their attending physicians as regards the most distressing symptoms. Symptom burden may vary according to palliative care diagnosis and comorbid conditions. Symptom burden must be assessed regularly in palliative care patients to determine the best plan of management. Tailoring supportive care for palliative patients is crucial; especially considering certain groups that may require more extensive symptom management. Paying particular attention to caregivers' perspectives and needs is integral within the palliative care strategy.

### **Limitations of the study:**

We recognize that this study had certain limitations. The sample size did not aim to address symptom burden separately for each palliative care diagnosis, so it was difficult to

find significant relationships as regards these diagnoses.

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