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# Analysis of Palliative Care Knowledge and Symptom Burden Among Female Veterans With Serious Illness: A Cross-Sectional Study

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**ABSTRACT**

**Background:** The female Veteran population is rapidly growing, as is their use of Veterans Affairs (VA) medical centers (VAMCs). Additionally, 90% of female Veterans are under 65 years old, meaning healthcare providers at VAMCs must be ready to manage the complex serious illnesses that affect female Veterans as they age. These serious illnesses require proper medical management, which can include palliative care. However, little palliative care research includes female Veterans. **Aims:** The aims of this cross-sectional study were to examine palliative care knowledge and symptom burden among female Veterans' and examine factors associated a symptom burden scale. **Methods:** Consenting participants completed online questionnaires, including the Palliative Care Knowledge Scale (PaCKS), Condensed Memorial Symptom Assessment Scale (CMSAS), and demographics. Descriptive statistics characterized the sample, bivariate association were carried out with a Chi-square and *t*-test. A generalized linear model explored associations between CMSAS and its subscales with sociodemographic, number of serious illnesses, and facility type (VAMC vs civilian facility). **Results:** 152 female Veterans completed the survey. PaCKS scores were consistent across our sample. Physical symptoms were rated higher for those receiving care at VAMCs compared to civilian facilities ($P$=0.02) in the bivariate analysis. The factors associated with CMSAS were age, employment status and number of serious illnesses (all $P < 0.05$). **Conclusions:** Palliative care can assist female Veterans with serious illness. More research is needed to further explore variables associated with symptom burden among female Veterans such as age, employment status, and number of serious illnesses.

***Keywords:*** Female Veterans; palliative care knowledge; palliative care knowledge scale; serious illness, symptom burden, Veterans

## INTRODUCTION

The female Veteran population has surpassed 2 million in the United States and is expected to grow by 18,000 women per year through 2025.[1] Female Veterans' use of Veterans Affairs (VA) medical centers (VAMCs) increased from 10% in 2000 to 22% in 2015 during which time female Veterans ages 55-64 increased 7-fold.[2] Moreover, 90% female Veterans are less than 65 years old, while a majority of male Veterans are over 65.[3] With the increased number and age of female Veterans, healthcare providers at VAMCs must be ready to address and manage the complex serious illnesses that affect female Veterans.

Female Veterans are at increased risk of developing mental health disorders (e.g., depression, anxiety, and post-traumatic stress disorder [PTSD]), cardiac vascular disease, respiratory conditions (e.g., asthma and sarcoidosis), neurologic conditions (e.g., multiple sclerosis and dementia), some forms of cancer (e.g., breast and thyroid), and chronic pain compared to male Veteran counterparts.[2] The serious illnesses female Veterans experience require appropriate medical management and palliative care can serve as a complement to curative treatments.

Palliative care is "specialized medical care for people living with a serious illness."[4, para. 2] Serious illnesses are health conditions that have a high risk of mortality and either negatively affect a person's quality of life, or significantly burden or strain a caregiver.[5] Palliative care aids in balancing the patient's medical management while simultaneously increasing quality of life, reducing symptom load, and strengthening patient and family communication.[4] Early referral to palliative care lowers the need for unnecessary medical intervention,[6,7] decreases inpatient hospital and emergency room expenses,[8-10] and maintains or enhances quality of life.[6,11]

Over the past 20 years the Veterans Health Administration (VHA) has become a leader in the expansion and implementation of groundbreaking palliative and hospice care programs [12-14] such as the Comprehensive End-of-Life Care Initiative,[15] initiation of concurrent treatment options,[16] and the Life Sustaining Treatment Decision Initiative.[17] Palliative care service use in VAMCs has outpaced civilian facilities,[14] yet less than half of all female Veterans receive any healthcare service from VAMCs.[18] For female Veterans with serious illness not using VAMCs, their healthcare providers may not be aware of the palliative care benefits their Veteran patients are entitled to, which may delay the initiation of palliative care.

A recent scoping review exploring female Veteran use of palliative care revealed a significant gap in available research.[19] In many instances, women were excluded from data analysis because of low participation numbers; when women were included, the sample was grossly under representative of the proportion of female Veterans. There must be purposeful research with female Veterans to address these shortcomings. Therefore, the aims of this study are to quantify the difference in palliative care knowledge and perceived symptom burden among female Veterans with serious illness receiving care at VAMCs compared to female Veterans receiving care at civilian facilities as well as investigate the factors associated with CMSAS scores. Our hypothesis is that female Veterans receiving care at VAMCs will have higher palliative care knowledge and less perceived symptom burden than female Veterans receiving care at civilian facilities.

## METHODS

The development and reporting of this cross-sectional manuscript was guided by the STROBE Reporting Checklist for Cross Sectional Studies[20] (checklist attached as supplementary document).

***Participants***

We used purposive sampling to recruit female Veterans of the US military service (any branch) over 18 years old who were eligible for healthcare benefits through the VA. Participants not meeting these criteria were excluded. We estimated a sample size of 102 participants, 51 per group (receiving care at VAMC versus civilian facility), using GPower (version 3.1.9.4) with an effect size of 0.5, *P* of <0.05, and power 0.80.[21] After excluding participants with missing data (primary location of health services [n=12] and instruments [n=12]), the analytical sample included 152 participants (VAMCs=104, Civilian Facilities= 48).

***Setting & Data Collection***

Individuals were recruited through a US based, nation-wide Facebook®/Instagram® advertising campaign from May to September 2021. Interested, eligible persons completed an online survey using QuestionPro. The advertisement and survey link were available published for 4.5 months until recruitment goals were met.

***Instrument – Palliative Care Knowledge Scale (PaCKS)***

The PaCKS was applied to determine the level of palliative care knowledge of female Veterans. It contains 13 true/false questions inquiring about various domains of palliative care knowledge. To calculate the score, the number of correct responses is counted, and the scores ranged from 0 to 13. E. Kozlov, PhD granted permission to use the instrument in this study and suggested adding an "I don't know" option to each question and scoring this selection as incorrect, a recommendation we employed in this study (email communication, April 2021). Higher scores indicate greater palliative care knowledge. The reported Kuder-Richardson Formula 20 (KR-20) value for internal consistency reliability for the PaCKS is 0.71.[22]

***Instrument – Condensed Memorial Symptom Assessment Scale***

The Condensed Memorial Symptom Assessment Scale (CMSAS) is a 14-item inventory that measures 11 physical symptoms (fatigue, lack of appetite, pain, dry mouth, weight loss, feeling drowsy, dyspnea, constipation, difficulty sleeping, difficulty concentrating, and nausea) on a five-point Likert scale, and three psychological symptoms (worrying, feeling sad, and feeling nervous) on a four-point Likert scale.[23] Ratings provided are based on symptoms experienced during the past week. The CMSAS provides a total (CMSAS-SUM) score (range 0-4) and two sub-scale scores, one for physical symptoms (CMSAS-PHYS; range 0-4) and one for psychological symptoms (CMSAS-PSYCH; range 0-4). Higher scores indicate greater severity, higher frequency, and more distress. The reliability of the CMSAS-SUM, CMSAS-PHYS, and CMSAS-PSYCH subscales have been reported as 0.85, 0.82, and 0.72 respectively.[23]

Demographic information such as age, gender identity, race, ethnicity, type of serious illness(es), primary location of health services, highest level of education, employment status, marital status, and yearly household income was also collected. Clinical outcomes included the number of serious illnesses which was compared to perceived symptom burden.

***Data Analysis***

We conducted descriptive statistics to characterize the study sample. We performed independent samples t-tests to assess PaCKS and CMSAS scores among Veterans receiving care from VAMCs compared to civilian facilities and to explore the relationship between categorical variables and the PaCKS and CMSAS scores. To examine differences among categorical variables, we performed a Chi-square test. Finally, we used Generalized Linear models to explore the association between the independent variables (socio-demographics, location receiving care, and number of serious illnesses) compared to the dependent variables (CMSAS-SUM, CMSAS-PHYS, and CMSAS-PSYCH). Generalized Linear Model was used to account

for the skewed distribution of the CMSAS data. Records with missing data were not included in the analysis. Analysis was carried out using SPSS v. 27 and the level of statistical significance was set at $P < 0.05$. We performed a Cronbach's alpha test to assess internal consistency of PaCKS and CMSAS summary scores.

### *Ethical Considerations*

The South Dakota State University institutional review board approved this study as exempt (IRB-2103007-EXM). All procedures in this study were performed in compliance with relevant laws and institutional guidelines. We enabled Respondent Anonymity Assurance with the QuestionPro survey to protect anonymity[24] and IP addresses were not collected. The first page of the online survey provided participants with the study information and were informed that their participation was voluntary. Participants were not required to answer any question they did not wish to answer.

## RESULTS

Among the 152 participants who completed the survey, nearly one third (28.3%) of the sample were between ages 51-60. Table 1 shows the characteristics of the sample. The majority were white (86.1%), married or in a domestic partnership (63.8%), with income below $49,999 (31.6%) and between $50,000-$99,999 (37.5%) dollars. A third reported at least one serious illness (31.6%). Among participants receiving care in VA facilities, a higher percentage (35.6%) reported having lower income (< $49,999) when compared to participants receiving care in civilian facilities (22.9%) ($P$=0.055).

### *Perceived Knowledge of Palliative Care*

Participants were asked to rate their perceived palliative care knowledge on a scale of 1 (no prior knowledge) to 5 (very knowledgeable). The mean score was 3.21 (SD 1.35; result not shown in

Table). Additionally, participants were asked to describe their experience with palliative care with more than half (52.6%) of female Veterans having heard of palliative care but not being offered palliative care (Table 2). Only seven (<5%) in our sample actively receive palliative care for their serious illness(es).

***PaCKS***

Table 3 shows the number and percent of individual items answered correctly on the PaCKS instrument. Participants responded incorrectly most frequently to items 1 (44.7% responded correctly) and 5 (58.6% responded correctly). Conversely, they responded correctly most often to items 6, 7, 9 and 13 (75.7%, 74.3%, 71.7%, 73.0%, respectively).

Table 4 presents the scores for PaCKS. The mean PaCKS score was 8.66 (standard deviation [SD] = 4.82, range: 0-13), indicating a moderate level of palliative care knowledge. Female Veterans receiving care in VAMCs scored slightly higher than those at civilian facilities, but the difference was not statistically significant ($P$ =0.841). Based on the data analyzed, we failed to reject the null hypothesis that female Veterans receiving care at VAMCs will have higher palliative care knowledge than those at civilian facilities. The Cronbach alpha for this sample was 0.94.

***CMSAS***

Table 5 presents the scores for the CMSAS and subscales. Overall symptom distress (CMSAS SUM) was statistically higher among female Veterans receiving care in VA facilities compared to those at civilian facilities ($P$=0.042). Similarly, physical symptoms were rated higher in female Veterans receiving care at VAMCs compared to those at civilian facilities ($P$ =0.02). All scales presented good reliability. The Cronbach alpha coefficient for CMSAS-SUM was 0.78, CMSAS-PHYS subscale was 0.71, and CMSAS-PSYCH subscale was 0.77.

Table 6 presents the 11 physical symptoms and three psychological symptoms rank ordered from highest to lowest in terms of the frequency for the overall sample. Of the 11 physical symptoms, the five most common reported symptoms were pain (88.2%), difficulty sleeping (75.7%), lack of energy (75.0%), feeling drowsy (63.8%), and difficulty concentrating (57.9%). Female Veterans receiving care in VAMCs facilities reported statistically significant higher rates of lack of energy ($P$ <.001) and difficulty concentrating (63.5% vs 45.8%, $P$ < 0.041). Similar rates of elevated psychological symptoms were observed among females receiving care in both VAMCs and civilian facilities with a more than half of participants experiencing worrying, feeling sad, or feeling nervous.

We examined bivariate associations between CMSAS-SUM and subscale scores, sociodemographic, number of serious illnesses, and facility type. The bivariate association revealed that female Veterans who were unemployed, unable to work, and had lower income reported higher levels of symptom burden (all $P < 0.05$, results not shown). Table 7 shows the results from the generalized linear models for CMSAS-SUM and subscales. Although the regression analysis did not yield statistical significance in the association between symptoms and facility type, several factors independent of facility type were identified as being associated with symptoms. The factors associated with CMSAS were age, employment status, and number of serious illnesses. First, when compared to young females (ages 18-40), older participants (ages 51-60 and 61+) were more likely to report lower CMSAS-SUM and CMSAS-PSYCH. Second, when comparing disabled female Veterans to those employed part- or full-time, the disabled female Veterans had statistically significant higher symptom burden with the CMSAS-SUM and both subscales. Additionally, female Veterans who reported two or more serious illnesses reported higher CMSAS-SUM and CMSAS-PHYS symptoms than participants with one or no

serious illnesses. Education, income, marital status, and facility type were not associated with CMSAS-SUM or either subscale. Finally, knowledge of palliative care was not associated with CMSAS scores.

**DISCUSSION**

This study aimed to quantify the difference in palliative care knowledge and perceived symptom burden among female Veterans with serious illness. Additionally, we examined the association of many variables and their potential association to the CMSAS and its subscales using a generalized linear model. While we observed a statistical difference in symptoms between VAMSCs and civilians in the bivariate analysis, this difference did not persist in the regression analysis when other factors were included in the model. This suggests that among the female Veterans included in this study, either the sample size was insufficient, or the influence of other factors outweighed the impact of facility type on symptoms.

The largest age category in our sample was the 51-60 group which is consistent with the demographic trends showing this group of female Veterans growing rapidly.[2] However, this group was not found to have the most significant perceived symptom burden which was found in female Veterans ages 18-40. A recent analysis describing characteristics of younger female Veterans suggests that many of these young female Veterans may have served in Iraq and Afghanistan in combat conditions.[25] Veterans who are exposed to combat conditions are at an increased risk of developing psychological distress and PTSD.[26-28] This is consistent with 25% of female Veterans under the age of 50 eligible for service connection benefits due to PTSD.[25] However, PTSD does not necessarily explain the elevated symptom burden for our study's sample as these women acknowledged suffering from one or multiple other serious illnesses which accounted for their increased symptom burden.

The results of our study did not show statistical significance of palliative care knowledge for female Veterans whether they received care at VAMCs or civilian facilities. However, the results did reveal that female Veterans in the US have a moderate level of palliative care knowledge despite not receiving palliative care. Palliative care knowledge among these female Veterans varied from a recent study that found a stark lack of palliative care knowledge among community-dwelling laypersons in the US using the PaCKS.[29] However, when gender is analyzed independently, females have significantly higher knowledge of palliative care compared to males.[29] The National Alliance for Caregiving revealed that in 2020, 61% of all caregivers were female and were caring for adults over 50 years old.[30] Additionally, the report found that African American and White caregivers were more likely to be Veterans.[30]Although not definitive, these statistics suggest that female Veterans are more likely to have previously served in a caregiving role which may have positively impacted their palliative care knowledge compared to community-dwelling laypersons.

Certain items on the PaCKS were less likely to be answered correctly than others. For example, only 58.6% of female Veterans answered the item "Palliative care is exclusively for people who are in the last 6 months of life" correctly. Palliative care can be started at the time of diagnosis with serious illness and strives to find an optimal balance between curative and palliative care therapies to maximize quality of life.[4] The misunderstanding that palliative care is for those in the last 6 months of life can significantly limit the likelihood of female Veterans seeking out palliative care early in the diagnosis. Unfortunately, delayed referral to palliative care services can lead to poorer quality of life[31] and greater acute healthcare needs.[32] Additionally, as female Veterans progress through their serious illness towards the end of life, they may be unaware that concurrent treatment is available for Veterans at VAMCs at the end of

life to eliminate the need to make the "terrible choice" between patients' desires for both quantity and quality of life.[33] More exploration is needed to attain a fuller understanding of female Veteran palliative care knowledge so targeted interventions can be developed to further improve palliative care knowledge and use. Although the VA has innovative initiatives to increase availability of palliative care for Veterans, more research is needed to determine how VA benefits-eligible female Veterans can seek access to palliative care services if they are not able to obtain care from VAMCs due to distance or service unavailability.

A limitation of this study is that female Veterans were only recruited through social media platforms. Social media recruitment is limited to those with internet access and may cause overrepresentation of populations with a more privileged predisposition.[34] Future studies should recruit using multiple methods such as social media, recruitment at local VAMCs, at local Veteran support groups, and local Veterans organizations (e.g. Veterans of Foreign Wars [VFW]). Although there was diverse representation noted in this sample, the proportion of each race was underrepresented except for white females. Future studies should intentionally recruit more diverse samples to ensure knowledge generated is applicable to all races. Additionally, future studies should gather historical data from participants (if able) regarding the military branch they served, if they have prior combat experience(s), and if they have prior military healthcare experience(s) as these factors may provide vital context for the collected data. Finally, the study was limited by the small sample size among female Veterans who receive healthcare at civilian facilities and may not be generalizable to the broader female Veteran population. This study was strengthened by using valid and reliable instruments to assess palliative care knowledge and symptom burden which were further validated by our analyses.

## CONCLUSIONS

This study revealed that female Veterans have a moderate level of palliative care knowledge and provides an analysis of the symptom burden they experience associated with their serious illnesses. Palliative care can assist female Veterans with serious illness in achieving an improved quality of life, yet only seven female Veterans in our sample actively receive palliative care. More research is needed to examine the impact of symptom burden on female Veterans, especially those receiving care at VAMCs compared to civilian facilities. A clearer understanding of how female Veterans are impacted by their serious illnesses may guide future initiates at the VHA to improve palliative care access for this population.

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**DECLARATION OF CONFLICTING INTERESTS**

The Authors declare that there is no conflict of interest.

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Table 1. Demographic Characteristics of Study Participants by Health Care Facility Type.

| | Overall (152) | | VAMCs (104) | | Civilian (48) | |
|---|---|---|---|---|---|---|
| | N | % | n | % | n | % |
| **Age, years** | | | | | | |
| 18-40 | 35 | 23.0 | 22 | 21.2 | 13 | 27.1 |
| 41-50 | 39 | 25.7 | 25 | 24.0 | 14 | 29.2 |
| 51-60 | 43 | 28.3 | 34 | 32.7 | 9 | 18.8 |
| 61+ | 35 | 23.0 | 23 | 22.1 | 12 | 25.0 |
| **Gender Identity** | | | | | | |
| Female | 152 | 100 | 104 | 68.4 | 48 | 31.6 |
| **Race*** | | | | | | |
| White | 130 | 86.1 | 86 | 83.5 | 44 | 91.7 |
| American Indian | 4 | 2.6 | 3 | 2.9 | 1 | 2.1 |
| Black | 14 | 9.3 | 13 | 12.6 | 1 | 2.1 |
| Asian | 3 | 2.0 | 3 | 2.9 | 0 | 2.1 |
| Other | 1 | 0.7 | | | 1 | 2.1 |
| Prefer not to answer | 6 | 3.9 | 4 | 3.9 | 2 | 4.2 |
| **Hispanic** | | | | | | |
| Yes | 11 | 7.2 | 6 | 5.8 | 5 | 10.4 |
| **Marital Status** | | | | | | |
| Single (never married) | 9 | 5.9 | 8 | 7.7 | 1 | 2.1 |
| Married, domestic partnership | 97 | 63.8 | 61 | 58.7 | 36 | 75.0 |
| Divorced, Widowed, Separated | 46 | 30.3 | 35 | 33.7 | 11 | 22.9 |
| **Education** | | | | | | |
| High school diploma or equivalent (GED) | 22 | 14.5 | 15 | 14.4 | 7 | 14.6 |
| Associate (Trade, Bachelors) | 80 | 52.6 | 56 | 53.8 | 24 | 50.0 |
| Masters | 50 | 32.9 | 33 | 31.7 | 17 | 35.4 |
| **Household Income** | | | | | | |
| Below $49,999 | 48 | 31.6 | 37 | 35.6 | 11 | 22.9 |
| $50,000-$99,999 | 57 | 37.5 | 42 | 40.4 | 15 | 31.3 |
| $100,000-$149,000 | 27 | 17.8 | 15 | 14.4 | 12 | 25.0 |
| $150,000 or more | 20 | 13.2 | 10 | 9.6 | 10 | 20.8 |
| **Employment Status** | | | | | | |
| Employed part or fulltime / Self-employed | 88 | 57.9 | 55 | 52.9 | 33 | 68.8 |
| All Unemployed / Student | 11 | 7.2 | 8 | 7.7 | 3 | 6.3 |
| Retired | 37 | 24.3 | 28 | 26.9 | 9 | 18.8 |
| Unable to work (disabled) | 16 | 10.5 | 13 | 12.5 | 3 | 6.3 |
| **Number of Chronic Diseases** | | | | | | |
| Zero | 39 | 25.7 | 25 | 24.0 | 14 | 29.2 |
| One | 48 | 31.6 | 35 | 33.7 | 13 | 27.1 |
| Two or more | 65 | 42.8 | 44 | 42.3 | 21 | 43.8 |
| **Chronic Diseases*** | | | | | | |
| None | 39 | 25.7 | 25 | 24.0 | 14 | 29.2 |
| Cardiovascular disease | 17 | 11.2 | 8 | 7.7 | 9 | 18.8 |
| Cancer | 15 | 9.9 | 12 | 11.5 | 3 | 6.3 |
| Respiratory disease | 30 | 19.7 | 22 | 21.2 | 8 | 16.7 |
| Chronic inflammatory conditions | 39 | 25.7 | 27 | 26.0 | 12 | 25.0 |
| Liver disease | 7 | 4.6 | 6 | 5.8 | 1 | 2.1 |
| Kidney disorders | 4 | 2.6 | 3 | 2.9 | 1 | 2.1 |
| Endocrine disorders | 16 | 33.3 | 15 | 14.4 | 1 | 2.1 |
| Neurologic disorders | 16 | 33.3 | 12 | 11.5 | 4 | 8.3 |
| Musculoskeletal disorders | 10 | 20.8 | 6 | 5.8 | 4 | 8.3 |
| Gastrointestinal disorders | 4 | 8.3 | 0 | 0 | 4 | 8.3 |
| Mental Health disorders** | 11 | 22.9 | 7 | 6.7 | 4 | 8.3 |
| Military Sexual Trauma | 2 | 4.2 | 2 | 1.9 | 0 | 0 |

*Select all that apply question, **includes Post-Traumatic Stress Disorder, anxiety, & depression. Percentages do not add to 100% because of rounding.

Abbreviation: VAMCs=VA medical centers

Table 2. Self-reported palliative care experience.

| | Overall (152) | | VAMCs (104) | | Civilian (48) | |
|---|---|---|---|---|---|---|
| | N | % | n | % | n | % |
| **What is your experience with palliative care?** | | | | | | |
| 1. I receive palliative care now. | 7 | 4.6 | 7 | 6.7 | 0 | 0 |
| 2. I was offered palliative care, but declined to receive palliative care. | 1 | 0.7 | 1 | 1 | 0 | 0 |
| 3. I have not been offered palliative care, but have heard of it. | 80 | 52.6 | 53 | 51.0 | 27 | 56.3 |
| 4. I have not heard of palliative care. | 42 | 27.6 | 29 | 27.9 | 13 | 27.1 |
| 5. Other, please explain.* | 22 | 14.5 | 14 | 13.5 | 8 | 16.7 |

*Participants described "Other" experiences of palliative care as working as hospice/palliative care nurse, working as a nurse and being aware of palliative care services, or their family member received palliative care in the past.
Abbreviation: VAMCs = VA medical centers

Table 3. Number and Percent of Correct Responses for Each PaCKS Item

| Item | | Correct Answer | **Overall** N (%) | **VAMCs** n (%) | **Civilian** n (%) |
|---|---|---|---|---|---|
| 1. | A goal of palliative care is to address any psychological issues brought up by serious illness. | T | 68 (44.7) | 46 (44.2) | 22 (45.8) |
| 2. | Stress from serious illness can be addressed by palliative care. | T | 96 (63.2) | 66 (63.5) | 30 (62.5) |
| 3. | Palliative care can help people manage the side effects of their medical treatments. | T | 101 (66.4) | 68 (65.4) | 33 (68.8) |
| 4. | When people receive palliative care, they must give up their other doctors. | F | 107 (70.4) | 72(69.2) | 35 (72.9) |
| 5. | Palliative care is exclusively for people who are in the last 6 months of life. | F | 89 (58.6) | 64 (61.5) | 25 (52.1) |
| 6. | Palliative care is specifically for people with cancer | F | 115 (75.7) | 79 (76.0) | 36 (75.0) |
| 7. | People must be in the hospital to receive palliative care. | F | 113 (74.3) | 78 (75.0) | 35 (72.5) |
| 8. | Palliative care is designed specifically for older adults. | F | 101 (66.4) | 71 (68.9) | 30 (62.5) |
| 9. | Palliative care is a team-based approach to care. | T | 109 (71.7) | 76 (73.1) | 33 (68.8) |
| 10. | A goal of palliative care is to help people better understand their treatment options. | T | 105 (69.1) | 74 (71.2) | 31 (64.5) |
| 11. | Palliative care encourages people to stop treatments aimed at curing their illness | F | 101 (66.4) | 69 (66.3) | 32 (66.7) |
| 12. | A goal of palliative care is to improve a person's ability to participate in daily activities. | T | 100 (65.8) | 69 (66.3) | 31 (64.6) |
| 13. | Palliative care helps the whole family cope with a serious illness. | T | 111 (73.0) | 74 (71.2) | 37 (77.1) |

Abbreviation: PaCKS=Palliative Care Knowledge Scale, VAMCs=VA medical centers

Table 4. Descriptive analyses of PaCKS scores

| **Measures** | **N/n** | **Min- Max.** | **Mean** | **SD** | ***P*-value*** |
|---|---|---|---|---|---|
| **Overall PaCKS** | 152 | 0-13 | 8.66 | 4.82 | |
| VAMCs | 104 | 0-13 | 8.71 | 4.77 | 0.841 |
| Civilian facilities | 48 | 0-13 | 8.54 | 4.98 | |

Abbreviations: PaCKS=Palliative Care Knowledge Scale, VAMCs=VA medical centers, SD= Standard Deviation
* Independent sample *t*-test
PaCKS: higher scores indicate greater palliative care knowledge

Table 5. Descriptive analyses of Condensed Memorial Symptom Assessment Scale (CMSAS) Total Score and Subscales (Overall and by Facility Type).

| Measures | N/n | Min- Max. | Mean | SD | *P*-value* |
|---|---|---|---|---|---|
| **Overall CMSAS** | 152 | 0-3.3 | 1.29 | 0.69 | |
| VAMCs | 104 | 0-3.3 | 1.36 | 0.69 | 0.042 |
| Civilian facilities | 48 | 0-2.5 | 1.12 | 0.68 | |
| **Physical Symptoms Subscale (PHYS)** | 152 | 0-3.2 | 1.22 | 0.67 | |
| VAMCs | 104 | 0-3.2 | 1.31 | 0.67 | 0.018 |
| Civilian facilities | 48 | 0-2.3 | 1.04 | 0.63 | |
| **Phycological Symptoms Subscale (PSYCH)** | 152 | 0-4 | 1.51 | 1.13 | |
| VAMCs | 104 | 0-4 | 1.55 | 1.14 | 0.463 |
| Civilian facilities | 48 | 0-3.4 | 1.41 | 1.12 | |

Abbreviations: VA medical centers SD= Standard Deviation, * Independent sample *t*-test
CMSAS: higher scores indicate greater symptom distress

Table 6. Frequency of 14 Symptoms of the Condensed Memorial Symptom Assessment Scale (CMSAS)

| Symptoms | Overall | | VAMCs | | Civilian | |
|---|---|---|---|---|---|---|
| | N | % | n | % | n | % |
| **Physical Symptoms** | | | | | | |
| Pain | 134 | 88.2 | 95 | 91.3 | 39 | 81.3 |
| Difficulty sleeping | 115 | 75.7 | 79 | 76.0 | 36 | 75.0 |
| Lack of energy | 114 | 75.0 | 86 | 82.7* | 28 | 58.3 |
| Feeling drowsy | 97 | 63.8 | 70 | 67.3 | 27 | 56.3 |
| Difficulty concentrating | 88 | 57.9 | 66 | 63.5** | 22 | 45.8 |
| Dry mouth | 59 | 38.8 | 42 | 40.4 | 17 | 35.4 |
| Shortness of breath | 47 | 30.9 | 36 | 34.6 | 11 | 22.9 |
| Constipation | 41 | 27.0 | 28 | 26.9 | 13 | 27.1 |
| Lack of appetite | 39 | 25.7 | 26 | 25.0 | 13 | 27.1 |
| Nausea | 29 | 19.1 | 23 | 21.1 | 6 | 12.5 |
| Weight loss | 22 | 14.5 | 13 | 12.5 | 9 | 18.8 |
| **Psychological Symptoms** | | | | | | |
| Worrying | 106 | 69.7 | 74 | 71.2 | 32 | 66.7 |
| Feeling sad | 93 | 61.6 | 66 | 64.1 | 27 | 56.3 |
| Feeling nervous | 83 | 54.6 | 57 | 54.8 | 26 | 54.2 |

The frequency and percentages of the responses are based on patients who answered yes to the presence of symptom.
These are the 14 symptoms included in the CMSAS. *$P$ <.001 and **$P$ < .041, chi squared ($\chi^2$) test, two-sided

Table 7. Factors related to CMSAS-SUM and Subscales.

| Characteristics | CMSAS-SUM | | | CMSAS-PHYS | | | CMSAS-PSYCH | | |
|---|---|---|---|---|---|---|---|---|---|
| | β | *SE* | *P*-value | β | *SE* | *P*-value | β | *SE* | *P*-value |
| Intercept | .804 | .207 | .001 | .750 | .200 | .001 | 1.000 | .358 | .005 |
| **Age** | | | | | | | | | |
| 18-40 | **Ref.** | | | | | | | | |
| 41-50 | -.186 | .146 | .204 | -.211 | .142 | .137 | -.093 | .253 | .712 |
| 51-60 | -.305 | .144 | **.034** | -.235 | .139 | .091 | -.560 | .248 | **.024** |
| 61+ | -.422 | .181 | **.019** | -.311 | .175 | .075 | -.830 | .312 | **.008** |
| **Education** | | | | | | | | | |
| High school diploma or equivalent (GED) | .029 | .169 | .862 | .060 | .163 | .714 | -.083 | .292 | .776 |
| Associate (Trade, Bachelors) | .121 | .118 | .305 | .130 | .115 | .258 | .090 | .205 | .659 |
| Masters + | **Ref.** | . | | | | | | | |
| **Household Income** | | | | | | | | | |
| Below $49,999 | .218 | .187 | .244 | .119 | .181 | .510 | .579 | .323 | .073 |
| $50,000-$99,999 | .256 | .166 | .123 | .201 | .161 | .212 | .460 | .287 | .109 |
| $100,000-$149,000 | .239 | .185 | .198 | .189 | .179 | .292 | .421 | .320 | .189 |
| $150,000 or more | **Ref.** | | | | | | | | |
| **Employment Status** | | | | | | | | | |
| Employed part or fulltime / Self-employed | **Ref.** | | | | | | | | |
| All Unemployed / Student | .224 | .204 | .274 | .162 | .198 | .414 | .450 | .354 | .203 |
| Retired | .206 | .153 | .177 | .189 | .148 | .202 | .270 | .265 | .308 |
| Unable to work (disabled) | .746 | .186 | **.000** | .776 | .180 | **.000** | .635 | .322 | **.049** |
| **Number of Serious Illnesses** | | | | | | | | | |
| Zero | **Ref.** | | | | | | | | |
| One | .221 | .137 | .106 | .211 | .133 | .112 | .260 | .237 | .272 |
| Two or more | .267 | .129 | **.038** | .249 | .125 | **.046** | .333 | .223 | .136 |
| **Facility** | | | | | | | | | |
| VAMSCs | .158 | .110 | .151 | .191 | .107 | .074 | .039 | .191 | .837 |
| Civilian | **Ref.** | | | | | | | | |

Bold values indicate statistical significance.