Associations Between Coping Styles, Death Anxiety, and Attitudes Towards Palliative Care

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Abstract

INTRODUCTION: Palliative care is becoming more widely available and its benefits, including improved quality of life for patients, have been demonstrated. However, misperceptions, lack of knowledge, stigma, and other psychological barriers to palliative care remain among patients, caregivers, and health professionals. This study aims to explore whether more approach-focused, active coping styles may be associated with more positive attitudes towards palliative care and whether more disengaged, avoidant coping styles are associated with more negative attitudes towards palliative care. The current study also seeks to understand how death anxiety may be related to coping styles and attitudes towards palliative care.

METHODS: Adults ages 65 and older completed interviews over the phone. Measures of coping styles, death anxiety, attitudes towards palliative care, and knowledge of palliative care were administered. Information about age, sex, education, race, ethnicity, marital status, and family and personal experience with palliative care was also collected. Linear regression analyses were conducted to determine predictors of attitudes towards palliative care, controlling for potential confounds. Two separate linear regression models were executed: an approach model (active coping) and an avoidance model (disengaged coping).

RESULTS: Of eighty-seven completed interviews, 56.32% were female and 86.21% were White. Most of the sample (77.01%) held either optimistic or favoring views of palliative care. In both approach (active coping) and avoidance (disengaged coping) models, more knowledge of palliative care was associated with more positive attitudes towards palliative care ($\beta = .71$, $p<.01$). Coping by engaging more social support was significantly associated with more positive attitudes towards palliative care ($\beta = .54$, $p<.05$). For the avoidance model, results indicated a significant interaction ($\beta = -1.24$, $p<.01$) such that women who endorsed high levels of disengaged coping reported more favorable attitudes towards palliative care than did men who who endorsed high levels of disengaged coping. Men who endorsed lower levels of disengaged coping endorsed more positive attitudes towards palliative care than women who reported lower levels of disengaged coping.

CONCLUSION: Though the present study examined attitudes towards palliative care among relatively healthy, community-dwelling older adults the results indicate the need for a tailored approach to palliative care education for patients and families. For older adults who tend not to engage social support when coping with a stressor, aspects of palliative care such as symptom management may be more attractive than discussing emotional concerns with a provider. Men who often cope via distraction, venting, self-blame, denial, or giving up when confronted with a stressor may be less receptive to acceptance of palliative care. Future research on educational interventions tailored for individuals with distinct coping styles may be beneficial, particularly for men who frequently rely on disengaged coping styles.

Keywords: attitudes towards palliative care, coping styles, death anxiety

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For patients with serious illness, palliative care aims to alleviate symptoms and enhance quality of life for patients and their caregivers (Morrison & Meier, 2004). Beneficial as early as diagnosis of serious illness, interdisciplinary palliative care teams help to manage patients' psychological, spiritual, and physical symptoms (Kozlov & Carpenter, 2017). Palliative care is distinct from hospice in that palliative care is not limited to the last 6 months of life and can be delivered at any point during the disease course (Kozlov & Carpenter, 2017). Additionally, palliative care services can be delivered alongside curative treatments (Morrison & Meier, 2004). Key to palliative care is coordination of care providers and skilled communication with patients and families, which often includes discussions of goals of care (Morrison & Meier, 2004). For older adults with cancer who received palliative care services early in treatment, demonstrated benefits include better quality of life, reduced physical and depressive symptoms, better mood, higher satisfaction with treatment, and more cost-effective care (Parajuli et al., 2020). Other research suggests that palliative care may lead to increased longevity and less aggressive treatment at the end of life (Temel et al., 2010).

Palliative Care Utilization

Longitudinal analyses of claims data reveal that usage of palliative care is relatively low across advanced illnesses, but utilization has increased over the last twenty years (Vallabhajosyula et al., 2019; Alqahtani et al., 2019; Ando et al., 2020). However, disparities in who receives palliative care persist (Chatterjee et al., 2018).

Individual-level factors

Patients who are older, white, female, receive medical ventilation, and have comorbid disease are more likely to receive palliative care services (Chatterjee et al., 2018; Vallabhajosyula et al., 2019). In contrast, those who have lower income, are male, are non-married, and have poor communication with their medical provider are less likely to receive palliative care (Parajuli et al., 2020). In a 15-year study of palliative care utilization in the U.S., Vallabhajosyula et al. (2019) found that among patients with acute myocardial infarction complicated by cardiogenic shock, only 4.5% of admitted patients received palliative care. Analyzing utilization among ST-segment elevation myocardial infarction (STEMI) patients, Ando et al. (2020) found that many of these patients, including those with multiorgan failure, would likely benefit from palliative care and did not have it included in their hospital care. For patients with heart failure, referrals to palliative care occur later in disease progression compared to patients with cancer (Liu et al., 2020). Taken together, these findings suggest that many patients with cardiac conditions who may benefit from palliative care may not receive it.

Among patients with cancer, approximately half (50.5%) of surveyed cancer patients had not used any of the palliative care services offered (Kumar et al., 2012). Those less likely to receive palliative care included men, individuals with less education, individuals with lung cancer, and those receiving active treatment (Kumar et al., 2012). In another sample of cancer patients who received palliative care, early referral was associated with fewer emergency department visits, hospitalizations, and hospital deaths (Hui et al., 2014). However, a majority of patients are referred to palliative care less than three months before death (Hui et al., 2014; Michael et al., 2019). Efforts are underway to integrate palliative care and oncology to allow for earlier referral (Kaasa et al., 2018), and research has demonstrated the effectiveness of this integration for patient outcomes (Fulton et al., 2019). Growing access to palliative care is evident across the U.S. (Center to Advance Palliative Care, 2019); however, many patients who may benefit from palliative care do not receive it or do not receive it early enough to experience the full benefits.

System-level factors

Reimer-Kirkham et al. (2016) present a case for ensuring that palliative care is informed by social justice, equity, and structural determinants of health in order to provide care for people who are doubly vulnerable, both because of their need for palliative care and concerns stemming from social determinants of health. It is important to contextualize individual-level factors within the landscape of the healthcare system and social and environmental factors.

While many of the previously explored barriers to palliative care imply the systemic nature of who is able to access palliative care services, other research has attempted to study systemic barriers directly. For instance, Austin et al. (2019) demonstrated how physician networks, operationalized by analyzing physicians that share patients, may help to explain disparities in quality end-of-life care. Analyses using the National Inpatient Sample revealed that individuals who receive care at large urban hospitals and at teaching hospitals are more likely to receive palliative care services (Chatterjee et al., 2018; Vallabhajosyula et al., 2019). In contrast, those enrolled in fee-for-service insurance as opposed to managed care, those living in rural areas, and those living in the southern region of the U.S. were less likely to receive palliative care (Parajuli et al. 2020; Vallabhajosyula et al., 2019). Using qualitative methods, Giesbrecht et al. (2018) found that for individuals who were homeless and had a serious illness, increasingly worse mobility and financial difficulty with transportation made accessing palliative care services particularly challenging because of intersecting vulnerabilities. It is evident that disparities exist not only in who has access to palliative care, but also in the availability of medications that offer pain relief and in how end-of-life preferences are documented and followed (Cain et al., 2018).

Attitudes Toward Palliative Care

Theoretical Foundations

Beyond demographic and system-level variables, psychological factors that may influence attitudes towards palliative care have yet to be explored thoroughly. In understanding the importance of potential psychological factors and attitudes for palliative care utilization, two theoretical models conceptualize how health-related attitudes, beliefs, and knowledge may be associated with health behaviors. First, an updated behavioral model of health services use suggests that, in the context of external and systemic determinants, predisposing characteristics, enabling or hindering factors, and health needs lead to individuals' health behaviors, which in turn influence health outcomes (Andersen, 1995). This model suggests that health beliefs and perceived need may be modifiable with intervention (Andersen, 1995). A second health beliefs model (Green, 1980) outlined as "predisposing, reinforcing, and enabling factors in diagnosis and evaluation" or PRECEDE (Brown et al., 2008) emphasizes how patients' beliefs are vital in allowing for changes in health behaviors. These theories suggest that individuals' attitudes may be particularly important when understanding how people use healthcare. Applied to the current study, understanding participants' attitudes towards palliative care may indicate future palliative care utilization.

Patient knowledge and attitudes

A majority of community-dwelling adults hold misconceptions about palliative care, such as the belief that palliative care is restricted to end-of-life care (Shalev et al., 2018). Lack of knowledge and misinformation in the general population may increase barriers in patients' seeking out and acceptance of palliative care (Taber et al., 2019; Collins et al., 2020b). Beyond lack of awareness of palliative care, additional barriers to palliative care for cancer patients include not being referred by a physician, not having time to seek out services, and transportation and financial challenges of seeking care (Kumar et al., 2012). Gender may also be an indicator of attitudes towards palliative care; among patients with advanced cancer, women were more likely to have positive attitudes about palliative care than were men (Saeed et al., 2018). There is a paucity of research specifically measuring attitudes towards palliative care in racially and ethnically diverse samples, but related research on utilization of hospice care indicates underusage by non-white individuals in the U.S. (National Hospice and Palliative Care Organization, 2020). Relatedly, lower rates of completion of advance directives and more aggressive end-of-life care is observed for Latino and African American patients (Barnato et al., 2009; Degenholtz et al., 2002). Research on attitudes towards end-of-life care discussions and hospice care among racial and ethnic minorities suggests that culturally incongruent communication, more difficulty accessing healthcare services, and lower levels of health literacy may serve as barriers to palliative care for racial and ethnic minorities in the U.S. (Mayeda & Ward, 2019).

Stigma and negative emotions may also have a role in shaping patient attitudes. Increased palliative care stigma was predictive of decreased willingness to enroll oneself or a family member in palliative care (Shen & Wellman, 2019). This relationship was driven by more negative stereotypes (e.g., being a quitter) and less positive stereotypes (e.g., being a hero) of the patient in a study in which participants responded to vignettes of patients who chose palliative care (Shen & Wellman, 2019). A qualitative study revealed how participants closely associated palliative care with death; participants noted that not wanting to think or converse about death may be associated with the perceived stigma they attached to palliative care (McIlfatrick et al., 2014). Zimmerman et al. (2016) found that patients initially perceived palliative care to be a passive form of care, only delivered in the last weeks of life, associated with death, and associated with having no other options of care. Patients reported feeling afraid and stunned when they were initially presented with palliative care and tended to avoid and resist thinking about it (Zimmerman et al., 2016). For participants who received palliative care early in their disease course, having a relationship with the palliative care team reduced the stigma they felt and increased their understanding of palliative care as continuing over time and focused on well-coordinated, quality-of-life care (Zimmerman et al., 2016).

While qualitative data is vitally important for understanding individuals' attitudes towards palliative care, quantitative data that measures patient attitudes towards palliative care in a standardized way is limited. Chosich et al. (2019) administered an author-designed questionnaire to oncology patients in Australia in one of the few attempts to measure attitudes towards palliative care quantitatively. In response to these surveys, oncology patients were more likely to report feeling comforted by palliative care if they were older and if they had knowledge that their oncology treatments could continue alongside palliative care (Chosich et al., 2019). Most (76%) of these patients had heard of palliative care, but self-rated knowledge of palliative care was mixed. When asked how they would feel if referred to palliative care, 40% of patients endorsed feeling afraid and 29% endorsed feeling hopeless (Chosich et al., 2019). This quantitative data reveals the utility in measuring patients' attitudes. Recently, a standardized measure called the Palliative Care Attitudes Scale (PCAS-9) has been published to aid in the collection of assessing attitudes quantitatively (Perry et al., 2019). Initial attitude ratings from the validation study of the PCAS-9 found relatively positive attitudes towards palliative care in clinical samples (Perry et al., 2019). Together, these patient-level findings highlight the importance of continued patient education about palliative care and the need to address emotional barriers that may arise in accepting a palliative care referral.

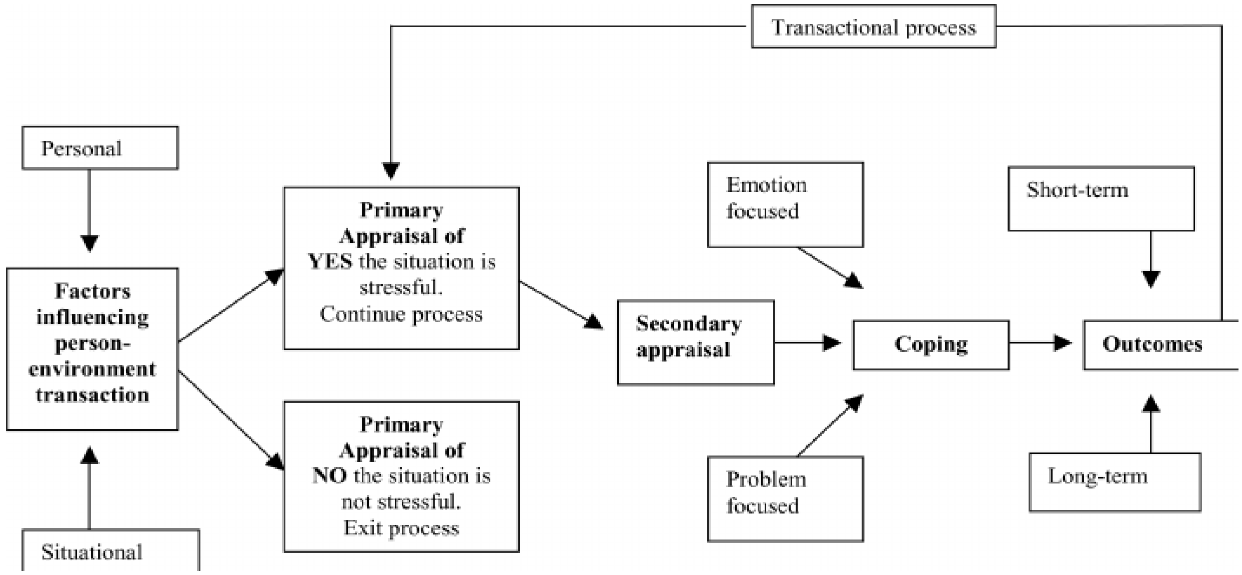
Coping Styles

Theoretical Foundations

Within their transactional model of emotions and coping, Lazarus and Folkman (1987) posit that the transaction between the person and their environment is the central relationship for understanding how stress, appraisal, emotions, coping, and event outcomes intersect and shift in a dynamic process. Within this model, a primary appraisal consists of judging what an event means for one’s well-being, which includes appraising if the event is harmful, threatening, challenging, or beneficial. If the event is perceived to be stressful, secondary appraisal is used to ascertain which, if any, coping options might mitigate the incoming harm. Lazarus and Folkman (1987) suggest that coping can be harnessed to change the situation a person is in, which they refer to as problem-focused coping, and coping can be used to manage negative emotions, which they refer to as emotion-focused coping (Figure 1).

Figure 1

Lazarus and Folkman's Transactional Stress/ Coping Model



Note: Figure from Schuster, et al., 2006 based on theory developed by Lazarus & Folkman, 1984

While Lazarus and Folkman (1984) describe coping as specific strategies employed in response to context-dependent situations, Carver et al. (1989) discusses how individuals may develop tendencies to respond to stressors in a certain way. These sets of strategies can be conceptualized as dispositional coping styles and may be associated with personality traits (Carver et al., 1989). Coping styles do not exist along one continuum and instead are multidimensional with individuals varying to what degree they use different styles (Carver et al., 1989). Some have theorized and found empirical support for a) an active, problem-solving coping style, b) a disengaged coping style, and c) seeking out social support as a coping style (Peters et al., 2020; Montel et al., 2012). Active efforts to modify a stressful context can be conceptualized as approach coping whereas disengaged attempts to evade a stressful situation or difficult emotions that arise can be thought of as avoidance coping (Brennan et al., 2012). While social support does not fit neatly in either category (Greenaway et al., 2015), a study of late-life coping indicated that higher levels of social support were associated with both higher levels of approach coping and lower levels of avoidance coping at an initial asssesment (Brennan et al., 2012).

Coping and health

Active, disengaged, and support seeking coping styles have been associated with various health outcomes. For instance, Montel et al. (2012) demonstrated the relationship of higher levels of active coping with increased chance for survival in patients with amyotrophic lateral sclerosis (ALS). For individuals with chronic health conditions, seeking social support was associated with more positive health outcomes (Penley et al., 2002). For patients receiving palliative care, an active cognitive strategy of positive reframing was associated with less existential distress (Bovero et al., 2018). Among cancer patients receiving palliative care, Sorato and Osório (2015) found that patients who engaged in higher levels of active coping, positive reappraisal, and seeking out social support demonstrated lower ratings of hopelessness and depressive symptoms. In contrast, patients who engaged in more escape-avoidance coping and less active problem-solving coping reported higher levels of anxiety (Sorato & Osório, 2015). Among adults with chronic illness or disability, avoidant coping was associated with worse psychosocial adaptation (Livneh, 2019). In a meta-analytic review, Penley et al. (2002) found that individuals' endorsement of escape-avoidant strategies was associated with negative psychological health outcomes**.**

Further, coping strategies can evolve over the course of illness, and active, problem-solving coping strategies tend to be associated with better adjustment to illness compared to avoidant or passive coping (Kasparian et al., 2009). Among patients with respiratory disease, information-seeking was helpful for enhancing problem-solving based coping and self-management of symptoms (Garcia et al., 2019). Coping styles may be an important target where health care professionals can provide intervention in the context of chronic illness, with evidence from a meta-analysis demonstrating that positive coping, which included emotional support, acceptance, and solution-focused strategies, could improve with intervention (Li et al., 2013). In a six-week intervention with melanoma patients that emphasized active coping strategies such as problem-solving, the intervention group demonstrated increased active coping and less distress compared to the control condition and at six years post treatment, the intervention group was less likely to have died (Fawzy et al., 1993). Coping styles may be especially important for psychological and physical health outcomes in the context of a stressful medical condition, as evidenced by a review of the health benefits of mindfulness-based stress reduction programs (Grossman et al., 2004).

Coping and older age

For older adults specifically, preferred coping styles may shift with increasing age, health difficulties, and a perspective of having less time left. A longitudinal study among older adults revealed a decline in approach coping strategies, which included problem solving, positive reappraisal, and logical analysis; this study also demonstrated a reduction of most avoidant coping strategies, including cognitive avoidance, seeking alternative rewards, and discharge of negative emotions among older adults over the 20-year study period (Brennan et al., 2012). However, acceptance tended to increase over time and support-seeking was stable over time (Brennan et al., 2012). Supporting a decline in disengaged, avoidant coping with age, Woodhead et al. (2014) found that community-dwelling older adults were less likely to engage in avoidant coping strategies and alcoholic drinking compared to younger participants. Older adults also reported a smaller number of negative life events across the study period (Woodhead et al., 2014), suggesting that they might not be perceiving the same events as stressful, that they experience a smaller number of daily hassles, or that they may engage in proactive coping. Neubauer et al. (2019) investigated proactive coping among older adults and found that older adults had a higher tendency to address a situation before the situation became stressful compared to younger participants. These findings support socio-emotional selectivity theory, which posits that as adults age and experience an outlook of reduced time, they are motivated to lessen daily stressors and to find more opportunities for meaningful, positive emotions (Carstensen et al., 1999).

However, older adults' coping may differ in the context of chronic health conditions. Levasseur and Couture (2015) found that among older adults living with one or more functional limitations or medical conditions, escape-avoidance coping was significantly related to lower quality of life, reduced sense of accomplishment, and lower satisfaction with participation in daily life. One problem-focused coping strategy, described as direct efforts to modify the current situation, was associated with increased satisfaction with daily responsibilities (Levasseur & Couture, 2015). Among older patients with cancer, a passive, "giving up" coping style was associated with higher levels of distress (Baitar et al., 2018).

How older adults manage emotions and stress both in daily life and in the context of medical conditions may be associated with coping styles. These coping styles can involve approaching the stressor, such as problem-solving, or avoiding the stressor, such as denial. Seeking or accepting palliative care services may involve learning new information, being open to discussing emotions and goals of care, and willingness to work with new providers to see a change in symptoms. Because these actions may involve an active, engaged coping style in response to serious illness, understanding how coping styles are related to attitudes towards palliative could be clinically useful. In addition, death-related anxiety may help to explain older adults' coping styles and attitudes towards palliative care.

Death attitudes

Wong et al. (1994) discussed a range of attitudes towards death, including fear, avoidance, and acceptance. Using an existential framework, these authors posit that fear of death may stem from difficulty in identifying meaning in one's life and death, loss of one's identity, fear of pain, uncertainty about what comes after death, worry related to family, and religiously related fears of a missed chance for salvation (Wong et al., 1994). While many people have negative attitudes towards death, some individuals acknowledge the fear they experience, and others opt to avoid the topic of death altogether with the goal of reducing one's anxiety about death (Wong et al., 1994). Wong et al. (1994) describe death acceptance as cognitively acknowledging one's mortality accompanied by a non-negative emotional state. This can include a neutral coming to terms with mortality, an approach-oriented attitude towards death that is associated with faith in a happy afterlife, or an escape acceptance attitude towards death that results from fear of suffering further (Wong et al., 1994). Because the present project is studying death anxiety, only fear of death and death avoidance will be examined further.

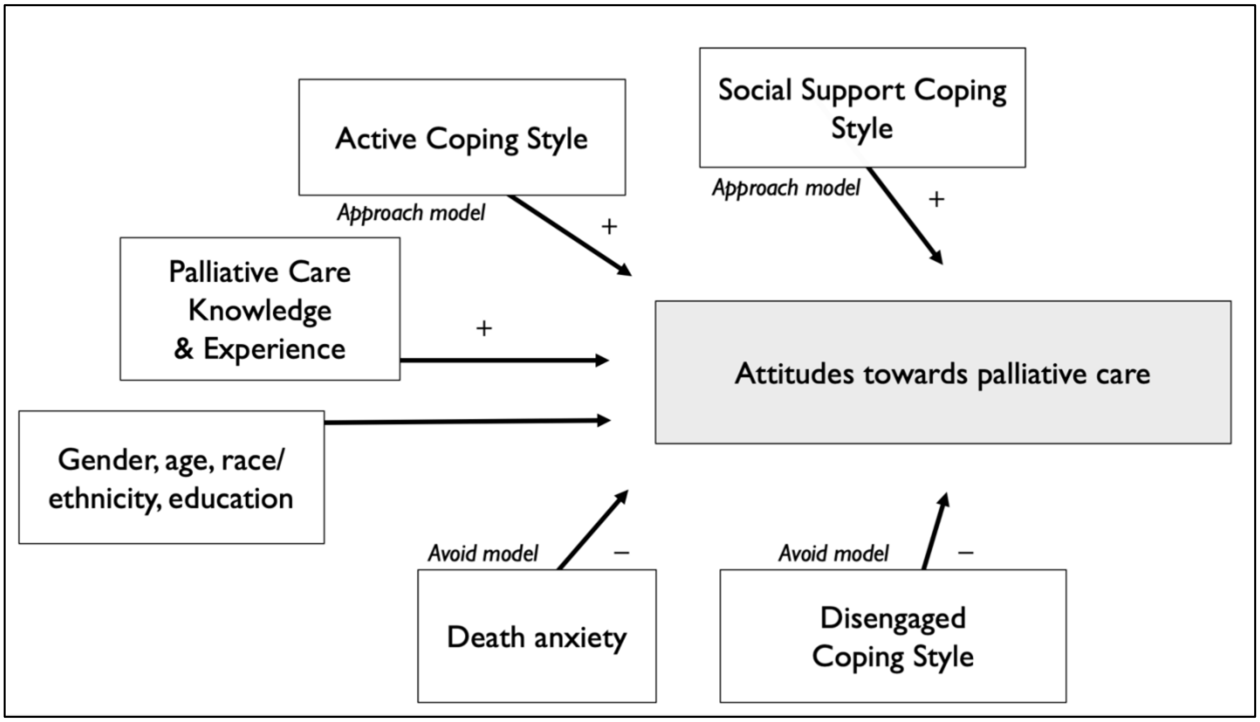
Consistent with terror management theory (Greenberg et al., 1997), individuals' negative attitudes towards persons with physical disabilities, cancer, and even older adults has been associated with higher levels of death anxiety (Mosher & Danoof-Burg, 2007). Individuals may engage in this social distancing from physically vulnerable individuals to avoid being confronted with their own mortality (Mosher & Danoof-Burg, 2007). Nurses who had higher levels of death anxiety tended to have less positive attitudes about caring for dying patients, tended to avoid talking about death with their patients, and one study suggested that in emergency settings, some nurses with high death anxiety may avoid caring for dying patients (Peters et al., 2013). Some nurses treating cancer patients engaged in avoidance of the topic of death in order to cope with their fear of death, and this was associated with more negative attitudes towards caring for their dying patients (Braun et al., 2010). However, it is important to note that in general, older adults have reported lower levels of death anxiety compared to younger adults; these findings may be due to evolving coping strategies with age and a focus on the present in later life (Wong et al., 1994; Major et al., 2016).

When people are reminded of their mortality, which may occur in discussions of referral to palliative care, death anxiety may be heightened (Pyszczynski et al., 1999). Resulting avoidance or refusal of palliative care services may prevent individuals from having conversations that may be vitally important for their care. Because death anxiety and a tendency to avoid stressors may be associated, it may be important to include death anxiety in any models testing associations between avoidant coping styles and negative attitudes towards palliative care.

Taken together, these findings indicate that palliative care is likely underutilized, coping styles may be important indicators for health behaviors and outcomes, and attitudes towards death may provide insight into avoidance behaviors. Understanding psychological factors that may be associated with attitudes towards palliative care, such as coping and death-related anxiety, may demonstrate clinically useful points of intervention that may be modifiable. Figure 2 presents a diagram of the proposed relationships between psychological factors and attitudes towards palliative care. At a time when efforts are underway to integrate palliative care further upstream in the disease course, it may be beneficial to understand better patients' attitudes towards palliative care and what factors might be influencing these attitudes.

Figure 2

Proposed Associations Between Attitudes Towards Palliative Care, Coping Styles, & Death Anxiety



The Current Study

The purpose of the present study is to identify psychological indicators that may be associated with increased receptivity towards palliative care in a community sample. More specifically, we will address the following aims:

1) Assess participants' knowledge of palliative care, attitudes toward palliative care, and attitudes related to death.

> Hypothesis: Because palliative care has grown as a field since past research was conducted, knowledge may be higher than previous research has shown. This sample will likely range in attitudes towards palliative care, but on average may be relatively positive towards palliative care given the findings from the validation study of the PCAS-9. Because this research is being conducted with a sample of older adults, average death anxiety may be low compared to previous studies of younger adults.

2) Test whether particular coping styles, such as an active, problem-solving approach, are associated with particular attitudes towards palliative care, controlling for other variables that may be associated with attitudes towards palliative care.

> Hypothesis: Controlling for other variables, a disengaged, avoidant coping style will be associated with more negative attitudes towards palliative care. An approach-focused, active coping style will be associated with more positive attitudes towards palliative care.

Methods

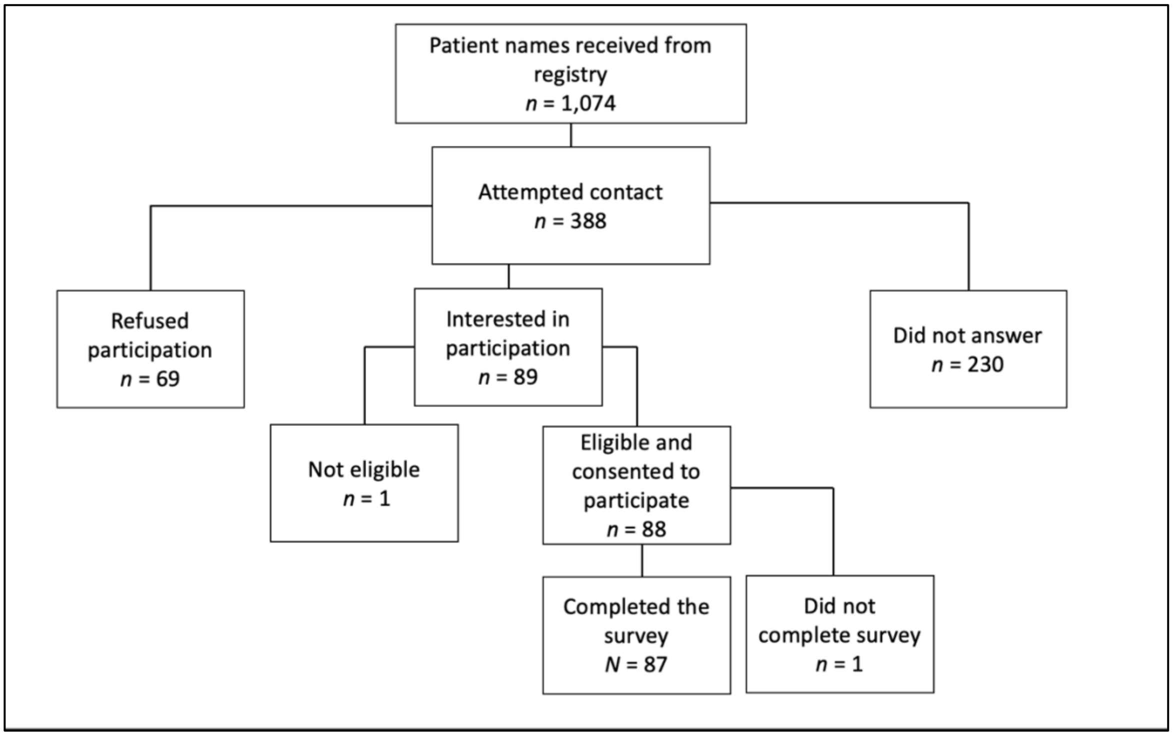
Participants

After obtaining approval from the Institutional Review Board of the University of Kansas Medical Center (KUMC), participants were recruited through the Pioneers Research Participant Registries. This registry includes over 48,000 KUMC patients and local area community members who elected to be contacted for research studies (KU Medical Informatics, 2017). The participant registry officially launched in 2011 as a part of a biomedical informatics national funding award. Following the transition of the medical center to an electronic medical record system, the university and partnering institutions aimed to integrate multiple streams of information for clinical providers, researchers, and policymakers to be able to use this data for quality improvement and advancement of scientific knowledge (Waitman et al., 2012).

An initial power analysis using G*Power 3.1 (Faul et al., 2009) revealed that a multiple linear regression using increase in R-squared with 3 tested predictors and 8 covariates would need at least 78 participants to detect an effect if it is present. If all 11 variables are considered potential predictors of attitudes towards palliative care, a sample size of 123 individuals would be needed to identify what is expected to be a small effect size (effect size was estimated as .15 in this power analysis). The inclusion criteria for study participation are being age 65 or older, electing to be contacted through the Pioneers Research Participant Registries, being fluent in English, being cognitively unimpaired, and having a working phone number. There are no criteria about specific medical conditions for the present study, so participants with a variety of medical diagnoses will be invited to participate. The exclusion criteria are being under 65 years of age, exhibiting cognitive impairment, and not being listed in the registry. Specifically, patients with intellectual disabilities, degenerative diseases of the nervous system, and mental disorders due to known physiological conditions were excluded from the recruitment list. Additionally, because the registry contained over 18,000 potential eligible participants, the list was narrowed by including only those who had an outpatient visit with the health system since January 1st, 2019. Finally, registry staff assigned a random number to each remaining patient and chose the lowest 999 numbers for this study's recruitment list. After the first month of recruitment, study investigators noticed that individuals recruited up to that point were overwhelmingly White and there were less Black individuals and individuals from other minority groups than would be expected given the population make-up of the area surrounding the health system. Therefore, an additional list of only non-White patients was requested. From the initial recruitment list, 313 patients were contacted and all 75 patients from the second list were contacted; thus, the study interviewer attempted contact with a total of 388 patients for this study. Of those contacted, one participant was ineligible due to suspected mental disorder. Additional recruitment information is displayed in Figure 3.

Figure 3

Recruitment flowchart and final study sample



Interviews were conducted via telephone by the primary author of the research project. Each interview took approximately 20-25 minutes. Local mental health resources were on hand if participants found interview topics to be distressing and individuals were encouraged to ask their medical providers any medical questions that came up during the interview. If participants were interested in learning more about the topics covered in the interview, they were given a resource sheet by email or mail. Participants were not offered payment.

Measures

Coping Style

The Brief COPE (Carver, 1997) is a 28-item shortened version of the COPE inventory (Carver et al., 1989) included to assess coping styles. This scale can be used to measure both coping strategies and coping styles, depending on the wording and verb tense used (Carver et al., 1989). In the current study, present tense language was used to identify overall dispositional styles of coping, as opposed to situation-based coping strategies.

The scale consists of 14 scales, each of which is designed to measure a different coping style. Minimally acceptable internality reliability has been demonstrated for most of the scales, with all subscales except acceptance, denial, and venting demonstrating a Cronbach's alpha above .60 (Carver, 1997). Approximately fifty studies have examined the factor structure of the Brief COPE since the scale was published (Peters et al., 2020). Analyses have found support for a three-factor model (Peters et al., 2020; Montel et al., 2012), including acceptable internal reliabilities for each of the three factors: disengaged coping ($\alpha = .74$), active coping ($\alpha = .89$), and social support coping ($\alpha = .89$; Peters et al., 2020). The disengaged coping factor included distraction, venting, self-blame, denial, and giving up. The social support coping factor included emotional support and instrumental support. The active coping factor included taking action, positive reframing, coming up with a strategy, humor, acceptance, and spirituality (Peters et al., 2020). Studies have also established convergent validity of these factors or similar factors with other coping or quality of life measures (Peters et al., 2020; Hagan et al. 2017). Together, these findings demonstrate acceptable convergent validity and acceptable internal consistency for the three factors of the Brief COPE.

Health-Related Quality of Life

The two-item Patient-Reported Outcomes Measurement Information System (PROMIS) global physical health scale was included to examine daily functioning and well-being (Hays et al., 2017). This measure asks patients to rate their physical health and ability to complete daily activities. Because of the brief nature of this tool, the answers may be interpreted as a screening tool for health-related quality of life and disability. Among a sample of 21,133 adults (median age = 50), the two-item scale demonstrated acceptable reliability (α=.73), albeit lower than a similar four-item measure (Hays et al., 2017). However, the two-item measured displayed greater marginal reliability compared to a one-item measure and the two-item measure correlated with other measures of chronic conditions and self-reported health outcomes, indicating that the two-item measure can be used to measure health status and functioning in a brief manner when time and resources are limited (Hays et al., 2017).

Knowledge of Palliative Care

The Palliative Care Knowledge Scale (PaCKS) is a 13-item measure included to assess participants' knowledge of palliative care (Kozlov et al., 2017). The measure was designed for non-health care professionals. Answer options include true, false, and an "I don't know" response that allows participants to identify a lack of knowledge instead of forcing participants to guess (Kozlov et al., 2018). Adequate internal reliability (Kuder– Richardson Formula 20 value = .71) and good test-retest reliability were demonstrated with community members and professionals (Kozlov et al., 2017). Convergent validity was established by demonstrating significant correlations with measures of health literacy and experience with palliative care (Kozlov et al., 2017).

Attitudes Towards Palliative Care

The Palliative Care Attitudes Scale (PCAS-9) is a nine-item measure included to assess attitudes towards palliative care, specifically within three domains: emotional, cognitive, and behavioral (Perry et al., 2019). The PCAS-9 includes a definition of palliative care at the beginning of the scale and participants can score between 0 and 60, with higher scores indicating more positive attitudes towards palliative care (Perry et al., 2019). Recommendations provided for scoring classifications include: Opposing, 9-29; Skeptical, 30-43; Optimistic, 44-52; and Favoring, 53-60 (Perry et al., 2019). Among cancer patients and patients with other serious conditions, good internal consistency for the entire measure (α=.84) and each of the subscales (α=.84, .70, .90 for emotional, cognitive, and behavioral subscales respectively) was demonstrated. Additionally, convergent validity and test re-test reliability were established. The factor structure was also consistent across patient characteristics (Perry et al., 2019).

Attitudes Towards Death

Two subscales of the Death Attitude Profile-Revised (DAP-R) that captured fear of death and death avoidance are included to assess components of death anxiety (Wong et al., 1994; Gesser et al., 1988). Because the current study is focused primarily on death anxiety, only the seven-item fear of death subscale and the five-item death avoidance subscale was administered. These subscales displayed good internal consistency with alpha coefficients of .86 and .88 respectively, and adequate test-retest reliability over a 4-week period (Wong et al., 1994). In addition, correlations of the DAP-R subscales with other measures of death anxiety and a semantic differential of attitudes towards life and death demonstrated predicted associations. These findings support convergent and discriminant validity for the DAP-R subscales for community-based older adults (Wong et al., 1994). Among others, Ardelt (2003) also used specific scales of the DAP-R to meet research interests. Because there are no full-scale sum scores, the DAP-R is well-suited to employing specific subscales as needed.

Qualitative Question

One open-ended question was asked to help explain findings from other parts of the interview and to allow for new ideas to come forward that could inform future research on this topic (Tolley et al., 2016). Participants were asked, "How would you describe your attitudes toward palliative care?" and if participants indicated that they did not know how to respond, the interviewer re-read the definition of palliative care from the PCAS-9 introduction and gently asked the question again. If participants did not answer, the interviewer moved on to the next question. Answers were typed into a text box as the participants spoke. Thus, the answers were not recorded verbatim.

Demographics and Experience with Palliative Care

Participants were asked about their age, sex, race, ethnicity, marital status, and educational attainment. Participants were also asked if they have received palliative care services for themselves or if a loved one had received palliative care.

Data Analyses

Qualitative answers to the one open-ended question were analyzed using grounded theory. Constant comparative analyses was used to identify themes across the sample (Lingard et al., 2008). Statistical analyses were conducted using RStudio, Version 1.1.463 (RStudio Team, 2020).

Aim 1 Assessing Knowledge and Attitudes

Average scores of knowledge of palliative care, attitudes towards palliative care, and death attitudes were calculated and compared to previous literature.

Aim 2 Testing for Coping Style Associations with Attitudes Towards Palliative Care

Two multiple linear regression models were executed in R with participants' attitudes towards palliative care, as measured by their scores on the PCAS-9, as the dependent variable. Both models used stepwise entry of the predictors to evaluate relative contributions of key variables using change in adjusted R-squared. The two separate models each captured different ends of the coping spectrum, with one focused on approach styles associated with better health outcomes (active coping and social support coping) and the other focused on avoidant coping styles (disengaged coping) associated with worse health and mental health outcomes (Arble & Arnetz, 2017; Roth & Cohen, 1986). Social support does not fit neatly within either the approach or avoidance categories because social support can be sought out to identify additional resources and ways of coping with a stressor or social support can serve as a distraction from the stressor (Greenaway et al., 2015). However, in investigation of the three-factor model of coping described above (Peters et al, 2020), the social support factor displayed a higher correlation with the active coping factor (r=.69) than it did with the disengaged coping factor (r=.25). Thus, in the present study the social support factor was included in the approach coping model.

Participants' ratings of active and social support coping were entered separately as independent variables in the first model and disengaged coping was entered as an independent variable in a second model. Participants' scores on the PaCKS were entered as a covariate to control for knowledge of palliative care in both models. The following covariates entered in both models included: whether the participant or their loved one had experience with palliative care, educational attainment, race, ethnicity, gender, and age. Because the second model captured avoidant coping strategies, death anxiety subscales were controlled for in this second model because of established associations between anxiety and avoidant behaviors (Borkovec et al., 2004).

Results

Participant characteristics

A total of 88 participants were recruited by phone from August until October 2020. One participant did not complete more than half of the interview and thus, this participant's responses were not included in analyses. Demographic information of the sample is summarized in Table 1.

Table 1. *Demographic Characteristics of the Sample*

Variable		*N* = 87	%	Variable		*N* = 87	%
Gender				Education			
	Women	49	56.32%		Some high school	2	2.30%
	Men	38	43.68%		High school graduate	7	8.05%
Age					Some college, vocational training, or associate degree	25	28.74%
	Range	65 - 90			College degree	19	21.84%
	Mean (SD)	72.72 (5.88)			Some professional school after college	6	6.90%
					Master's or doctoral degree	28	32.18%
Race/ ethnicity				Marital status			
	White	75	86.21%		Married or living as if married	55	63.22%
	Black / African American	9	10.34%		Divorced	14	16.09%
	Hispanic/ Latino	2	2.30%		Widowed	13	14.94%
	Prefer to not say	1	1.15%		Single	4	4.60%
					Prefer to not say	1	1.15%

Health Status

The PROMIS Global Physical Health 2-item scale has a possible range of 2-10 in raw scores and the current sample ranged from a minimum of 4 to a maximum of 10 in their responses. Study participants reported being in good health, on average, as evidenced by average T-scores (Raw mean score = 7.14, SD = 1.77) on this measure as compared to the PROMIS development sample, which included younger and older adults (Hays et al., 2017).

Experience with Palliative Care

Most of the sample also indicated their loved ones had never received specialty palliative care services (56.32%; n=49) and another 10.34% of the sample (n=9) indicated they were “not sure” if their loved ones had received palliative care services. When asked if they themselves had received palliative care services, not one participant said “yes” with 96.55% of individuals (n=84) saying “no” and 3.45% (n=3) of the sample indicating they were “not sure.” Because there was very little variation in the self-experience of palliative care, only experience with a loved one receiving palliative care was included in analyses. Further, upon analyzing open text responses of what patients meant by “not sure,” when referring to whether a family member had received palliative care, it was decided to group the individuals who endorsed “no” experience and “not sure” about experience together in creation of a binary (yes/no) variable.

Aim 1 Assessing Knowledge and Attitudes

Palliative Care Attitudes Scale (PCAS-9)

In this sample, responses on the Palliative Care Attitudes Scale ranged from 22 – 60, with higher scores indicating more favorable attitudes towards palliative care. The average score was 47.79 (SD = 7.75). Mean scores and standard deviations on the emotional (M=14.11; SD = 3.07), cognitive (M=15.67; SD = 3.38), and behavioral subscales (M= 18.01; SD = 4.07) were also calculated. T-tests were conducted to see if significant differences in attitudes towards palliative care existed for men and women in this sample and if there were significant differences between individuals whose loved ones had received palliative care or not. There were no significant gender differences on the total scale, the cognitive subscale, or the emotion subscale (p > .05). On the behavioral subscale, women were significantly more likely than men to endorse willingness to schedule and attend initial and follow up palliative care appointments if they had a serious illness or symptoms that were hard to manage, (t(66.71) = 2.46, p = .02). There were no significant differences on the total PCAS-9 or on any of the subscales for individuals whose loved ones had received palliative care and those who had not (ps > .05**)**. Internal consistency of the PCAS-9 in this sample was fairly high (α = .80). Age was not significantly associated with attitudes towards palliative care as measured by the PCAS-9, (r(85) = .15, p = .17). Finally, the results of a one-way ANOVA indicated that there were no significant differences in attitudes towards palliative care based on participants' race or ethnicity, (F(3, 83) = .33, p = .804).

In order to characterize this sample's scores on the PCAS-9, the interpretation categories developed by Perry et al. (2019) were used: opposed (0-29), skeptical (30-43), optimistic (44-52), and favoring (53-60). In the present sample, 2.2% of participants fell in the opposed range, 20.69% fell in the skeptical range, 44.83% fell in the optimistic range, and 32.18% fell in the favoring range.

Death Attitude Profile-Revised (DAP-R)

Two subscales of the DAP-R, Fear of Death and Death Avoidance, were calculated by summing the Likert-scale items (1 = Strongly Disagree, 7 = Strongly Agree), and dividing by the number of items in the subscale (Wong et al., 1994). Higher scores indicated higher levels of death anxiety. In this sample, scores on the Death Avoidance subscale ranged from 1 to 5.8, and the average score on the Death Avoidance subscale was 2.46 (SD = 1.27). Scores on the Fear of Death subscale ranged from 1 to 6.57, and the average score on the Fear of Death subscale was 2.42 (SD = 1.15). Internal consistency of the Fear of Death subscale was high (α= .86) in this sample, as was internal consistency for the Death Avoidance subscale (α= .86). T-tests were conducted to test if any gender differences existed in fear of death or death avoidance, and in this sample, there were no significant differences in death anxiety scores for men and women ($p > .05$). Correlation coefficients were calculated to understand the relationship between death anxiety and age, and a one-way ANOVA was conducted to test for differences in death avoidance and fear of death among individuals of different racial and ethnic identities. While age was not associated with scores on the Death Avoidance subscale, older age was correlated with significantly lower fear of death, ($r(85) = -.28$, $p < .01$). Death avoidance subscale scores were not significantly different for individuals who identified as Black, White, and Latino, ($F(3, 83) = 1.96$, $p = .13$). However, there were significant differences in scores on the Fear of Death subscale for individuals of different racial and ethnic backgrounds, ($F(3, 83) = 3.2$, $p = .03$). Post hoc analyses were conducted, and a Tukey HSD test demonstrated that Black individuals (M = 3.41, SD =1.82) endorsed higher Fear of Death scores compared to White individuals (M = 2.28, SD = 1.00). Given the small number of Black participants in this sample, caution needs to be taken in interpreting these results.

Levels of fear of death and death avoidance were compared to available data found in a previous study assessing DAP-R validity and reliability (Wong et al., 1994). With previously published data using the DAP-R subscale (Wong et al., 1994), two separate two-sample t-tests were conducted to test for differences in average levels of fear of death and death avoidance between the current sample and a roughly age-matched subgroup (adults ages 60-100). There was no significant difference in levels of fear of death between the two samples, ($t(184.95) = 1.65$, $p = .10$). However, there was a significant difference in levels of death avoidance between the two samples, such that the present study displayed lower avoidance of death thoughts compared to the previously published sample, ($t(184.84) = 2.31$, $p < .05$). When using t-tests to compare the current sample's level of death anxiety to a younger sample (ages 18-29) from the same Wong et al. (1994) study, the current study's older adult sample displayed significantly lower average levels of death avoidance, ($t(178.35) = 2.09$, $p < .05$), and significantly lower average levels of fear of death ($t(184.95)= 4.61$, $p < .05$), compared to the younger sample.

Knowledge of Palliative Care

Participants' responses to the Palliative Care Knowledge Scale (PaCKS) were assigned 1 point if they correctly identified each statement as true or false and 0 points if they incorrectly identified a statement or if they indicated they did not know (Kozlov et al., 2018). Scores ranged from 0 to 13, with higher scores indicating more knowledge of palliative care. The mean score for the present sample was 8.72 (SD= 4.11). Individuals who reported that a loved one had received palliative care demonstrated significantly more knowledge of palliative care (average PaCKS score = 11.21, SD = 1.72) compared to individuals who said they did not or were not sure if their loved ones had received palliative care (average PaCKS score = 7.48, SD = 4.39), as evidenced by significantly different average scores on the PaCKS, ($t(81.66) = -5.65$, $p < .001$). Internal consistency in this sample was excellent ($\alpha = .91$). A t-test and two separate ANOVAs were conducted to investigate potential differences in PaCKS scores by gender, education level, and racial or ethnic identity. No significant differences in PaCKS scores were demonstrated by gender, education level, race, or ethnicity ($p > .05$). Knowledge of palliative care was also not associated with age within this older sample, ($r(85) = -.12$, $p = .28$).

Knowledge of palliative care in this sample was compared to other samples when available. With preliminary normative data for the PaCKS (Kozlov et al., 2017), a two-sample t-test was conducted to test for differences in knowledge of palliative care between the current sample and an age-matched (adults aged 65+) sample. This data was reported as a part of a larger study of adults recruited online (Kozlov et al., 2017). The present sample displayed significantly higher levels of knowledge towards palliative care compared to the previously published study, ($t(52.37) = 3.68$, $p < .001$).

Coping styles

The Brief-COPE scale (Carver, 1997) items were used to calculate the Disengaged Coping, Active Coping, and Social Support Coping subscales. These subscales were constructed such that items on each respective subscale, as identified by Peters et al. (2020), were summed together. The Disengaged subscale scores ranged from 1-22 and the mean score was 10.78 (SD = 3.83). The Active Coping subscale in this sample had scores ranging from 3-35, with an average score of 26.62 (SD = 5.20). Finally, the Social Support Coping subscale scores ranged from 0-12 with an average score of 8.44 (SD = 2.91). Higher scores on all three scales indicate higher levels of the respective coping style. Internal consistency for the Disengaged subscale was somewhat low ($\alpha = .59$) thus caution is warranted in interpretation of associations with it. Internal consistency for the Social Support subscale ($\alpha = .88$) and the Active subscale ($\alpha = .75$) was satisfactory in the present sample.

Aim 2 Testing for Coping Style Associations with Attitudes Towards Palliative Care

To address Aim 2, stepwise linear regression analyses were conducted to determine whether coping styles may be significantly associated with attitudes towards palliative care. Due to insufficient power for numerous variables in a singular model, two models were used to conceptualize associations between a) approach coping and attitudes towards palliative care and b) avoidance coping and attitudes towards palliative care. Assumptions of linearity, homoscedasticity, independence of observations, and normality for both full models were assessed. For the approach and avoidance coping model, the assumption of homoscedastic residuals was met, as evidenced by equal spread of residuals. The lack of pattern in the residuals for both models indicated that the assumption of linearity for both models was met. Next, the assumption of normality for both the approach and avoidance coping models were met, as evidenced by the residuals falling close to what they would be in an ideally normal distribution. Based on the study design of one interviewer recruiting randomly selected individuals from a health system database of research volunteers and each interview being conducted individually, the assumption of independent observations was met. For each step within the respective approach and avoidance models, *F* tests were calculated for each pair of subsequent models using the ANOVA function in R to compare the models and test for significant change in R-squared (Long & Teetor, 2019).

Outliers were assessed using Cook's distance. For both the approach and avoidance coping model, one outlier was identified that may have undue influence on both models. This outlier exhibited the lowest (least favorable) score on the PCAS-9 of the sample, but this case was not identified to be an outlier on other measures. Analyses both with and without this outlier will be summarized.

Approach model

Results for the approach model are reported in Table 2. In both the approach and avoidance models, demographic variables, including age, sex, race and ethnicity, and level of education, were entered as the first step, and none of these variables were significant predictors of attitudes towards palliative care. For the approach coping model, the Active Coping subscale was added as the second step. While there were no significant predictors in this model, there was a small increase in Adjusted R^2, although this was not statistically significant (p = .30). In Step 3, the Social Support subscale was included in the model. Again, no variables significantly predicted attitudes towards palliative care and the small increase in Adjusted R^2 in this step was not statistically significant (p = .10). In the fourth step, PaCKS scores and whether participants' loved ones had received palliative care were included in the linear regression. PaCKS scores significantly predicted attitudes towards palliative care (β = .71, p<.01), as did age (β = .29, p<.05). Additionally, the increase in adjusted R^2 for this step was statistically significant (p = .02).

Finally, due to the low number of participants relative to the number of predictor variables and resulting low power, a more parsimonious model was sought. In order to identify which variables to include in a more parsimonious model, Akaike's Information Criteria (AIC) and Adjusted R^2 were calculated for potential combinations of variables using the best predictor subsets function from an R package designed to build Ordinary Least-Squares regression models (Kutner et al., 2004). These values are reported in Table 3. The model with the highest Adjusted R^2, indicating the best explanation of variance in the model, was the model that included age, education, Social Support coping, and the PaCKS scale. This model also demonstrated the lowest AIC, indicating a more parsimonious model compared to other models tested. Thus, a final parsimonious model was run including the specified covariates.

Table 2. *Stepwise Regression Results -- Approach Model*

Step 1			**Step 2**			**Step 3**			**Step 4**			**Step 5**		
Variable	β_i(SE)	*p*	Variable	β_i (SE)	*p*	Variable	β_i (SE)	*p*	Variable	β_i (SE)	*p*	Variable	β_i (SE)	*p*
Intercept	29.51 (11.69)	<.01*	Intercept	26.01 (12.04)	<.01*	Intercept	24.11 (11.88)	<.05*	Intercept	13.09 (11.80)	.27	Intercept	15.31 (10.60)	.15
Age	.25 (.15)	.09	Age	.25 (.15)	.09	Age	.23 (.14)	.12	Age	.29 (0.14)	.04*	Age	.27 (.13)	<.05*
Sex	-2.00 (1.71)	.25	Sex	-2.00 (1.71)	.25	Sex	-1.43 (1.72)	.41	Sex	-.30 (1.67)	.85	Palliative Care Knowledge	.63 (.19)	<.01**
Hispanic	-1.68 (6.05)	.78	Hispanic	-1.31 (6.04)	.83	Hispanic	-2.88 (6.00)	.63	Hispanic	-.82 (5.76)	.89	Education	.70 (.39)	.08
White	-.62 (2.76)	.82	White	-.86 (2.76)	.76	White	-1.05 (2.72)	.70	White	-2.41 (2.61)	.36	Social Support Coping	.54 (.26)	.04*
Other race/ethnicity	11.01 (8.29)	.19	Other race/ethnicity	11.20 (8.28)	.18	Other race/ethnicity	12.33 (8.16)	.13	Other race/ethnicity	9.35 (7.87)	.24			
Education	.72 (.43)	.10	Education	.68 (.43)	.12	Education	.69 (.43)	.11	Education	.79 (.41)	.05			
			Active Coping	.19 (.16)	.24	Active Coping	.08 (.17)	.62	Active Coping	.08 (.16)	.60			
						Social Support Coping	.59 (.31)	.06	Social Support Coping	.59 (.31)	.06			
									Palliative Care Knowledge	.71 (.22)	<.01**			
									Loved one received Palliative Care	-1.95 (1.86)	.30			
Adjusted R^2	.02		Adjusted R^2	.02		Adjusted R^2	.05		Adjusted R^2	.15		Adjusted R^2	.17	
			F	1.08		F	2.70		F	4.29		F	.61	
			p value	.30		*p* value	.10		*p* value	.02*		*p* value	.72	

Note. n=87; Reference group for race or ethnicity was African American or Black. Reference group for sex was female. On the bottom rows, F statistics and *p*-values are reported for each ANOVA comparing subsequent steps of the model.

* Statistically significant at $p < .05$. ** Statistically significant at $p < .01$.

Table 3. *Best Subsets Regression Results for Approach Model*

Model Index	Predictors							
1	PaCKS							
2	Social Support Coping	PaCKS						
3	Age	Social Support Coping	PaCKS					
4	Education	Age	Social Support Coping	PaCKS				
5	Race/ ethnicity	Education	Age	Social Support Coping	PaCKS			
6	Loved one received palliative care	Race/ ethnicity	Education	Age	Social Support Coping	PaCKS		
7	Active coping	Loved one received palliative care	Race/ ethnicity	Education	Age	Social Support Coping	PaCKS	
8	Sex	Active coping	Loved one received palliative care	Race/ ethnicity	Education	Age	Social Support Coping	PaCKS

Note: PaCKS = Palliative Care Knowledge Scale

Model Index	R-square	Adj. R-square	AIC
1	0.0980	0.0874	599.1594
2	0.1484	0.1282	596.1558
3	0.1754	0.1456	595.3562
4	0.2058	0.1671	594.0886
5	0.2332	0.1653	597.0344
6	0.2438	0.1662	597.8280
7	0.2463	0.1582	599.5356
8	0.2466	0.1475	601.4990

Note: AIC = Akaike's Information Criteria

In this fifth step, there was a significant main effect of Social Support Coping such that higher endorsement of seeking social support to cope with stressful situations was significantly associated with more positive attitudes towards palliative care ($\beta = .54$, $p<.05$). PaCKS scores again significantly predicted attitudes towards palliative care ($\beta = .63$, $p<.01$) and age was also significantly associated with the outcome variable ($\beta = .27$, $p<.05$). This parsimonious model also yielded the highest adjusted R^2 compared to previously fitted models, although this increase in adjusted R^2 from the full model was not statistically significant ($p = .72$).

Due to the outlier that was identified in both models, the full and parsimonious models were also run without this potentially influential observation. Without the outlier, age was no longer a significant predictor in either the full ($\beta = .18$, $p =.17$) or parsimonious ($\beta = .18$, $p =.16$) models (see Appendix). In addition, adjusted R^2 was slightly higher for both the full (Adjusted $R^2 = .16$) and parsimonious (Adjusted $R^2 = .17$) models run without the outlier, indicating that these models were accounting for more of the variance in attitudes towards palliative care with the outlier removed.

Avoidance model

Results for the avoidance model are reported in Table 4. The avoidance coping model was constructed using the same first step as the approach coping model: entering age, ethnicity and race, sex, and education, as covariates in the model. As noted above, none of the demographic variables were significantly associated with attitudes towards palliative care. The second step of the avoidance coping model included participants’ scores on the Disengaged Coping subscale as a predictor. Results of the multiple linear regression indicate that there were no significant main effects. The small decrease in Adjusted R^2 from the initial step of the model was not statistically significant ($p = .72$).

Table 4. *Stepwise Regression Results -- Avoidance Model*

Step 1			**Step 2**			**Step 3**			**Step 4**			**Step 5**			**Step 6**		
Variable	β_i (SE)	*p*	Variable	β_i (SE)	*p*	Variable	β_i (SE)	*p*	Variable	β_i (SE)	*p*	Variable	β_i (SE)	*p*	Variable	β_i (SE)	*p*
Intercept	33.44 (11.01)	<.01*	Intercept	31.82 (11.98)	.01*	Intercept	14.37 (13.33)	.28	Intercept	18.94 (14.27)	.19	Intercept	6.40 (14.36)	.66	Intercept	3.35 (12.80)	.79
Age	.21 (.14)	.14	Age	.22 (.15)	.13	Age	.23 (.14)	.11	Age	.21 (.15)	.16	Age	.27 (.14)	.06	Age	.26 (.13)	.05
Sex	-2.76 (1.75)	.12	Sex	-2.72 (1.76)	.13	Sex	9.29 (4.88)	.06	Sex	9.40 (4.92)	.06	Sex	11.35 (4.79)	.02*	Sex	11.68 (4.61)	.01*
Hispanic	-2.47 (6.03)	.68	Hispanic	-2.52 (6.07)	.68	Hispanic	-2.75 (5.86)	.64	Hispanic	-3.44 (5.90)	.56	Hispanic	-.85 (5.74)	.88	Education	.57 (.40)	.16
White	-1.51 (2.83)	.60	White	-1.54 (2.84)	.59	White	-1.27 (2.74)	.65	White	-2.21 (2.88)	.45	White	-2.77 (2.77)	.32	Disengaged Coping	1.81 (.60)	< .01**
Other race/ ethnicity	8.68 (8.21)	.29	Other race/ ethnicity	8.75 (8.26)	.29	Other race/ ethnicity	8.69 (7.97)	.28	Other race/ ethnicity	7.01 (8.15)	.39	Other race/ ethnicity	4.26 (7.90)	.59	Disengaged Coping X Sex	-1.24 (.40)	< .01**
Education	.83 (.45)	.07	Education	.83 (.46)	.07	Education	.81 (.44)	.07	Education	.73 (.45)	.11	Education	.65 (.43)	.14	Palliative Care Knowledge	.62 (.19)	< .01*
			Disengaged Coping	.08 (.22)	.72	Disengaged Coping	1.66 (.64)	.01*	Disengaged Coping	1.72 (.64)	.01*	Disengaged Coping	1.81 (.62)	< .01**			
						Disengaged Coping X Sex	-1.12 (.43)	.01*	Disengaged Coping X Sex	-1.13 (.43)	.01*	Disengaged Coping X Sex	-1.21 (.42)	< .01**			
									Death Avoidance	-.77 (.76)	.32	Death Avoidance	-.36 (.75)	.63			
									Fear of Death	-.33 (.90)	.71	Fear of Death	-.29 (.88)	.75			
												Palliative Care Knowledge	.59 (.23)	.01*			
												Loved one received Palliative Care	.04 (1.91)	.98			
Adjusted R^2	.02		Adjusted R^2	.01		Adjusted R^2	.08		Adjusted R^2	.08		Adjusted R^2	.15		Adjusted R^2	.19	
			F	.13		F	6.90		F	.98		F	4.25		F	.39	
			p value	.72		*p* value	.01*		*p* value	.38		*p* value	.02*		*p* value	.88	

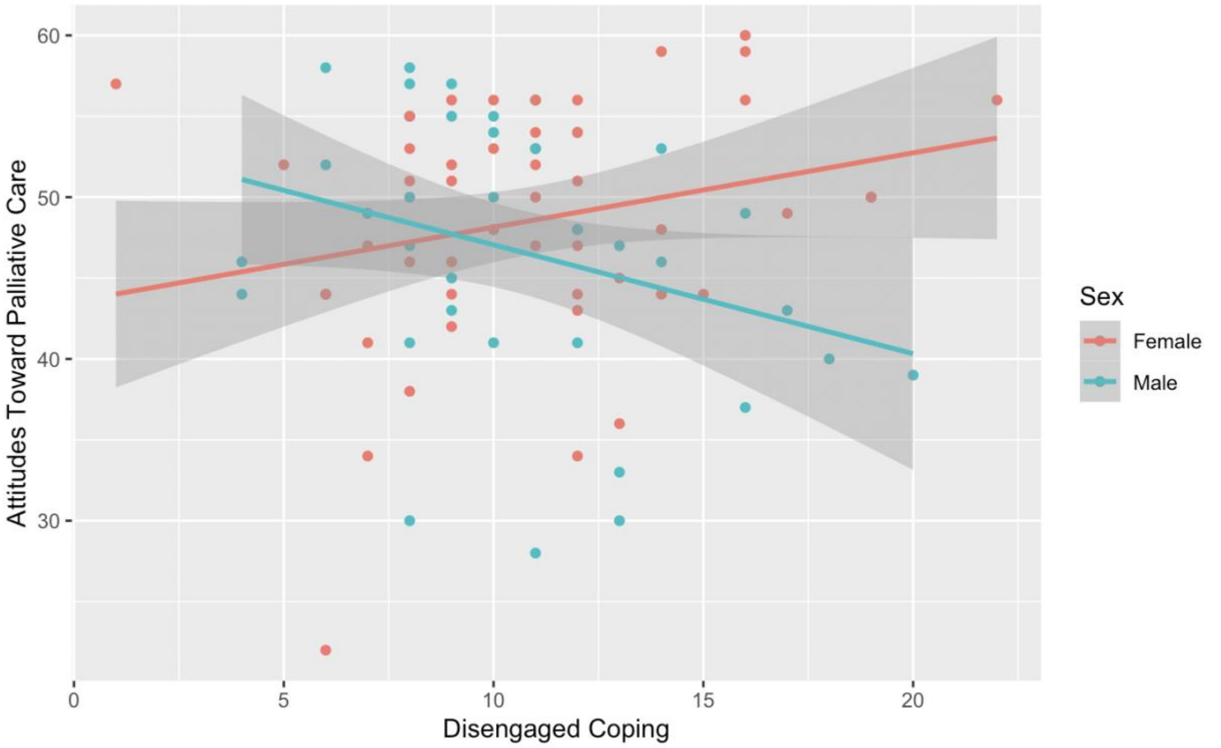
Note. n=87; Reference group for race or ethnicity was African American or Black. Reference group for sex was female.
On the bottom rows, F statistics and p-values are reported for each ANOVA comparing subsequent steps of the model.
* Statistically significant at $p < .05$.
** Statistically significant at $p < .01$.

Because the Disengaged Coping subscale was found to not contribute to the explanation of variance in attitudes towards palliative care as a significant main effect, it was hypothesized that the effect of Disengaged Coping may depend on another variable in the model. Given that past research indicates that women may hold more favorable views of palliative care compared to men (Saeed et al., 2018) and that men and women have demonstrated differences in coping (Tamres et al., 2002), it was hypothesized that associations between disengaged coping and attitudes towards palliative care may depend on sex. Thus, an interaction term of Disengaged Coping by sex was entered in the model. When an interaction term between Disengaged Coping and sex was included in this third step, there was a significant interaction between sex and disengaged coping (β = -1.12, p<.05) and there was also a significant main effect of Disengaged Coping, (β = 1.66, p<.05). Adjusted R^2 for this model (Adjusted R^2 = .08) was significantly higher than the previous model (p = .01).

A plot of disengaged coping by sex by attitudes towards palliative care, found in Figure 4, reveals that at higher levels of disengaged coping, women tended to have more positive attitudes towards palliative care than did men. At lower levels of disengaged coping, men appeared to have more positive views of palliative care compared to women. The significant interaction term indicates that men and women have significantly different slopes when analyzing disengaged coping on attitudes towards palliative care, while holding other variables constant. A simple slopes analysis is conducted with the parsimonious model below.

Figure 4

Interaction of Sex by Disengaged Coping on Attitudes Towards Palliative Care



Next, the Death Avoidance and Fear of Death subscales were included in the fourth step of the model. There were no additional significant main effects in this step of the model. Adjusted R^2 for this model (Adjusted $R^2 = .08$) did not change significantly from the previous model ($p = .38$).

Similar to the approach model, the PaCKS scale and whether participants' loved ones had received palliative care were added to the next step, Step 5. In this step, sex ($\beta = 11.35$, $p<.05$), the PaCKS scale scores ($\beta = .59$, $p<.05$), Disengaged Coping ($\beta = 1.81$, $p<.01$), and the interaction between sex and Disengaged Coping ($\beta = -1.21$, $p<.01$) were significantly associated with attitudes towards palliative care, controlling for other variables. Higher levels of knowledge of palliative care were associated with more positive attitudes towards palliative care. The significant interaction term between sex and Disengaged Coping is described above. In addition, Adjusted R^2 for this model (Adjusted R^2 = .15) indicates significantly better explanation of variance in attitudes towards palliative care than the previous avoidance model (p = .02).

A final step of the model was pursued in order to explore a more parsimonious fit. AIC and Adjusted R^2 for potential combinations of variables were calculated using the same method described for the approach model. These values are reported in Table 5. The model that included age, sex, education, Disengaged Coping, the PaCKS, and the interaction of sex by Disengaged Coping had the highest Adjusted R^2 and the lowest AIC, indicating better explanation of the variance and a more parsimonious model compared to other models tested. Thus, a parsimonious model was run including the specified covariates in Step 6.

This multiple linear regression in Step 6 indicated that sex (β = 11.68, p<.05), Disengaged Coping (β = 1.81, p<.01), and the PaCKS scale scores (β = .62, p<.01) were significantly related to attitudes towards palliative care. The sex by disengaged coping interaction remained significant in this final model (β = -1.24, p<.01). Using a simple slopes analysis, slope of disengaged coping on attitudes towards palliative care was calculated for each level of sex. For men, there was a significant, negative slope between disengaged coping and attitudes towards palliative care, (β = -.67, SE=.31, p=.03). For women, a significant, positive slope was found (β = .57, SE=.26, p=.03). The small increase in adjusted R^2 from the previous model (Adjusted R^2 = .19) was not statistically significant (p = .88).

Table 5. *Best Subsets Regression Results for Avoidance Model*

Model Index	Predictors									
1	PaCKS									
2	Age	PaCKS								
3	Education	Age	PaCKS							
4	Sex	Disengaged	Sex* Disengaged	PaCKS						
5	Age	Sex	Disengaged	Sex* Disengaged	PaCKS					
6	Education	Age	Sex	Disengaged	Sex* Disengaged	PaCKS				
7	Race/ ethnicity	Education	Age	Sex	Disengaged	Sex* Disengaged	PaCKS			
8	Death avoidance	Race/ ethnicity	Education	Age	Sex	Disengaged	Sex* Disengaged	PaCKS		
9	Fear of death	Death avoidance	Race/ ethnicity	Education	Age	Sex	Disengaged	Sex* Disengaged	PaCKS	
10	Loved one received Palliative Care	Fear of death	Death avoidance	Race/ ethnicity	Education	Age	Sex	Disengaged	Sex* Disengaged	PaCKS

Note: PaCKS = Palliative Care Knowledge Scale; Disengaged = Disengaged Coping

Model Index	R-square	Adj. R-square	AIC
1	0.0980	0.0874	599.1594
2	0.1321	0.1115	597.8074
3	0.1465	0.1157	598.3508
4	0.1929	0.1535	595.4959
5	0.2292	0.1816	593.4853
6	0.2482	0.1918	593.3193
7	0.2648	0.1789	597.3721
8	0.2700	0.1740	598.7548
9	0.2711	0.1642	600.6276
10	0.2711	0.1529	602.6271

Note: AIC = Akaike's Information Criteria

In order to explore the potential influence that the outlier case with the highest Cook's distance may have, the full model and parsimonious models were re-run without this outlier. In the full model that included age, sex, race/ ethnicity, education, Disengaged Coping, Death Avoidance, Fear of Death, the PaCKS scale, whether a loved one had experience with palliative care, and the interaction term between sex and Disengaged Coping, results were different once the potentially influential case was dropped. Disengaged Coping ($\beta = 1.47$, $p<.05$), the PaCKS scale ($\beta = .51$, $p<.05$), and the interaction between sex and Disengaged Coping ($\beta = -1.05$, $p<.01$) were significantly associated with attitudes towards palliative care. With the outlier removed, sex was no longer significantly associated with the outcome variable ($\beta = 8.70$, $p=.05$).

Similar to the parsimonious avoidance model above, the parsimonious model without the outlier indicated that sex ($\beta = 9.18$, $p<.05$), Disengaged Coping ($\beta = 1.44$, $p<.05$), the sex by Disengaged Coping interaction ($\beta = -1.07$, $p<.01$) and the PaCKS scale scores ($\beta = .64$, $p<.01$) remained significantly related to attitudes towards palliative care. Adjusted R^2 for this model (Adjusted $R^2 = .21$) was higher than any other model tested thus far, indicating this model without the outlier may better explain the variance than other models tested.

Qualitative responses

Interviewer-typed responses to the open-ended question, "How would you describe your attitudes toward palliative care?" were reviewed for assistance in explaining findings of the current study and providing ideas for future research. Many responses reflected the generally positive attitudes towards palliative care captured in participants' PCAS-9 scores. Numerous participants conflated palliative care and hospice care in their responses and some participants relayed their experiences with and attitudes towards hospice, whether positive, negative, or mixed. A number of male participants indicated that they would not want to spend time on more doctors’ appointments or that it would be extra hassle and burden with transportation to attend an additional doctor’s appointment. Other participants discussed how palliative care might be helpful to have a provider treating the “whole person” and how it could be helpful for communication with and support for their family as well. While some participants worried about the extra toll on family members of utilizing palliative care (i.e., transportation), others considered how palliative care might help their family members openly discuss care and cope with serious illness. One person suggested that since palliative care may be a “very scary thing” for some patients, she thought that having it introduced as simply a part of the care that everyone gets may ease the burden of having to make a choice to attend or not.

Discussion

The present study assessed knowledge of palliative care, coping styles, attitudes towards palliative care, and death anxiety in an older adult sample. The present study adds to the current literature by testing if coping styles and death anxiety could be psychological factors associated with attitudes towards palliative care. In particular, the objective was to understand if more active, approach coping styles, such as problem solving, are associated with more positive attitudes towards palliative care and if more disengaged, avoidant coping styles, such as denial, are associated with more negative attitudes towards palliative care. Results suggest that increased social support coping and more knowledge of palliative care are associated with more positive attitudes towards palliative care. Additionally, the relationship between disengaged coping and openness towards palliative care depended on sex. For men, there was a negative relationship such that higher levels of disengaged coping were associated with less receptivity towards palliative care. For women, there was a positive relationship such that higher levels of disengaged coping were associated with more favorable attitudes towards palliative care.

Attitudes towards palliative care in the current sample averaged in the “optimistic” range (mean = 47.49). The current sample appeared to be more receptive to palliative care than the validation study of the PCAS-9 (Perry et al., 2019). In their validation samples of patients recruited online, Perry et al. (2019) did not report average levels of knowledge of palliative care, thus it is possible that more knowledge of palliative care in the present sample may have resulted in more favorable attitudes compared to the validation sample. Of note, the validation study included adults ages 23-93, so it is also a possibility that older age in the present sample may help to explain more positive attitudes. While only patients with a serious illness were eligible for participation in the validation study (Perry et al., 2019), the individuals in the present study endorsed, on average, good health. More positive attitudes towards palliative care in the current community-based sample compared to the clinical validation study sample indicate that future research could address if openness to palliative care differs between individuals who are thinking more hypothetically about palliative care versus individuals who have a serious illness and palliative care may be more of an immediate possibility.

The present study sample had significantly more knowledge of palliative care, on average, than previously found in an age-matched sample from a study using the PaCKS (Kozlov et al., 2018). These findings support the present study’s first hypothesis that knowledge of palliative care may be growing, particularly as outpatient palliative care treatment expands around the U.S. (Vallabhajosyula et al., 2019; Alqahtani et al., 2019; Ando et al., 2020). This higher level of knowledge may be related to the fact that the present sample was highly educated, with almost a third of the participants holding a graduate degree, compared to less than 10% of the previously published sample (Kozlov et al., 2018) and only 12.4% of adults ages 55 and older in the U.S. (U.S. Census Bureau, 2018). A recent scoping review (Patel & Lyons, 2020) found that growth in knowledge of palliative care has not increased and remains low in the U.S., even as palliative care as a field has grown. The current study's findings of higher levels of knowledge of palliative care are inconsistent with the recent review, and it may be important to recognize our sample is not representative of the nation and therefore may not be generalizable to a broader population. Thus, results should be interpreted with caution.

Consistent with findings from an Australian assessment of community knowledge and attitudes (Collins et al., 2020b), the current study demonstrated that increased knowledge of palliative care was significantly and consistently associated with more positive attitudes towards palliative care across models. These results are also consistent with demonstrated associations between higher levels of palliative care stigma, which included statements of inaccurate beliefs about palliative care, and lower willingness to seek palliative care (Shen & Wellman, 2018). The current study builds on work that found that higher levels of exposure to palliative care information disseminated in the community were associated with more positive perceptions of palliative care for patients and family members (Akiyama et al., 2016). Our findings also extend previous work by including specific, validated measures of knowledge of and attitudes towards palliative care and confirming that accurately understanding more about palliative care has positive implications for receptivity towards palliative care. Future research could statistically analyze the relationship between attitudes and health care utilization data to understand how knowledge and attitudes relate to scheduling and attending a palliative care consultation.

As hypothesized, the present sample of adults ages 65 and older displayed lower levels of death anxiety compared to a previously published younger sample of adults ages 18-29 (Wong et al., 1994). This finding is consistent with Wong et al.'s (1994) results that showed older adults endorsed less death anxiety compared to younger adults. Wong et al. (1994) suggest that this difference in death anxiety may be explained by young adults fearing more for their hopes not being realized compared to older adults who may have already experienced expected milestones or by older adults' habituation to death because of experiences with family and friends' deaths (Kalish, 1976).

Though the number of Black participants in the present study was small, the current sample demonstrated higher levels of fear of death among Black participants compared to White participants. Cicirelli (1999) postulates that because Black participants may have experienced discrimination, racism, and less access to resources due to systemic injustice, these factors may be associated with a more external locus of control, and thus a greater fear of death. However, the present study's findings are inconsistent with the results of the Cicirelli (1999) study, with African American participants in the previously published study endorsing lower levels of fear of death than White participants. The author argued that this may be partly accounted for by the high levels of religiosity among African Americans in this previously published sample (Cicirelli, 1999). Recent work has confirmed the importance of religiosity in considering death anxiety levels, and a recent study has shown that higher levels of secure attachment to God were associated with reduction in death anxiety over time and that this relationship was stronger for Black older adults compared to White older adults (Jung, 2018). It may also be important to consider the role that religious affiliation may have in influencing death anxiety because the afterlife is conceptualized differently in different religious groups (Braun et al., 2010). While the present study did not measure religiosity or religious orientation specifically, future analyses with this data set could examine the Brief COPE spirituality items in relation to fear of death to better explain racial differences in death anxiety in this sample. Additional recruitment through established community partnerships could engage more Black and Latino individuals in research participation with the current measures. Future studies could include questions regarding participants' religious orientation to explore any differences in death anxiety among different religious groups.

Differences in death anxiety have varied widely in the literature (Assari & Lankarani, 2016), and one issue may be that many of the studies mentioned so far have assessed death anxiety with different measures or have used author-developed questions, with the possibility that these measures could be capturing different constructs. The lack of standardized measures in studying death anxiety hinders contextualizing the present study's findings more fully. Given that the current sample only had nine Black participants and published studies on death anxiety and religiosity have recruited very small numbers of Black participants (Wink & Scott, 2005), future research should more specifically address questions related to risk factors for death anxiety, such as experiences of discrimination, and protective factors, such as religiosity, in a larger sample of Black individuals.

Levels of fear of death in the current study were not significantly different than roughly age-matched peers in the original validation study of the DAP-R (Wong et al., 1994). However, the present sample demonstrated lower levels of avoidance of death cognitions compared to age-matched peers in the DAP-R validation study (Wong et al., 1994). In the Wong et al. (1994) study, depressive symptoms and psychological distress were associated with higher levels of death avoidance, and it is possible that the lower levels of death avoidance in the current sample could be due to lower levels of psychological distress. Future research could test this question by including measures of psychological distress and depressive symptoms. It should also be noted that phone interviews for the current study were completed during the summer and fall of 2020 during the Covid-19 pandemic when thoughts of death may have been more unavoidable due to news reports and any personal connections to pandemic-related sickness or death.

The findings of the present study did not find evidence to support the hypothesis that Active Coping would be associated with more positive attitudes towards palliative care. This is inconsistent with expected findings and findings that have demonstrated active coping strategies to be associated with better psychological adjustment to a breast cancer diagnosis (Tschuschke et al., 2017). It is possible that specific active coping strategies, such as cognitive reframing or religiosity, may be associated with higher levels of receptivity towards palliative care.

The present study's findings in the parsimonious approach model demonstrated that coping with social support was significantly associated with more positive attitudes towards palliative care. To this author's knowledge, the association between social support coping and attitudes towards palliative care has not been directly studied in a community sample thus far. Therefore, this finding contributes to the literature by identifying social support coping as a significant psychosocial indicator of attitudes toward palliative care. The present findings build on the literature that has demonstrated increased openness to be associated with lower likelihood to distance from close others in the context of coping with a family stressor (DeLongis, & Holtzman, 2005). If individuals who are likely to cope by reaching out to close others tend to be more open, it may also be of note that recent findings have shown that at a state-wide level, higher levels of openness were associated with increased access to palliative care in that state (Hoerger et al., 2019). These findings suggest that it may be important to understand the role that personality dimensions, including openness, may serve in influencing attitudes towards palliative care. Future studies could explore if coping with social support may have a mediating role in the relationship between openness and attitudes towards palliative care.

Recent findings suggest that depressive symptoms are associated with more negative attitudes towards palliative care in a sample of adult cancer patients (Gerhart et al, 2020). Because depressive symptoms are often accompanied by withdrawal from social support, it may also be important to explore if lack of social support coping and negative attitudes towards palliative care may be related because of a third variable, depressive symptoms, influencing both social support and attitudes, or if this tendency to not engage in social support coping may provide additional explanatory power for understanding attitudes towards palliative care. If palliative care is introduced to patients as an emotionally supportive physician visit, it may be that for individuals who do not regularly express emotions with close others, they may also tend to not be receptive to these conversations in a medical setting. For patients who do not typically cope by engaging in emotionally open conversations with social contacts in their life, it may be worth emphasizing other aspects of how palliative care could be helpful for these individuals, including symptom management and supporting individuals in maintaining routines and traditions that are important to them (Gerhart et al., 2020; Hoerger et al., 2019).

The hypothesis that higher levels of disengaged coping would be associated with less willingness to engage in palliative care was partially supported for men and not for women. While men who endorsed high levels of disengaged coping had less optimistic attitudes towards palliative care, women who indicated using disengaged coping frequently were more open to palliative care. Previous literature suggests that overall, women tend to have more favorable attitudes towards palliative care than men and that societal norms may allow for women to discuss feelings and uncomfortable symptoms, whereas men may find it socially unacceptable to do so and may tend to prefer to not show emotion (Saeed et al., 2018). Findings from the present study extend upon the literature by demonstrating a) the utility of assessing coping styles when studying differences in attitudes toward palliative care and b) the importance of considering how the relationship between coping style and attitudes towards palliative care may depend on gender among older adults. These findings have important implications for palliative care utilization as well in that men tend to have more aggressive care at the end of life compared to women, particularly if they had not discussed their preferences for end-of-life care with their physician (Sharma et al., 2015).

These findings may be partially explained by research demonstrating that women tend to engage in more coping efforts overall compared to men, and women are especially likely to engage in coping that involves cognitive strategies (e.g., reframing) or communicating verbally (e.g., seeking social support) (Tamres et al., 2002). Relative coping provides a quantitative measure to capture how much one engages in a particular coping style as compared to other coping styles (Tamres et al., 2002). Because the current study only looked at raw coping scores and women who engage in high levels of disengaged coping may tend to use other coping styles as well, it may be useful to include relative coping scores in future work. Given that men who endorsed high levels of disengaged coping may not be relying on other coping strategies as frequently as women, they may tend to avoid important sources of coping, such as being open to seeking help from palliative care providers if serious illness were to arise.

Men’s attitudes towards palliative care may function somewhat similarly to men’s receptivity to treatment for mental health. As discussed above, some evidence has shown that depressive symptoms were associated with less positive attitudes towards palliative care (Gerhart et al., 2020), and depressive symptoms can often be accompanied by disengaged coping and withdrawal from social support (Hansen et al., 2013). Men, particularly those who tend to act in accordance with traditional masculinity norms, have shown less willingness to seek help for depressive symptoms (Seidler et al., 2016). However, men may be more open to mental health treatment if it is easy to access and tailored for their needs (Seidler et al., 2016). Future research could explore tailored palliative care messaging for men with serious illness and a disengaged coping style. Brief qualitative responses in the current study demonstrate potential avenues that may be useful for this group, including the idea that palliative care may help the whole family cope. In addition, some male participants' concerns about palliative care, such as the added hassle of asking family members to take them to appointments, may highlight the need for more research on messaging the increasing accessibility to palliative care through options such as telehealth, which has been widely adopted during the Covid-19 pandemic (Lau et al., 2020).

The somewhat low internal consistency of the Disengaged Coping subscale indicates that the subscale items may not all be measuring the same construct. If men and women endorsed different items on this subscale at different rates, this could be driving the different relationships of disengaged coping and attitudes toward palliative care among men and women. Thus, it may be informative to assess if men and women's responses to various items of the Disengaged Coping subscale could be driving the different relationships between disengaged coping and attitudes towards palliative care.

Limitations

The present study has several important limitations to consider in interpreting the findings. First, the analyses were likely underpowered, and a larger sample size may have helped to elucidate better support for or lack of support for the hypotheses. Second, the present sample overrepresented White individuals and individuals with college and graduate degrees. Due to this unrepresentative sample, the findings cannot be generalized to those with less educational attainment and underrepresented ethnic groups, including immigrant, refugee, Latinx, Black and other marginalized communities. Additionally, because the present study only recruited adults ages 65 and older, findings should not be generalized to younger individuals who may cope with stressors differently (Woodhead et al., 2014; Neubauer et al., 2019) and may have less positive attitudes towards palliative care (Collins et al., 2020b).

Because the current study did not include questions related to participants' professional background, the analyses could not control for professional familiarity with palliative care. Anecdotally, the interviewer talked to a number of participants who worked in medical or religious sectors that either put them in contact with palliative care teams or participants indicated they themselves worked as a part of palliative care teams or on palliative care educational initiatives. Some of these individuals noted they were interested in participating because of their previous professional involvement with palliative care, so it is possible the sample is somewhat biased in this respect. Future research should account for both familial and professional experience with palliative care.

The present study also used broad categories of coping styles and each coping domain included a number of different behaviors. This study was limited to looking at the broad factors of coping styles and it is possible that the sex differences observed in the current study may have been driven by differences in distinct coping behaviors (Tamres et al., 2002). Future analyses of this data set could explore sex differences in specific coping strategies, such as distraction, denial or venting, which all were captured within disengaged coping (Peters et al., 2020).

Another limitation of the present study is that the study did not collect specific health status information, such as past and current medical diagnoses. Thus, the relationships between a) presence of serious illness and attitudes towards palliative care and b) specific health status indicators and other variables of interest cannot be studied in this sample.

Because the current study did not include a measure of social desirability, it it unknown whether individuals in this sample tended to present themselves to the interviewer in an overly positive way. Previous research suggests that adults who endorsed high levels of social desirability were less likely to endorse alcohol use and more likely to endorse direct action when coping with a work stressor (Gianakos, 2002). This finding indicates that it may be important to include a measure of social desirability, such as the Social Desirability Scale-17 (Stöber, 2001), in future research to understand how social desirability may influence participants' responses on coping measures.

Conclusions and Implications

The current study extended previous knowledge by testing associations between coping styles and attitudes towards palliative care. The study found that women who engage in high levels of disengaged coping may be more optimistic in their attitudes towards palliative care while men who engage in high levels of disengaged coping may be less favorable in their attitudes towards palliative care. Active coping was not significantly associated with attitudes towards palliative care, and in a parsimonious model, coping with social support was shown to be associated with increased receptivity to palliative care. With educational interventions demonstrating that more exposure to information about palliative care alone did not increase acceptance of a palliative care referral (Graul et al., 2020), it may be important to consider the facilitative and hindering role of attitudes towards palliative care among other factors that may influence palliative care utilization (Bennardi et al., 2020).

The present study adds to the literature by exploring how coping styles serve as an indicator of attitudes towards palliative care. Given that there is some evidence to show that coping styles can be altered with intervention (Grossman et al., 2004; Li et al., 2013), assessing patients’ most frequently used coping styles may be clinically useful. Specifically for men who often use substances, denial, distraction, or other disengaged strategies to cope, providers could rely on integrated behavioral health team members or refer patients to behavioral health providers or mindfulness-based stress reduction programs to assist patients in developing new coping strategies. In turn, change in coping style could be associated with increased receptivity to a palliative care referral. Future research should examine these pathways directly to understand the role that coping styles and attitudes towards palliative care may have on influencing palliative care referral acceptance rates. A recent study showed that one-on-one sessions, which included narrative life review and advance care planning education elements, were associated with improvement in knowledge of and attitudes towards palliative care (Sung et al., 2019). These findings demonstrate that it is possible to change attitudes towards palliative care. However, feasibility of such interventions in clinical settings needs to be explored, and more scalable approaches with emerging evidence may include health care providers presenting evidence of the benefits of palliative care in video or written narrative format (Collins et al., 2020a).

Findings suggest that it may be beneficial to consider individual characteristics, including coping styles and gender, in designing and implementing programs to improve attitudes towards palliative care and potentially improve uptake of palliative care referrals. Future research could also analyze relative coping of different disengaged, active, and social support strategies to understand how individuals’ most frequently used coping style may influence attitudes towards palliative care. In addition, the current study used broad factors of coping, and future studies may identify more nuance in understanding associations between more specific strategies within each of these factors and attitudes towards palliative care.

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Appendix

Although older age was significantly associated with more positive attitudes towards palliative care in the full and parsimonious approach models, this main effect of age was no longer significant once an outlier was removed. This participant reported the most negative views of palliative care of the sample, and upon closer inspection of this individual's open-ended response, she reported a negative experience with her mother's receipt of palliative care. This case demonstrates the importance of qualitative research needed in studying attitudes towards palliative care, and indicates that a more comprehensive open-ended approach with this participant may have yielded a more nuanced understanding of her experience with and attitudes toward palliative care. While the relationship between age and attitudes towards palliative care may not have been significant once this outlier was removed, future research could provide further support that attitudes towards palliative care is associated with age. Given a previously demonstrated association between age and more positive attitudes towards palliative care in a sample of adults ages 30 and older (Chosich et al., 2019), this relationship may be better demonstrated in a sample with a wider age range.