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Original Paper

Religiosity, pain and depression in advanced cancer patients

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Abstract. ***Objective*** *The purpose of the study was to examine the relationship between religiosity, depression and pain in advanced cancer patients admitted in hospice.* ***Methods*** *115 patients with a life expectancy of less than 4 months were interviewed with a series of standardized instruments, including the Hospital Anxiety and Depression Scale (HADS), the Visual Analogue Scale (VAS) and religious data were gathered through a semi-structured oral interview.* ***Results*** *High religiosity was associated with a significantly lower prevalence of depression, but religion was not related to pain perception. Depression was found associated with a higher pain level and the subgroup of breast cancer patients, associated to high private religious activity, was significantly less likely to be depressed.* ***Conclusions*** *This study highlighted the importance of religious practice for many advanced cancer patients admitted in Italian hospices and suggested the utility of incorporating religious beliefs and practice into palliative care approaches.*

Keywords: Religion, palliative care, depression, pain, end of life

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INTRODUCTION The relationship between religiosity and health outcomes has in the last years gained more prominent in the scientific research (Koenig & McCullough, 2001; Koenig *et al*, 2004; Yohannes *et al*, 2008; Bartocci 2009; Bartocci, 2010; Dein & Rashed, 2011). Religiosity plays a major role in the lives of many people and is an important part of the personality. It influences their cognition, affect, motivation and behaviour (Emmons, 1999).

Several authors have underlined the difficulties in defining and claryfing the constructs of religion and spirituality, as well as analyzing the role of cultural influences in determining these concepts among cancer and non-cancer populations (Lukoff *et al*, 1995; Martsolf, 1997; Bender, 2007; Dein, 2011; Rovera, 2011).

Pargament suggested that religion and spirituality are notions that can be understood as a search for the sacred, a process through which people seek to discover, hold on to, and when necessary, transform whatever they hold sacred in their lives (Pargament, 1999; Crane, 2009).

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Although spirituality and religion are often seen as synonymous, important distinctions are emerged between the two constructs (Zinnbauer *et al*, 1997). Spirituality can exist both within and outside of a religious framework, and many individuals who consider themselves spirituals may not adhere to any particular religion (McClain *et al*, 2003). Religion has been described as an organized system of beliefs and worship often associated with social rituals related to a specific culture (Emblen, 1992; Jenkins & Pargament, 1995), whereas spirituality involves the quest for meaning and purpose in life, one's relationship with the transcendent (Sulmasy, 1999).
Religion and spirituality are increasingly recognized as important domains to include in the care for patients with a life-threatening illness (Norum *et al*, 2000; Bovero et *al*, 2010).
Today there is growing body of evidence that religion can buffer depression and support the healing process in medical illness (Koenig & Larson, 1998). Various studies have shown its protective influence on the overall health status (McBride *et al*, 1998), shortening of hospitalization (Koenig & Larson, 1998), strengthening of a patient's capacity to recover from a physical illness (Yohannes *et al*, 2008).
In cancer research, religiosity was mostly assessed in connection with constructs of quality of life, well-being, or adjustment to illness (Plante & Sherman, 2001).
The palliative care literature highlighted the prevalence of depression as an important condition that affected patients'quality of life, perception of pain and the well-being of many terminal cancer patients (Reeve *et al*, 2008). Religiosity is a complex construct and the relationship between depression and religion may change, depending on how religiosity is practiced on which aspects of religiosity are measured (McCullough & Larson, 1999).
Most of the works have so far been concentrated on cancer patients and rarely on specific physical illness (Cohen & Leis, 2002; Hills *et al*, 2005; Tarakeshwar *et al*, 2006). Pain is a multidimensional experience, far beyond a nociceptive signal. It is rooted in our sociocultural context and belief system that also include religiosity (Boothby *et al*, 1999). Beliefs about cause, control, duration, and blame are especially important. Pain beliefs reflect the shared value that circulate through a specific culture and might be dependent on religious denominations (Brena *et al*, 1990).

Given the importance and the high prevalence of religiosity in Italy's population, it is reasonable to research the impact that religious practices might have on depression and pain in cancer patients admitted in hospice at the end of their life.
The aim of this study was to investigate the association between religiosity, defined as a strength of religious faith, depression and pain in terminal cancer patients admitted in hospice.

METHODS

Participants Patients were recruited from January 2009 to March 2010. All were outpatients treated in hospice "Valletta" in Turin. All participants were diagnosed with cancer and had a life expectancy <4 months at the time of admission. To be eligible for the study participation, they were asked to complete a brief cognitive assessment with the Mini-Mental State Examination (MMSE) (Folstein *et al*, 1975). Those who obtained a score of 19 or less were excluded from the study because of concerns they might not be capable to provide a meaningful informed consent or accurate responses to the study test. From the study were also excluded those who were unable to speak Italian fluently or had psychotic mental disorders. The study was approved by the ethic committee of the "San Giovanni Battista" Hospital of Torino. Participants provided written, informed consent according to protocols approved by each site's human subjects committee. During the study period 129 patients were admitted to hospice. One or more study investigators interviewed participants at the bedside with self-report and clinician-rated tests, typically in one or two sessions within the first days after admission. Clinical data were collected from medical charts. Socio-demographic and /religious data were gathered through a semi-structured oral interview.

Measures In a semi-structured oral interview was analyzed the religious practice of the participants of the study. Before was analyzed the religious private practice of the patients ("Do you pray

privately?"; Yes/No) and then the frequency of attendance ("How frequently do you attend church, synagogue or other type of religious services?") uses a 5-point Likert scale ranging from 0= never or almost never to 4= more than once a week.
Hospital Anxiety and Depression Scale (HADS; Zigmond, & Snaith, 1983): it is a 14-item self-report scale that provides scores on two dimensions, depression and anxiety. The two subscales both comprise 7 questions rated from a score of 0 to 3 depending on the severity of the problem described. The HADS has been validated for use in cancer patients (Bjelland *et al*, 2002). Scores of 8 or more are considered to be a significant case of psychological morbidity.
Visual Analogue Scale (VAS; Scott & Huskisson, 1976) assesses the current intensity of pain. It is an horizontal line, 100 mm in length, anchored by word descriptors at each end (no pain at left, very severe pain at right). Patients were requested to show which point on the line best represented their pain intensity. The score is determined by measuring in millimeters from the left end of the line to the point that the patient marks. If the measurement goes beyond 50 mm, the pain intensity is considered relevant.

Statistical analysis The data were analyzed by the Statistical Package for the Social Sciences 17.0. (SPSS Inc., Chicago, IL, USA). Standard descriptive statistics including means, standard deviations, frequency counts and percentages were used to calculate the demographic sample, clinical measures and questionnaire results. The Kolmogoroff-Smirnoff was applied to the normal distribution of continuous data. Bivariate analysis were conducted by using the χ^2 statistics for categorical data, as well as Mann Whitney and Kruskal-Wallis for continuous data. The univariate analysis of variance was used for pain, religiosity and depression. All P values were two-tailed and were estimated at the significance level of .05.

RESULTS One hundred and fifteen patients who have been diagnosed with terminal ill cancer participated in this study.
The distribution of religious affiliations were Catholic (70%, n=81), Protestant (2%, n=2) and (32, 28%) patients indicated no religious affiliation. Sixty-one (53%) were spending time in private religious activities such as prayer or bible reading at least daily and 54 (47%) weren't spending time in private religious activities. Thirty patients (26%), at least weekly, attended religious activities, while 51 patients (44%) attended sometimes church activities monthly and 34 (30%)(never attended sometimes church activities monthly. **Table 1** describes demographic, religious practice and clinical characteristic of sample.
By using HADS-D, 79 patients (68%) fulfilled the criteria for clinical depression (≥8). Frequencies of religious practice and depressed and non depressed subjects are given in **Table 2**.
We divided the sample into two groups (VAS<5 vs VAS≥5), we found that 42 (37%) were in low-pain group and 73 (63%) in high-pain group.

Table 1 Demographic, Clinical and Spirituality/Religious Characteristics

Characteristic		*N (Tot: 115)*	*%*
Gender	Male	78	67.8%
	Female	37	32.2%
Age	Mean	67.06	
	Range	21 – 82	
	SD	12.31	
Marital Status	Single	18	15.7%
	Married	53	46.1%
	Separate/Divorced	6	5.2%
	Widowed	38	33%
Work	Student	4	3.5%
	Employee	30	26.1%
	Housewife	6	5.2%
	Retired	75	65.2%
Education	Primary School	31	27%
	Middle School	46	40%
	Secondary School	32	27.8%
	Degree	6	5.2%
Caregiver	Spouse	54	47%
	Child	35	30.4%
	Family member	10	8.7%
	Friend	4	3.5%
	Carer	10	8.7%
	No-one	2	1.7%
Cancer Location	Colon-rectum	24	20.9%
	Breast	10	8.7%
	Lung	20	17.4%
	Head-neck	10	8.7%
	Hepatic – pancreas	14	12.2%
	Prostate	11	9.6%
	Hematologic	4	3.5%
	Dermatologic	2	1.7%
	Central Neuronal System	2	1.7%
Stage of Illness	Local	20	17.4%
	Loco-regional	22	19.1%
	Metastatic	73	63.5%
Religion Affiliation	Catholic	81	70%
	Protestant	2	2%
	No Religious affiliation	32	28%
Regular private religious practice	Yes	65	56%
	No	50	44%
Religious activities	Weekly	30	26%
	Sometimes	51	44%
	Never	34	30%

Table 2 Depressive and non depressive subjects, pain means and standard deviations, based on category of religious practice

Religious practice	**Depression, N (%)**		**Pain, Mean (S.D.)**	
	Present	**Absent**	**High**	**Low**
Yes	30 (38%)	17 (47.2%)	70.25 (1.10)	20.39 (1.42)
No	49 (62%)	19 (52.8%)	50.42 (1.15)	20.78 (1.61)

Religion and depression In order to evaluate the differences between categories of depression and religion, we performed the χ^2 test that showed statistically significant differences between them (χ^2 =2.92; df=1; p=0.013). Depression was less prevalent in the high regular religious practice group. The data are presented in **Table 2**.

Religion, depression and pain The mean self-perception of pain on VAS was 46.5 mm (median, 42.0; S.D., 22.3; range 5-100). Due to skewed distribution of pain self-perception in this population (Kolmogoroff-Smirnoff test z=0.794; P=.02), the methods of nonparametric statistics were used.
The difference in pain perception across the different religious denominations was not statistically significant (χ^2=2.65; df=3; P=.098).
Means of pain and standard deviations across the two categories of religious practice are shown in **Table 2**.
A Mann-Witney test showed that the difference in pain perception between depressed and nondepressed subjects was statistically significant (U=1089; P=.009). The interaction between religiosity and depression related to the perception of pain in the univariate analysis of variance was not statistically significant.

Religiosity, depression and disease characteristics There were no difference across the categories of religious practice and cancer location, and between depressed and nondepressed patients and cancer location but the χ^2 test, showed that breast cancer patients in the group who has a high private religious activity were significantly less likely to be depressed (χ^2=9.55; df=2; P=.008).

DISCUSSION

The purpose of this study was to investigate the association between religiosity, depression and pain in terminal cancer patients admitted in hospice. Depression was less prevalent in the high-religious practice group of breast cancer patients. The results were in accordance with most of the previous research that had found significant associations between higher religiosity and lower depression level (Smith *et al*, 2003; McClain-Jacobson *et al*, 2004). Our study did not reveal results for particular religion affiliations, as the research had been conducted in a highly predominat Roman Catholic population (70%).
Religiosity was mainly associated with older age, lower education, retired status. The elderly are generally more dedicated to religion (McCullough & Larson, 1999; Goodwin *et al*, 2001), partly because they are generally retired and less educated, and have less access to secular resources for coping (McCullough & Larson, 1999). Religiosity is a more easily accessible coping resource, which gives them the feeling of self-esteem, offers hope and provides a positive effect on quality of life. (Krause, 2004; Crane, 2009). The high prevalence of depressed subjects in the sample is due to their old age, which is especially vulnerable to depression, to the worsening of the illness towards the terminal or end of life stage (Nelson *et al*, 2002; Reeve *et al*, 2008), and to the presence of stressogenic factors such as admission in hospice, separation from home and family.
The mechanism through which religion may be associated with low depression are various: religion promotes social support by providing social networks conductive to mental health and helps people coping with problems and uncontrollable events, such as physical illness (Pargament, 1997). Religion could prevent pessimistic attribution and might influence the stress-vulnerability equilibrium decreasing hopelessness (Bjorck & Thurman, 2007). A truly religious person could be more efficient in adapting to trauma and finding a meaning in suffering more easily (Emmons, 1999). In fact, those who find meaning from their religious beliefs and activities, might buffer better depression (Nelson *et al*, 2009).
We may understand the impact of religion on psychical health within the frame of advances in psychoimmunoendocrinological research. It could be hypothesized that religious commitment improves stress control and even plays an immunomodulatory role (Siegel *et al*, 2001; Lissoni *et al*, 2001; Kiecolt-Glaser *et al*, 2002).

The findings that breast cancer patients were less depressed and associated to higher private religious practice demonstrated that religion could facilitate coping with the worsening of the illness (Gall *et al*, 2000). Therefore progression of cancer might increase religiosity, which tends in turn to diminish negative effects of this stress (Prince, 1970, Bartocci, 2011). The religious experience could be defined as a fictional reality (Girotto *et al*, 2008): this fiction, according to the Comparative Individual Psychology (Adler, [1912] 1971), could protect terminal patients them from a complex of inferiority at the end of the life (Bovero *et al*, 2011). Trust in God, belief in afterlife, finding blessing in their lives and appraising their cancer experience in a religious light are typical mechanisms used by women with breast cancer (Crane, 2009).

In this study pain perception was not significantly associated with religious practice. It was higher in the high religious practice group. Relationship between religion and pain is complex. Religion and pain may be related only indirectly, given that high religiosity is associated with less depression, which is in turn related to pain. Accordingly, religiosity may buffer the depression-evoking effect of pain. Besides spirituality and religion could have a significant bearing on patients' beliefs about pain, strategies for coping with pain and approaching pain management (Unruh, 2007; Büssing *et al*, 2009).

Perhaps patients who experienced greater physical symptoms turned to religion more often for strength, comfort and guidance (Tarakeshwar *et al*, 2006). Yates and colleagues (1981) reported that religious beliefs were associated with pain, particularly in patients with advanced cancer. Sensing a religious purpose could allow to overcome illness and might help to reach a positive transformation through suffering. Private religious practice might be psychologically beneficial because it might offer ways to provide people with emotional comfort and to find personal strength in the face of persistent pain (Norum *et al*, 2000). Patients coping with the illness through prayers might feel they are abandoning their spiritual mission if they turn from fighting cancer to accepting the limitations of medicine and preparing for death (Phelps *et al*, 2009).

In literature several studies indicated that religious involvement is related to better mental and physical health, improving both the capacity of coping illness and the medical outcomes (Rippentrop *et al*, 2005). In fact chronic pain patients are reported to use a number of cognitive and behavioural strategies to cope with their pain, including religious/spiritual forms of coping, such as prayer, and seeking spiritual support to manage their pain (Wachholtz *et al*, 2007).

This study has some methodological limitations. Its cross-sectional design prevented any causal statement to be made. Comorbid medical conditions were not compared and adjusted for subgroups. Also, the presence of potentially depressogenic effects of the therapy and symptoms that could be attributed to patients' malignant cancer (fatigue, loss of energy, appetite loss, weight loss) were not excluded during the assessment of depression. This limitation is partly reduced by using HADS-D that focused on cognitive and affective components of depression rather than on the physical manifestation of depression and is considerable to be a sensible tool applicable to medically ill populations such as cancer patients (Olssøn *et al*, 2005). The generalizability of the results is limited by the afore mentioned study limitations and characteristics of the study sample (e.g. mostly catholic).

CONCLUSIONS This study highlighted the importance of religious practice for many Italian advanced cancer patients admitted in hospice. Religion seems to be associated with a lower prevalence of depression, especially for the high religious practice group of breast cancer patients. In this study religion seems to be an important coping strategy for patients with pain but was not related to the intensity of pain perception.

These results suggested that further investigations should be undertaken in order to elucidate the clinical utility of incorporating religious beliefs and practice into palliative care approaches. This might include openness towards discussing existential or spiritual issues in psychological intervention or referring to clergy.

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