Original Article

Religion and Marital Status amongst Colorectal Cancer Patients in Kwazulu-Natal, South Africa: Potential Tools for Cancer Control

Yoshan Moodley, PhD
Senior Lecturer, Division of Health Systems and Public Health, Stellenbosch University, Cape Town, South Africa
Honorary Research Fellow, Durban University of Technology, Durban, South Africa

Ntokozo Sibisi, MSocSc
Research Assistant, Inkosi Albert Luthuli Central Hospital, Durban, South Africa

Sphelelisiwe Sikhahlane, MTech
Research Assistant, Inkosi Albert Luthuli Central Hospital, Durban, South Africa

Place where research was conducted: Inkosi Albert Luthuli Central Hospital, 800 Vusi Mzimela Rd, Umkumbaan, Durban 4091, South Africa

Correspondence: Dr. Yoshan Moodley, Division of Health Systems and Public Health, 4th Floor Education Building, Faculty of Medicine and Health Sciences at Stellenbosch University, Francie van Zijl Drive, Tygerberg, Cape Town 7505, South Africa; email: yoshanm@sun.ac.za

Abstract
Background: Colorectal cancer (CRC) is an emerging public health problem in South Africa. Patient spirituality/religion and marital status appear to be important contributors to effective cancer control. Great potential exists for developing setting-specific interventions to improve CRC treatment compliance which leverage patient religion/marital status, however there is a lack of quantitative data to inform this.
Objective: Conduct a quantitative analysis to establish the religious affiliation and marital status of CRC patients in KwaZulu-Natal Province (KZN), South Africa.
Methodology: We conducted a retrospective analysis of data from the electronic admission system at a hospital in Durban, KZN. Patients attending the hospital between 1 January 2012 and 31 December 2017 with a primary International Classification of Disease 10th Revision (ICD-10) diagnosis code indicative of CRC were included in the study sample. Data on each patient's age, gender, race, religion, marital status, and comorbidities was also collected. The data was analysed with descriptive statistics.
Results: Our study sample consisted of 932 CRC patients, with a median age of 59.0 years. Just over half the study sample was male (53.0%). The predominant race group was Black African (45.8%). Important comorbidities included hypertension (23.5%), HIV (15.7%), and diabetes mellitus (12.7%). Metastatic CRC was recorded in 18.5%. Nearly two-thirds of all CRC patients identified with a religion (63.0%), and just over half of all CRC patients were married (53.8%). Similar results were observed when our analysis was restricted to patients with metastatic CRC (67.5% identified with a religion and 58.1% were married).
Conclusion: A substantial proportion of CRC patients in KZN, South Africa identify with a religion and/or are married. Thought should be given to leveraging religion and spouses to improve CRC control in this setting. Peer-led interventions might be an alternative approach when CRC patients do not identify with a religion or are unmarried.

Keywords: Colorectal cancer, Religion, Marital Status, South Africa.

Introduction

Colorectal cancer (CRC) is amongst the most important cancers, with nearly 2 million incident cases and an estimated 940000 deaths attributed to the disease around the world during 2020 (Xi & Xu, 2021). CRC has become a significant public health problem in many African countries, with trends analyses for the period 2010-2019 showing that CRC incidence, associated deaths and associated disability increased by 41-48% on the continent (Awedew, Asefa & Belay, 2022). CRC incidence has increased markedly amongst the South African population in the past few decades, and it is consistently ranked amongst the most important causes of cancer-related mortality in the country (Motsuku et al., 2021).

Once diagnosed, patients with CRC are offered surgery and/or chemoradiation therapy as part of their recommended treatment (Moodley et al., 2022). However, a proportion of these patients will receive incomplete treatment or not receive their recommended treatment at all. Patient decision-making is a major determinant of cancer treatment non-compliance, and appears to be influenced by spirituality/religion (Salsman et al., 2015; Jim et al., 2015), as well as marital status (Moodley et al., 2022). This is unsurprising, considering that a diagnosis of cancer will likely have profound psychosocial and spiritual effects in newly diagnosed patients (Seiler & Jenewein, 2019). The published literature from outside of Africa highlights the importance of patient spirituality and religion during the cancer treatment process (Jim et al., 2015; Salsman et al., 2015). As such, The American Society of Clinical Oncology recommends that healthcare workers address the spiritual needs of cancer patients in clinical settings (Puchalski et al., 2019). Quantitative studies from outside the African continent report that the odds of treatment refusal in married CRC patients are significantly lower when compared with unmarried CRC patients (Moodley et al., 2022). In the South African context, a qualitative study from KwaZulu-Natal Province confirms the findings from elsewhere which highlight the potential importance of religion/spirituality and marital status in improving CRC treatment compliance (Moodley et al., 2023).

Given the current public health problem posed by CRC in South African settings (Motsuku et al., 2021), this does set the scene for the development of setting-specific interventions for treatment compliance which leverage patient religion and marital status. However, there is a lack of quantitative data, which is also required to inform these interventions. The objective of our research study was to conduct a quantitative data analysis to establish the religious affiliation and marital status of CRC patients in KwaZulu-Natal Province (KZN), South Africa.

Methodology

Study design and setting: Our study was a retrospective analysis of data from the electronic hospital admission system at the quaternary-level Inkosi Albert Luthuli Central Hospital (IALCH) located in Durban, South Africa. IALCH serves the ethnically diverse population of KZN with specialized medical and surgical services. Most patients attending IALCH are referred from lower-level hospitals in KZN.

Study sample: All patients who attended IALCH between 1 January 2012 and 31 December 2017 with a primary International Classification of Disease 10th Revision (ICD-10) diagnosis code indicative of CRC were included in the study sample. The specific ICD-10 codes used to identify these patients are shown in Table 1.

Data source and data description: A Microsoft Excel spreadsheet was used to extract data from the electronic hospital admissions system for each CRC patient during the study period. The following variables were collected from the hospital admissions system: Date that the patient visited IALCH, the patient's age in years, gender, race, comorbidities, religion, and marital status. Comorbidities were based on the ICD-10 definitions used in the Charlson Comorbidity Index (Sundararajan et al., 2004), and were collapsed for some related disease categories due to the low number of cases for certain comorbid conditions in our study sample. Religion was recorded on the hospital admissions system when the patient first presented to hospital and was extracted as per the patient's response provided to the

hospital admissions clerk. Marital status was also recorded on the hospital admissions system when the patient first presented to hospital, and was extracted as follows: divorced, married, single, unknown and Widow/Widower. For the purposes of this study, patient marital status was broadly categorised as married or unmarried (includes divorced, single, widowed, and unknown marital status).

Data analysis: Our data analysis was performed using Microsoft Excel. The study data were analysed using descriptive statistics. Continuous variables were summarised as medians with interquartile range. Categorical variables were summarised as frequencies and percentages.

Ethical approval: Our study was approved by the Biomedical Research Ethics Committee of the University of KZN, South Africa (BE595/16).

Results

The characteristics of our study sample (N=932) are presented in Table 2. The median age was 59.0 years old and just over half of our study sample was male (494 patients, 53.0%). The predominant race group was Black African (427 patients, 45.8%). The three most common comorbidities were hypertension (219 patients, 23.5%), HIV (146 patients, 15.7%), and diabetes mellitus (118 patients, 12.7%). There were 172 patients (18.5%) who had metastatic CRC. The overall proportion of patients identifying with any religion is provided in Figure 1. Nearly two-thirds of the study sample (587 patients, 63.0%) identified with a religion. The most common religion was Christianity (433 patients, 46.5%), followed by Hinduism (120 patients, 12.9%), Islam (24 patients, 2.6%), African Zionism (9 patients, 1.0%), and Buddhism (1 patient, 0.9%). There were 5 patients (0.5%) who specified that they did not identify with any religion, and 340 patients (36.5%) who declined to provide information on which religion they identified with. Figure 2 shows the proportion of our study sample who were married. Just over half of our study sample were married (n=501, 53.8%). The unmarried patients were as follows: Divorced (49 patients, 5.3%), Single (284 patients, 30.5%), Widow/Widower (81 patients, 8.7%). There were 17 patients (1.8%) who did not openly disclose their marital status, and these patients were considered unmarried. The proportion of patients with metastatic CRC who identified with any religion is provided in Figure 3. Similar to the results obtained for the overall study sample, two-thirds of patients with metastatic CRC (113 patients, 67.5%) had identified with a religion. The most common religion in patients with metastatic CRC was Christianity (90 patients, 52.3%), followed by Hinduism (17 patients, 9.9%), Islam (3 patients, 1.7%), and African Zionism (3 patients, 1.7%). There was 1 patient (0.6%) who did not identify with any religion, and 58 patients (33.7%) who declined to provide information on religious affiliation. The proportion of patients with metastatic CRC who were married is shown in Figure 4. Approximately 6 in every 10 patients with metastatic CRC were married (n=100, 58.1%). The unmarried patients with metastatic CRC were recorded as divorced (10 patients, 5.8%), single (40 patients, 23.3%), and widow/widower (19 patients, 11.0%), and those who did not openly disclose their marital status (3 patients, 1.7%).

Table 1. Diagnosis codes used to identify patients with colorectal cancer

ICD-10 code	Diagnosis description
C19	Malignant neoplasm of rectosigmoid junction
C20	Malignant neoplasm of rectum
C21.1	Malignant neoplasm, anal canal
C21.0	Malignant neoplasm, anus, Unspecified
C18.9	Malignant neoplasm, colon, Unspecified
C21.8	Malignant neoplasm, overlapping lesion of rectum, anus and anal canal
C78.5	Secondary malignant neoplasm of large intestine and rectum

Table 2. Description of the study sample (N=932)

Characteristic	Summary statistic
Age	
Median, years (Interquartile range)	59.0 (46.3-68.0)
Gender	
Male, n (%)	494 (53.0%)
Female, n (%)	438 (47.0%)
Race	
Asian, n (%)	356 (38.2%)
Black, n (%)	427 (45.8%)
White, n (%)	108 (11.6%)
Mixed, n (%)	25 (2.6%)
Other, n (%)	8 (0.9%)
Unknown, n (%)	8 (0.9%)
Comorbidities	
Cardiovascular disease	43 (4.6%)
Liver disease	6 (0.6%)
Diabetes Mellitus	118 (12.7%)
Other cancer	9 (1.9%)
Metastatic cancer	172 (18.5%)
HIV	146 (15.7%)
Hypertension	219 (23.5%)
Chronic obstructive pulmonary disease	31 (3.3%)
Connective tissue disease	30 (3.2%)
Peptic ulcer	3 (0.3%)
Renal disease	13 (1.4%)

Figure 1. Proportion of the study sample identifying with any religion (N=932)

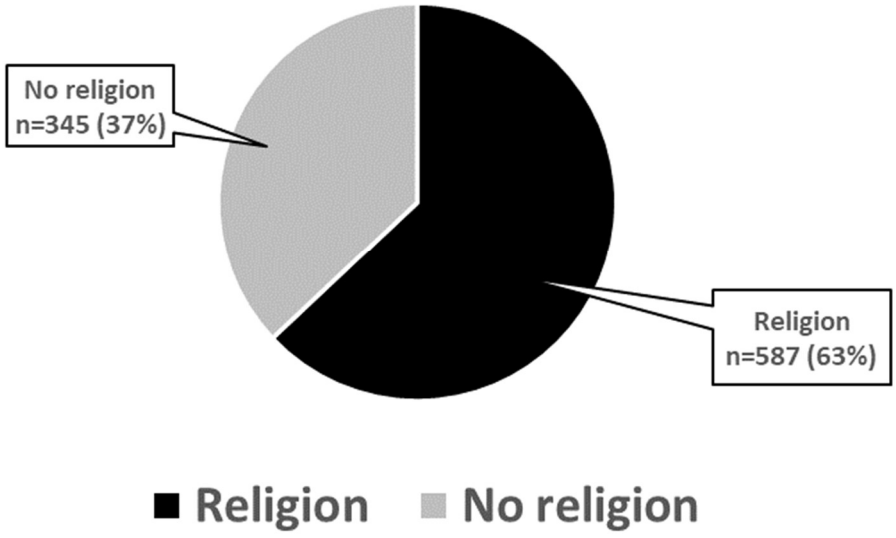


Figure 2. Marital status of the study sample (N=932)

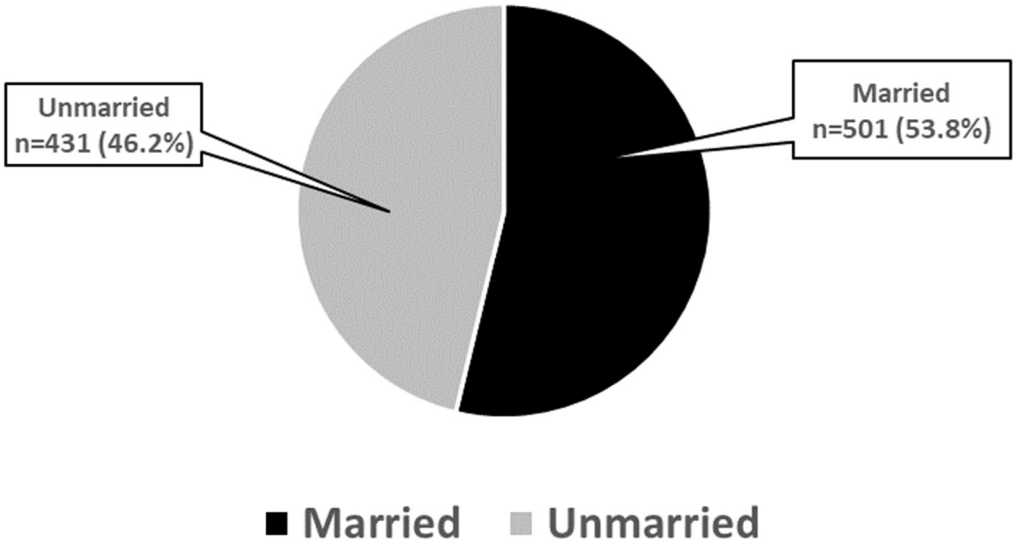


Figure 3. Proportion of the patients with metastatic cancer identifying with any religion (N=172)

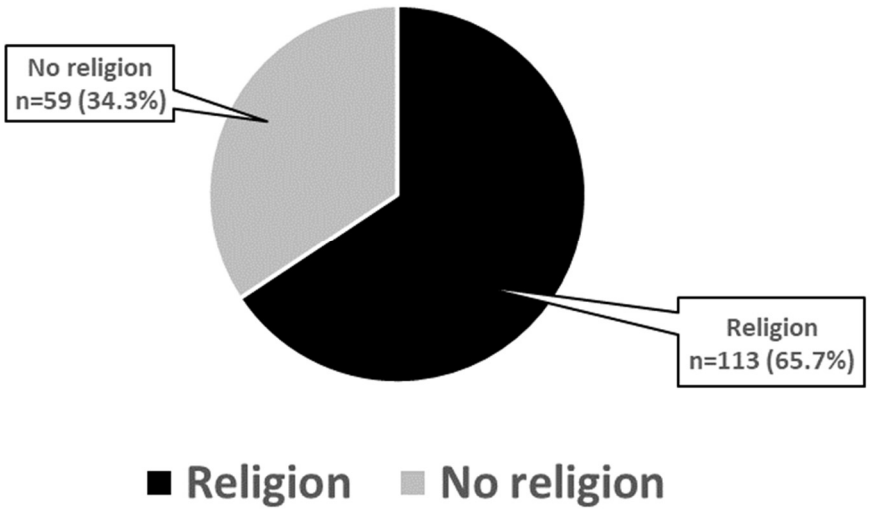
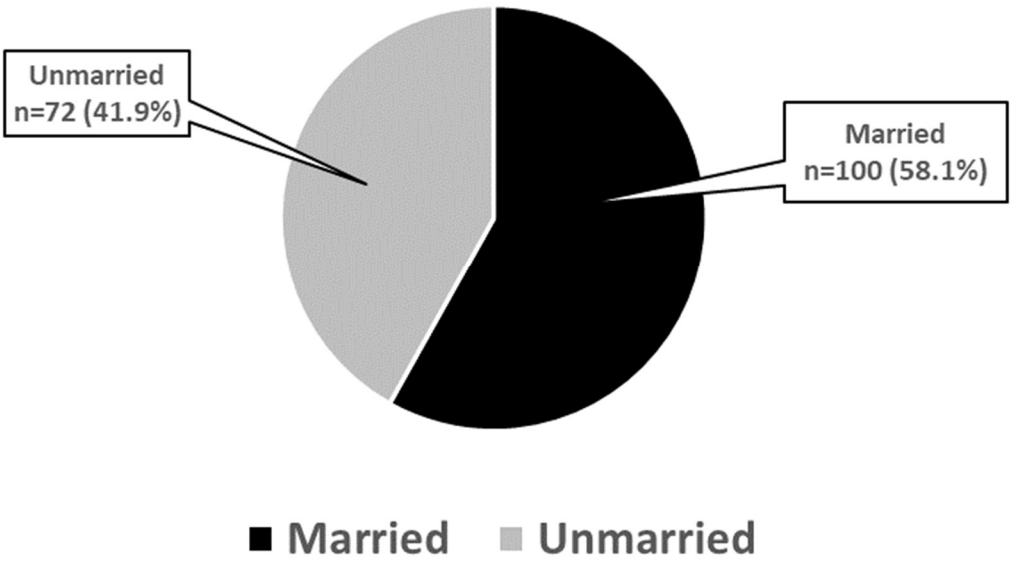


Figure 4. Marital status in patients with metastatic cancer (N=172)



Discussion

The main findings of our study were that nearly two-thirds of all CRC patients identified with a religion, and just over half of all CRC patients were married. Similar results were observed when our analysis was restricted to patients with metastatic CRC.

A diagnosis of cancer can have devastating effects on a patient. Given the fatalistic view of the condition (Powe & Finnie, 2003), cancer patients are often overwhelmed by feelings of fear, uncertainty, and hopelessness (Niedzwiedz et al., 2019). Religion plays a key role in facilitating psychosocial adjustment to a diagnosis of cancer, as well as the treatment journey that awaits most patients (Mytko & Knight, 1999). Patients rely on religion as a coping mechanism for their disease (Weaver & Flannelly, 2004), with many patients drawing strength from personal prayer (Jors et al., 2015). Similarly, spirituality and religion serve as a coping mechanism for the families and care givers of persons afflicted with cancer (Weaver & Flannelly, 2004). The potential psychosocial support for cancer patients available through other members of a religious institution cannot be overlooked - prayer groups serve as important interactions from which cancer patients can draw additional motivation, strength, and courage for coming to terms with their disease (Bahrami et al., 2010). This is even more important in the context of metastatic disease (present in nearly one-fifth of our study sample), which carries a poor prognosis (Biller & Schrag, 2021). There is also evidence that spirituality is positively correlated with a higher quality of life in cancer patients, and a strong spiritual foundation has been linked with less severe pain and fatigue in patients who are spiritual or religious (Weaver & Flannelly, 2004). Aside from the support and motivation which could be potentially offered through religious institutions, there is the possibility that the relationship between religious leaders and communities can be leveraged to deliver health information. An example of this approach would be encouraging pastors to integrate important health information on cancer into their sermons (Allen et al., 2014). This approach would be of benefit in communities where there are high levels of mistrust in medical professionals. Lastly, the physical structure of a church building or other place of worship could be a useful platform for implementing CRC awareness and screening campaigns (Allen et al., 2014). This is important in resource-constrained settings, such as South Africa, where some communities might lack access to health information and disease screening because healthcare facilities offering these services might be located a far distance away from the communities (Morris-Paxton, Reid & Ewing, 2020). Therefore, our finding that nearly two-thirds of all CRC patients in our setting identify with a religion is indeed encouraging, and further highlights a crucial role for religious organisations as partners in cancer control efforts in our setting.

The bulk of the published literature suggests that the odds of treatment refusal in married CRC patients is almost half that observed in unmarried CRC patients (Moodley et al., 2022). Spouses can be a source of motivation for cancer patients, and encourage them to continue with their treatment plan (Regan et al., 2015). A spouse may also provide other forms of support for a cancer patient - for example ensuring other aspects of general health of the cancer patient are addressed. This would include supporting adequate nutrition at home (Opsomer et al., 2019; Jeong et al., 2019), which is essential during cancer treatment; and transporting or accompanying the cancer patient to hospital for treatment (Jeong et al., 2019). The role that spouses play in a patient's decision making around their treatments is also important in the African context, where female patients might consult their husbands before they choose to accept or refuse a medical treatment (Osamor & Grady, 2018). As with religion, it is heartening that a notable proportion of CRC patients in this study were married as it suggests that there is an opportunity to strengthen the existing, well-established roles of the spouse to improve a patient's compliance with cancer treatment. However, the question must be asked – Where can a patient draw psychosocial support if he/she does not have a spouse or does not identify with a religion? Herein lies a role for peers - cancer survivors who have already traversed the treatment pathway that a newly diagnosed patient is about to embark on. In addition to offering psychosocial support, well-trained

peers act as patient navigators, guiding newly diagnosed cancer patients through the difficult and often confusing treatment pathway (Kanters et al., 2018). Peer-led interventions for infectious disease have been successful in South African settings (Sifunda et al., 2008; Parker, Jelsma & Stein, 2016; Shahmanesh et al., 2021), and there is no reason to doubt that this would be successful when applied to a cancer population.

A limitation of this study was that ICD-10 coding was used to identify CRC patients attending IALCH. It is therefore possible that some patients might have been incorrectly misclassified as CRC patients, or there might have been some CRC patients who were incorrectly misclassified as having another diagnosis. We do believe that this misclassification error was minimized by the quality control processes implemented by the medical coding and billing department at IALCH. Another limitation was that granular information on the extent of a patient's spirituality, or the quality of his/her marriage was lacking in the hospital admission data, and thus could not be assessed in this research. This research study was designed to establish the proportion of CRC patients in our setting who identified with any religion and who were married, and the data did not support an analysis which sought to link religion/spirituality and marital status with CRC patient treatment and clinical outcomes – there is already a wealth of existing published literature which attests to the potential positive effects of religion/spirituality and marital status on CRC patient treatment and clinical outcomes (Jim et al., 2015; Moodley et al., 2022; Salsman et al., 2015).

In conclusion, this study reports a substantial proportion of CRC patients in KZN, South Africa identify with a religion and/or are married. These findings are important, given that the bulk of the published literature reports that psychosocial support and other forms of support provided by religious organisations or spouses can improve CRC patient treatment and clinical outcomes. Our findings give credence to the future leveraging of religion and spouses as tools to improve CRC control in this setting. Peer-led interventions should also be considered for CRC patients who do not identify with a religion or who are unmarried.

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