Cancer Patient use of Religious/Spiritual Coping to Deal with the Toxicities of Chemotherapy

Abstract

Introduction: Cancer is considered a serious public health problem and a stressful event in the lives of patients. That is because the emotional impact of the diagnosis and the psychological damage during treatment are significant, especially in patients undergoing antineoplastic chemotherapy, which expose them to undesirable toxicities. Therefore, cancer patients need to marshal adaptive personal resources to deal with various types of discomfort, a coping process that can be associated with a reliance on religion, spirituality, or faith (religious/spiritual coping). Objective: To investigate the relationship between the use of religious/spiritual coping and the organic responses to the toxicities of chemotherapy. Method: This was an analytical, observational, cross-sectional, correlational study. Using non-probability sampling, we selected 40 patients under treatment in the high complexity oncology unit of a university hospital. We applied a custom sociodemographic/health questionnaire and the brief religious coping scale. Results: In general, religious/spiritual coping, positive and negative, was moderately employed by all participants, regardless of the degree of the toxicities. Conclusion: We conclude that cancer patients undergoing chemotherapy use positive and negative coping strategies, although positive coping was used to a greater degree in our sample.

Key words: Drug Therapy; Spirituality; Toxicity.

Resumo

Introdução: O adoecimento por câncer é considerado um grave problema de saúde pública e um evento estressante na vida dos pacientes. Isso porque é significativo o impacto emocional diante do diagnóstico e o desgaste psíquico durante o tratamento, sobretudo no que toca à quimioterapia antineoplásica, que expõe o paciente a toxicidades indesejáveis. Nesse sentido, emerge a necessidade de mobilização de recursos pessoais adaptativos para lidar com os diversos desconfortos, processo este compreendido como coping, podendo ainda estar associado ao uso da religião, espiritualidade ou fé (coping religioso/espiritual). Objetivo: Investigar a relação entre o uso do coping religioso/espiritual e as respostas orgânicas às toxicidades da quimioterapia. Método: Estudo analítico, observacional, com corte transversal e delineamento correlacional. A amostra não probabilística foi composta por 40 pacientes da Unidade de Alta Complexidade em Oncologia de um Hospital Universitário. Como instrumentos, foram utilizados um questionário sociodemográfico e de saúde, e a escala de coping religioso/espiritual. Resultados: De um modo geral, o coping religioso/espiritual tanto positivo como negativo foi moderadamente utilizado por todos os participantes, independentemente do nível de toxicidades. Conclusão: A partir dos resultados encontrados, conclui-se que os pacientes com câncer submetidos à quimioterapia fazem uso tanto de estratégias de coping positivas como negativas, sendo as positivas utilizadas em maior intensidade. Palavras-chave: Tratamento Farmacológico; Espiritualidade; Toxicidade.

Resumen

Introducción: La enfermedad por cáncer se considera un grave problema de salud pública y un evento estresante en la vida de los pacientes. Esto es porque es significativo el impacto emocional ante el diagnóstico y el desgaste psicológico durante el tratamiento, sobre todo, en lo que toca a la quimioterapia antineoplásica, que expone al paciente a toxicidades indeseables. En este sentido, emerge la necesidad de movilización de recursos personales adaptativos para lidiar con las diversas incomodidades; proceso este comprendido como coping, pudiendo aún estar asociado al uso de la religión, espiritualidad o fe (coping religioso/espiritual). Objetivo: Investigar la relación entre el uso del coping religioso/espiritual y las respuestas orgánicas a las toxicidades de la quimioterapia. Método: Estudio analítico, observacional, con corte transversal y delineamiento correlacional. La muestra no probabilística fue compuesta por 40 pacientes de la Unidad de Alta Complejidad en Oncología de un Hospital Universitario. Como instrumentos se utilizaron un cuestionario socio demográfico y de salud y la escala de coping religioso-espiritual. Resultados: En general, el coping religioso espiritual, tanto positivo como negativo, fue moderadamente utilizado por todos los participantes, independientemente del nivel de toxicidades. Conclusión: A partir de los resultados encontrados se concluye que los pacientes con cáncer sometidos a quimioterapia hacen uso tanto de estrategias de coping positivas como negativas, siendo las positivas utilizadas en mayor intensidad. Palabras clave: Tratamiento Farmacológico; Espiritualidad; Toxicidad.

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INTRODUCTION

Cancer is the name given to a set of more than one hundred diseases in which abnormal cells of the body multiply and spread in an uncontrolled way, potentially invading organs and tissues, as well as being able to spread to other regions of the body via metastatic processes. Despite the fact that cancer has been known for millennia, the patterns of health and illness in the population have been modified by the process of industrialization, which has increased the incidence of the disease, making it a serious global public health problem.

The onset of cancer is also a potentially stressful event. That is because the emotional impact of the diagnosis and the psychological effect of the treatment are considerable, especially in relation to antineoplastic chemotherapy, which exposes the patient to various toxicities. Such toxicity is defined as the inherent capacity and potential of a toxic agent to have harmful effects on living organisms. Chemotherapeutic agents have no specificities; they simultaneously attack cancerous cells and highly proliferative normal cells, especially hematopoietic (bone marrow) cells, germ cells, hair follicles, and gastrointestinal tract cells, because such cells have high mitotic activity. Therefore, the experience of chemotherapy requires that the patient, in most cases, live with undesirable toxic effects, such as hair loss (alopecia), nausea, vomiting, loss of or decrease in physical strength (asthenia), and diarrhea, potentially making the chemotherapy more harmful than the cancer itself.

In fact, people living with cancer, especially those undergoing chemotherapy, are expected to marshal psychosocial resources to deal with the level of stress undergoing chemotherapy, are expected to marshal effects on living organisms. Chemotherapeutic agents have no specificities; they simultaneously attack cancerous cells and highly proliferative normal cells, especially hematopoietic (bone marrow) cells, germ cells, hair follicles, and gastrointestinal tract cells, because such cells have high mitotic activity. Therefore, the experience of chemotherapy requires that the patient, in most cases, live with undesirable toxic effects, such as hair loss (alopecia), nausea, vomiting, loss of or decrease in physical strength (asthenia), and diarrhea, potentially making the chemotherapy more harmful than the cancer itself.

In a recent study, Carvalho et al. evaluated the effect of religious/spiritual coping (RSC) on anxiety in cancer patients undergoing chemotherapy, demonstrating an inverse relationship between anxiety and non-organizational religiosity; that is, individualistic religious activities. They concluded that greater spiritual involvement results in less anxiety. In that context, prayer was efficacious in reducing anxiety in cancer patients.

A study conducted by Ottati and Campos synthesized several studies about the relationship between RSC and physical or mental health in different groups and clinical conditions. They found that in HIV-infected men some types of RSC were associated with fewer symptoms of depression and higher CD4 counts. In hospitalized elderly individuals, the authors found that RSC was associated with lower cognitive and depressive symptoms, as well as with fewer feelings of unhappiness, failure, and hopelessness.

In an article reviewing the literature on RSC, Panzini and Bandeira synthesized several studies about the relationship between RSC and physical or mental health in different groups and clinical conditions. They found that in HIV-infected men some types of RSC were associated with fewer symptoms of depression and higher CD4 counts. In hospitalized elderly individuals, the authors found that RSC was associated with lower cognitive and depressive symptoms, as well as with fewer feelings of unhappiness, failure, and hopelessness.

In a recent study, Carvalho et al. evaluated the effect of prayer has on anxiety in cancer patients undergoing chemotherapy, demonstrating an inverse relationship between anxiety and non-organizational religiosity; that is, individualistic religious activities. They concluded that greater spiritual involvement results in less anxiety. In that context, prayer was efficacious in reducing anxiety in cancer patients.

A study conducted by Ottati and Campos, the objective of which was to determine the relationship between the perceived quality of life and coping strategies in 42 patients undergoing chemotherapy,
showed that the individuals who were in the initial phase of the treatment made greater use of strategies that modify or alter the stressor event (the chemotherapy) in order to control or better deal with the situation (problem-focused coping strategies), as well as becoming more involved with religious practices to assist the coping process (search through religious practices), but also presented a better perception of their affective or cognitive condition (psychological domain).

Although RSC is a construct that is gradually being more widely studied in the area of health, there are still gaps in relation to its correlation with cancer treatment, especially chemotherapy and adverse effects. In this sense, the present study could contribute to the investigation in the field of the RSC strategies used by cancer patients, especially with regard to dealing with the toxicities resulting from chemotherapy. In addition, it might be useful to promote self-awareness on the part of patients and, nevertheless, the planning of therapeutic interventions that include the religious/spiritual dimension.

The objective of this study was to investigate the relationship between the use of RSC and the organic responses to chemotherapy toxicities. The specific objectives were as follows: to build a clinical and sociodemographic profile of cancer patients undergoing chemotherapy in the high complexity oncology unit of a University Hospital; to identify the most prevalent types of coping among participants; to describe the most frequent organic responses related to chemotherapy toxicities; and to evaluate the relationship between RSC and organic responses to chemotherapy toxicities.

**METHOD**

This was an analytical, observational, cross-sectional, correlational study of the relationship between the use of RSC and the number of organic responses to chemotherapy toxicities. The project was approved by the Hospital Universitária João de Barros Barreto (HUJBB, João de Barros Barreto University Hospital) Research Ethics Committee (Reference no. 2,095,070), in accordance with the guidelines recommended by Brazilian National Health Council Resolutions 466/12 and 510/2016, which regulate research involving human beings.

The sample comprised 40 patients diagnosed with cancer who received intravenous antineoplastic chemotherapy, in the Unidade de Alta Complexidade (Unacon, High Complexity Oncology Unit) of the HUJBB, between June and August of 2017. Non-probability purposive sampling was used in order to select the participants.

We included patients who were ≥ 18 years of age, had a confirmed diagnosis of malignant neoplasm, and were undergoing chemotherapy on a regular basis in the HUJBB Unacon. Those who presented alterations in consciousness or temporal/spatial orientation were excluded, as were those who had any other condition that impaired their ability to understand the instruments applied. Patients who met the study criteria were invited to participate. Those who volunteered gave written informed consent.

We collected patient data using two separate instruments. A custom questionnaire constructed by the researchers, with the purpose of obtaining clinical and sociodemographic data, and the Brief Religious Coping (Brief RCOPE) scale, which has been translated to Portuguese, adapted culturally, and validated for use in Brazil by Panzini. The Brief RCOPE scale is designed to determine the type and level of RSC used in dealing with the experience of undergoing chemotherapy. The scale comprises 49 items, of which 34 are related to PRSC and 15 are related to NRSC.

The patients were interviewed in the chemotherapy room of the HUJBB Unacon. Potential participants were informed of the purpose of the study, their rights (including the right of refusal), and the fact that the study would not interfere with their treatment. We also opted for face-to-face interviews, facilitating the application of the questionnaire items by the researcher, without outside interference in the interpretation of the responses. However, some clinical data, such as the disease stage, were obtained from the patient charts.

We performed quantitative data analysis, using descriptive statistics for the characterization of sociodemographic and health data and Spearman’s correlation coefficient to test the correlations between the level of RSC and the frequency of toxicities. The level of RSC was evaluated according to the analysis proposed by the authors, on the basis of the PRSC and NRSC indices.

**RESULTS**

The results were organized into four categories, according to the specific objectives: the sociodemographic and clinical profile; the prevalence of RSC; the prevalence of toxicities; and the relationship between the level of RSC and the frequency of toxicities.

**Sociodemographic and clinical profile**

Among the participants, 55% were men; ages ranged from 20 to 75 years (M=49.9, SD=16.4); half lived in the city of Belém; 60% had a partner (i.e., were married or engaged).
in a stable union); 50% had ≤ 9 years of schooling, only 7.5% having a college education; and 70% had children (an average of two). For most (62.5%) of the patients, the family income was equal to the Brazilian national minimum wage.

Regarding religiosity, 50% of the interviewees self-identified as Catholic and 32.5% self-identified as evangelical; 50% reported having adopted religious/spiritual practices often and only 12.5% reported having done so rarely. In terms of the magnitude of their faith, 82.5% of the interviewees classified their faith as strong and only 12.5% classified it as weak.

Among the various diagnoses found, the most common was colorectal cancer (in 30%), followed by stomach cancer (in 20%), as can be seen in Figure 1.

The time from symptom onset to diagnosis varied widely in our sample, ranging from 1 to 48 months (M=12.7, SD=11.97). The cancer was categorized as stage IV in 71% of the patients, and none of the patients had stage I disease. The number of chemotherapy sessions was also highly variable in our sample, ranging from 1 to 69 (M=16.9, SD=16.71). The most common modality of cancer treatment was a combination of surgical intervention and antineoplastic chemotherapy, that combination being employed in 52.5% of the cases. It is noteworthy that 15% of the patients were treated with a combination of surgery, chemotherapy, and radiotherapy.

PREVALENCE OF RELIGIOUS/SPIRITUAL COPING

In order to identify the most prevalent types of coping, we considered the existence of both dimensions (PRSC and NRSC). The PRSC and NRSC indices were obtained by calculating the sum of points for the items related to each dimension on the Brief RCOPE scale. The PRSC index ranged from 34 to 170 (highest possible PRSC index=204, midpoint=102), the mean score for the PRSC-related Brief RCOPE items being 112.25 (median=113), slightly above the midpoint of the index, which suggests moderate use of PRSC. The NRSC index ranged from 15 to 75 (highest possible NRSC index=90, midpoint=45), the mean score for the NRSC-related Brief RCOPE items being 30.3 (median=30.5), slightly below the midpoint of the index, which also suggests moderate use of NRSC.

PREVALENCE OF TOXICITIES

There are a diversity of organic responses to the toxicities of chemotherapeutic therapy, such responses occurring at varying frequencies. To facilitate the analysis, we grouped the toxicities by frequency (Figure 2): very common (shown by ≥ 65% of the participants); moderately common (shown by 40-64%); uncommon (shown by 20-39%); and rare (shown by < 20%). Among the various toxicities, the most common was asthenia and the least common was bleeding.

RELATIONSHIP BETWEEN RELIGIOUS/ SPIRITUAL COPING AND TOXICITIES

As determined by Spearman’s correlation coefficient, the frequency of toxicities showed no statistically significant correlation with the PRSC or NRSC index. However, when the frequency of toxicities, the PRSC index, and the NRSC index were categorized and cross-tabulated, some interesting relationships emerged.

For the purpose of this analysis, the frequency of toxicities was categorized as non-existent (0), low (1-4), moderate (5-8), or elevated (9-12). On the basis of the Brief RCOPE scale score, the use of PRSC and
NRSC was categorized as follows: low (34-68 and 15-30, respectively), moderate (69-135 and 31-59, respectively), or high (136-170 and 60-75, respectively).

In the tables (Tables 1 and 2), the prevalence of moderate use of PRSC in all levels of toxicity can be seen. It should be noted that, for one patient, corresponding to 25% of the sample, the high degree of toxicity was shown to be associated with a high level of PRSC use.

None of the participants made extensive use of NRSC. For almost all degrees of toxicity, participants used NRSC at a low level, with the exception of the moderate degree of toxicity, for which 65% used NRSC at a moderate level. It is noteworthy that 75% of those with a high degree of toxicity used NRSC at a low level.

**DISCUSSION**

In this study, we determined the relationship between the use of RSC and the organic responses to chemotherapy toxicities. We described the sociodemographic and clinical characteristics of the sample were described, as well as the prevalence of toxicities and the use of RSC (PRSC or NRSC). In addition, we evaluated the relationship between the level of CRS used by the participants and the frequency of the toxicities presented.

Regarding religiosity, the results of the present study are in agreement with those of Moreira-Almeida et al., who described religious involvement in the population of Brazil and its relationship with sociodemographic variables. The authors found that the level of religiosity among Brazilians is high, varying by region, age, and gender. They also showed that 83% of individuals considered religion to be very important in their lives. In the present study, only 12% of the participants reported having exercised their religiosity/spirituality rarely and 82% considered their faith to be strong.

Regarding the clinical characteristics, the diagnoses of colorectal cancer, gastric cancer, and Kaposi’s sarcoma were highly prevalent in our sample, whereas those of breast and prostate cancer were less common. However, that is attributable to the fact that some HUJBB Unacon patients are referred from the surgery clinic, which performs a significant number of surgical procedures involving cancer of the digestive tract, whereas others are referred from the pulmonology and infectology clinics, which are referral centers at the HUJBB. Therefore, most patients with breast or prostate cancer, both of which are highly prevalent in the northern region of Brazil, are referred to the Pará State Center for the Treatment of High Complexity Oncology Cases.

The sociodemographic profile of the sample studied, in which a family income equal to the national minimum wage was reported by 62.5% of the participants and gastric cancer was the second most common type of cancer, is in accordance with data from the José Alencar Gomes da Silva National Cancer Institute, which indicate that there is a relationship...
between unsatisfactory socioeconomic conditions and the incidence of cancer of the cervix and stomach.

In the present study, chemotherapy toxicities were highly prevalent, as was somewhat expected. Ferreira Filho\textsuperscript{20} stated that the effective doses of chemotherapy drugs are often proportional to their toxic effects. However, those toxicities depend on the antineoplastic agent used, as well as on other factors such as the capacity to metabolize and excrete chemotherapy agents\textsuperscript{20,21}.

All of the participants used RSC to deal with the experience of chemotherapy treatment and its toxicities, using PRSC and NRSC, as well as problem-focused and emotion-focused coping, corroborating the results of similar studies\textsuperscript{14,22}. On the basis of the findings of several studies, Antoniazzi et al.\textsuperscript{23} argued that both strategies problem-focused and emotion-focused coping can be functional and complementary, being employed in most stressful episodes. Emotion-focused coping strategies can facilitate problem-focused coping by reducing stress, whereas problem-focused strategies can lessen the threat, thereby reducing emotional stress.

Veit and Castro\textsuperscript{15} showed that RSC indices among cancer patients were associated with multiple therapeutic interventions and long treatment periods, showing that greater exposure to invasive procedures was associated with more frequent use of CRS, regardless of the type of strategies used (positive or negative). Our data are in agreement with those of Veit and Castro\textsuperscript{23}, 52% of our patients were treated with a combination of surgery and chemotherapy; the mean number of chemotherapy sessions was 16.9; and both RSC strategies (PRSC and NRSC) were used at a moderate level.

The moderate use of RSC found in our sample, as determined from the PRSC and NRSC indices, was considered adequate and functional, given that PRSC strategies are associated with optimization of a sense of well-being, evoking feelings of hope, trust, and security, and can facilitate access to support networks and social integration\textsuperscript{24}. However, when used excessively, negative coping strategies can cause damage\textsuperscript{24}, such as impaired quality of life and higher depression indices\textsuperscript{25}. For example, if patients perceive their illness as divine punishment, they feel excessively guilty or have an absolute belief in the association between prayer and cure (a cure that has not happened)\textsuperscript{24}.

In our sample, the participants who had elevated levels of toxicity employed NRSC at low levels and PRSC at moderate levels, a finding that runs counter to the results of a study conducted by Mesquita et al.\textsuperscript{14}, in which individuals who experienced intense side effects during chemotherapy showed a tendency to make greater use of NRSC. However, those authors also found that the use of such strategies, both positive and negative, increased in proportion to increases in the number of stressful events.

In general, the participants in the present study made moderate use of PRSC and NRSC, regardless of the degree of toxicity. At all degrees of toxicity, the patients in our sample used NRSC only at low and moderate levels. The low level of NRSC use predominated at the different degrees of toxicity, except for the moderate degree, at which the moderate level of NRSC use predominated.

We conclude that cancer patients undergoing chemotherapy use PRSC and NRSC strategies, although PRSC is used in greater intensity. Cancer patients undergoing antineoplastic chemotherapy make use of RSC on a regular basis as a resource for dealing with stressful events related to this mode of treatment and its effects, including the toxicities that typically cause physical and psychological distress.

The results of the present study call attention to the need to legitimize and integrate the spiritual dimension in health and disease processes, so as to favor ways of dealing with suffering and adapting to treatment, especially for people living with life-threatening diseases, such as cancer, and invasive treatments, such as chemotherapy, which is potentially stressful. It is therefore hoped that patients will be perceived from a biopsychosocialspiritual perspective, without disregarding the interference and repercussions of religious beliefs in the way adverse situations will be evaluated and administered.

Among the limitations of our study is the fact that there are few Portuguese-language instruments to measure RSC. That is why we opted to use the Brief RCOPE scale\textsuperscript{16,17}. However, because the scale comprised 49 items, its application is exhaustive. Because we applied the scale at the time of the chemotherapy sessions, the application time was even longer, which contributed to reducing the number of patients who decided to participate in the study during the period available for data collection (three months).

It is hoped that this study will provide health care professionals with the tools necessary to recognize the spiritual dimension as a constituent part of the subjectivity of individuals who, in the context of illness, adversity, or even routine situations, use RSC to coexist and deal with specific demands.

**AUTHOR CONTRIBUTIONS**

Leomar Santos Moraes Filho conceived and planned the study; collected, analyzed, and interpreted the data;
revised the manuscript; approved the final version for submission, and was responsible for ensuring the accuracy and integrity of all aspects of the work. Helma Tereza Torres Khoury was responsible for the theoretical and methodological guidance; analyzed and interpreted the data; revised the manuscript; and approved the final version for submission.

**DECLARATION OF CONFLICTS OF INTEREST**

Nothing to Declare.

**REFERENCES**


