

# Fasting and Cancer: Practice and Patients' Quality of Life during Ramadan

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## Abstract

**Introduction:** Ramadan is the ninth lunar month of the Muslim calendar, and fasting during Ramadan is one of the five pillars of Islam. Muslim cancer patients and health professionals are faced with a dilemma between the necessity of fasting and its possible adverse effects during Ramadan on the health status of cancer patients. We believe that addressing the issue of fasting in cancer patients is of global interest. **Objectives:** Prevalence of fasting in cancer patients during Ramadan; Predictive factors of Ramadan fasting in cancer patients; The effect of fasting during Ramadan on the quality of life of cancer patients. **Materials and Methods:** A structured questionnaire was used to interview adult cancer patients who received chemotherapy IV—or oral treatment at the medical oncology department at the Hassan II University Hospital in Fez during the month of Ramadan 1443 Hijri (April to May 2022). The quality of cancer patients' lives during their fasting practice in Ramadan was evaluated via the QLQ-C30 questionnaires. **Results:** 48% of patients did not fast during Ramadan, 22% and 30% were partial and complete fasters respectively. Patients, with OMS 0 to 1, who receive outpatient treatment, non-metastatic patients and patients on oral treatment were more frequent in the completely fasted group. All these factors showed statistically significant values ( $p < 0.05$ ). 44% of patients sought advice from the treating oncologist if they could fast, while only 15% of patients during Ramadan asked an imam if they could be excused from fasting. A comparison of the QLQ-C30 data showed a significant improvement in emotional functioning with fasting, however, patients had clinically more but not significantly fatigue after fasting. **Conclusion:** Female gender, good WHO, non-metastatic disease, and oral or outpatient treatment were more likely to be fasting. This study argues that fasting did not influence the quality of life, and appears to

significantly improve emotional functioning in cancer patients during Ramadan.

## Keywords

Ramadan, Fasting, Quality of Life, Practice

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## 1. Introduction

The sighting of the new crescent moon marks the beginning of Ramadan, the ninth month of the Islamic calendar, and the holiest month in Islamic culture. Moreover, the fasting of Ramadan is absolute. Each day, from Suhoor (the last meal before sunrise) to Iftar (the meal to break the fast), Muslims abstain from food and drink. Nothing may be consumed during these hours unless exempted due to illness or travel. However, studies have shown that fasting can benefit a person's overall health throughout life by reducing oxidative stress and inflammation [1] [2]; the effects of fasting on cancer have also been widely studied: Fasting could have a positive impact on cancer cell death while increasing the resistance of normal cells to chemotherapy [3]. Therefore, this different response to fasting observed in cancer cells compared to normal cells is known as differential stress resistance (DSR). Therefore, it may increase the effectiveness of cancer treatments and limit adverse events.

Although some people are exempt from fasting during Ramadan due to illness, some cancer patients wish to follow their religious tradition of fasting during Ramadan. However, in some situations, fasting can be detrimental to cancer patients and lead to malnutrition and impairment of the immune system. Furthermore, there is little data selecting cancer patients who can tolerate fasting. We conducted this work to study the practice of fasting in cancer patients receiving intravenous (IV) and/or oral chemotherapy or targeted therapy during Ramadan and its impact on patient quality of life.

## 2. Patients and Methods

This study was conducted during Ramadan 1443 Hijri between April and May 2022 at the medical oncology department of the CHU Hassan II in Fez. One hundred cancer patients who agreed to participate in this study with verbal consent were included and randomly selected at the day hospital and inpatient levels. This study was approved by the Ethics Committee of the Hassan II University Hospital of Fez.

Moreover, questionnaires were designed to assess the fasting status, whether the opinion of the oncologist or advice of the imam had been requested before undertaking the fast, and what this opinion was. Thus, we collected the characteristics of the individuals, the disease and the treatment modalities: Age, gender, performance status (PS), concomitant diseases, primary cancer site, cancer stage (metastatic or non-metastatic), sites of metastases and current treatment.

This study also assessed the impact of fasting during the holy month of Ramadan on the quality of life of cancer patients. Patients were asked to complete a European Organisation for Research and Treatment of Cancer QLQ-C30 version 3 [4]. The QLQ-C30 was demonstrated internationally to have sufficient validity and reliability in assessing quality of life in cancer patients. The questionnaire consisting of 30 items and covering five functional scales, ten symptom scales or single items, and a global health status scale.

### 3. Statistical Analysis

Data analysis was performed using SPSS software. Patient characteristics were described using descriptive statistics. Percentages were applied to describe qualitative variables and means  $\pm$  standard deviation for quantitative variables. Bivariate analysis was used to analyze potential factors that may have influenced the fasting state. A chi-square test was applied to comparison percentages and Student's t test was applied for the comparison of means.

Patients were considered fasting, non-fasting, or partial fasting if they were fasting for the whole month, 0 days, or some days (1 - 29 days), respectively. For all statistical analyses, a two-sided P value of 0.05 was considered statistically significant.

### 4. Result

In total, data from 100 cancer patients were reviewed, **Table 1** shows the general characteristics of the enrolled patients. The mean age was 52 years (range 30 - 76). Of 100 patients who participated in this study, 69 were female, and 31 were male; 73% had a PS of 0 - 1 and 97% were outpatients. The most common malignancy was breast cancer (39%), followed by gastrointestinal malignancies (22%). Moreover, 40% of patients had distant metastases; 33% were metastatic at multiple sites. The most common organs of metastasis were lungs and bone.

Most patients were treated with intravenous (IV) chemotherapy (75%); 10% of patients were treated with radiotherapy concomitantly with chemotherapy; the remaining patients were treated with oral chemotherapy or targeted and hormonal therapy (27%).

Fifty-two percent of the patients had fasted at least one day during Ramadan. Thirty percent had fasted the whole month because of their religious beliefs. Among the patients who had abstained from fasting, the main reasons were fatigue (53%) and excessive thirst (39%). Furthermore, 44% of the participants had consulted their doctor about fasting, and 10% of the patients had consulted their Imam.

#### 4.1. Variables Affecting Fasting Status

The results showed that the fasting status of cancer patients during the month of Ramadan was significantly associated with the following factors: female gender

( $p = 0.005$ ), non-metastatic disease ( $p = 0.031$ ); good performance status (PS 0 - 1) ( $p < 0.001$ ), outpatient treatment ( $p < 0.001$ ) and oral treatment ( $p = 0.02$ ) were more frequent in the fasting group. However, other variables (age, primary site, and comorbidity) were not different between fasting and non-fasting patients.

**Table 1.** Characteristics of 100 patients.

Parameter	Number (N = 100)
Mean age (SD) year	52
Female sex	69
<b>Performance status</b>	
0 - 1	73
2	27
3 - 4	0
<b>Treatment facility</b>	
Outpatient	97
Inpatient	3
<b>Primary site</b>	
Solid tumors	
Breast cancer	39
Gastrointestinal cancer	22
Head and neck cancers	11
Gynecological cancers	10
Lung cancer	10
Urogenital cancers	4
Brain cancer	2
Skin cancer	2
Sarcoma	
<b>Stage</b>	
Nonmetastatic	60
Metastatic	40
Single site	77
Multiple site	33
<b>Evidence of disease activity</b>	
<b>Treatment</b>	
IV chemotherapy	75
Radiotherapy (RT)	0
RT alone	10
RT with chemosensitizers (e.g., 5-FU with RT in rectal cancer, with cisplatin VADS cancers)	25
Oral	
Chemotherapy/hormonotherapy (e.g., tamoxifen and busulfan)	27
<b>Route</b>	
Oral	30
Parenteral	75
<b>Comorbid diseases</b>	27

## 4.2. Quality of Life

Thirty cancer patients who underwent a complete fast were asked to complete a questionnaire survey to explore their quality of life during their fasting practice during Ramadan, data was collected using paper/pencil instruments.

The items assess QoL in the week before Ramadan and at the end of Ramadan. Furthermore, the mean scores on the QLQ-C30 scales were broadly similar in the two treatment groups. Physical, role, and cognitive functioning scores showed no significant difference between groups, 70% of patients reported significant improvement in emotional functioning with the fast. Therefore, regarding the extent of symptoms (fatigue, nausea, vomiting, pain, dyspnea, insomnia, loss of appetite, constipation, diarrhea, and financial difficulties), patients had more fatigue after their fast (Table 2).

## 5. Discussion

Muslims represent more than 25% of the world population and have a significant share of cancer cases diagnosed yearly [5]. According to the religious spirits of Muslims, many Muslim patients insist on fasting even though Islam gives them the liberality to fast because of their disease. Therefore, we conducted the current study on cancer patients to assess the fasting status of patients during Ramadan (1443 Hijri) and compare the quality of life before and after the fast. Thus, we found that 52% of the patients in the medical oncology department of the Hassan II hospital in Fez with cancer admitted during Ramadan reported fasting (complete or partial fasting). The main reasons for fasting reported by the patients were that its practice has great importance in their religious life.

**Table 2.** Quality of life scores of cancer patients before and after Ramadan fasting.

	Before fasting (n = 30)	After fasting (n = 30)
Physical functioning	63.7	60.0
Role functioning	58.3	59.2
<b>Emotional functioning</b>	<b>67.6</b>	<b>79.1</b>
Cognitive functioning	57.1	55.4
Social functioning	59.7	53.2
<b>Fatigue</b>	<b>66.05</b>	<b>76.7</b>
Nausea	39.5	43.9
Pain	59.8	63.4
Dyspnea	20.6	21.4
Insomnia	42.7	45.0
Appetite loss	50.2	51.0
Constipation	33.9	28.2
Diarrhea	29.7	33.2
Financial difficulties	72.3	70.1

Many patients believe that fasting will have beneficial results concerning their cancer, and finally, anorexia, also reported as a reason for fasting in some patients as non-fasting is almost the same as fasting for them. Furthermore, it found that female patients, those with a performance status of 0 - 1, those with non-metastatic disease, and those receiving non-intravenous outpatient chemotherapy were more likely to fast than men with metastatic disease, those with WHO 2 - 4, or those receiving intravenous chemotherapy.

Similar results were reported in a cross-sectional study [6] conducted on 102 Muslim cancer patients at the National Cancer Institute in Egypt. Moreover, 40% of the patients did not fast during Ramadan at all, and the factors that influenced the fasting status of cancer patients were female gender, good PS, and an outpatient. Tasks and colleagues [7] surveyed 701 adult's Turkish Muslims with cancer during Ramadan in 2012 and assessed the extent of fasting status among cancer patients. Only 15% of cancer patients reported fasting. These variations in statistics may be due to differences in culture, traditions, and level of belief about religion. Our study observed that 44% of the patients had consulted a doctor about fasting, which can be explained by the fact that patients may have a clear opinion about their ability and whether they can fast or not. On the other hand, there seems to be a lack of reliable scientific evidence for doctors and patients, and their families about fasting during Ramadan. Surprisingly only 15% during Ramadan asked an imam if they could be excused from fasting.

This study also examined the impact of fasting on the quality of life of 30 cancer patients who underwent a complete fast during the month of Ramadan, 92% of them were women and 39% of them were on oral hormone therapy. Many patients reported no change during the Ramadan fast. However, the analysis did show a clinically relevant but non-significant worsening of fatigue after Ramadan fasting. However, patients reported a significant improvement in emotional functioning which may be related to spiritual well-being, as the patient felt more active by being involved in religious activities and less depressed and isolated [8]. However, this is consistent with a number of studies that have reported no significant change during fasting, Kanan Alshammari and colleagues [9] showed that most CRC patients (73%) reported "serenity" after fasting during the holy month of Ramadan with improved tolerance. Moreover, this is consistent with a pilot trial [10] to study the feasibility and effects on quality of life (QOL) and well-being of short-term fasting during chemotherapy in gynecological cancer patients whose results showed that fasting during chemotherapy is well tolerated and appears to improve QOL and fatigue. In addition, this work is among the very few that have looked at the attitude of Muslim cancer patients and fasting during Ramadan and especially explore the impact of fasting on their quality of life (QoL).

Finally, the small sample size for assessing QoL is an unavoidable limitation of the current study, which may have impacted the significance and generalizability of the study results. Therefore, further research in this area is needed.

## 6. Conclusions

In conclusion, in our study, more than half of cancer patients do not fast during the month of Ramadan. Female patients, those with PS 0 to 1, those whose disease is a non-metastatic tumor and those receiving IV chemotherapy in facilities were more likely to be fasting and that fasting did not influence the quality of life.

The management of Muslim cancer patients is very complex and should involve a multidisciplinary team consisting of an oncologist, a nutritionist, a psychiatrist, or a psychologist, who should be aware of the importance of cultural and spiritual beliefs in medicine.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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