

# Unemployment among cancer patients during COVID-19 pandemic

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**Cite this article as:** Alagüney ME, Yıldız F. Unemployment among cancer patients during COVID-19 pandemic. *Anatolian Curr Med J* 2022; 4(4); 417-420.

## ABSTRACT

**Aim:** The survival rate of cancer patients is increased which resulted in an increased number of cancer survivors in working life. Return to work of cancer patients resulted in improved health outcomes and quality of life. However, cancer survivors have a high risk of unemployment. The COVID-19 pandemic caused global economic distress and put a great burden on the healthcare system which affected the cancer survivors further. COVID-19 may be a concurrent risk along with cancer, as a barrier for return to work. We investigated the factors that are associated with unemployment among cancer survivors, during the COVID-19 pandemic. Thus, we aimed to detect risk factors for unemployment amongst cancer patients during the COVID-19 pandemic. Therefore, we aimed to maintain the employment status of cancer survivors and prevent undesired individual and global economic and health outcomes.

**Material and Method:** This is a cross-sectional, descriptive study. Control patients who applied to the Medical Oncology outpatient clinic were over 18 years old, diagnosed with cancer, completed adjuvant chemotherapy and/or radiotherapy treatment, the disease has not relapsed, and working before March 2020 were included in the study. The survey collection process for the study was carried out between July 2020 and November 2020.

**Results:** There were 146 participants (65 male (44,5%) and 81 female (%55,5)). 42 (28.8%) of the 146 participants stated that they quit their jobs during the pandemic. Being a government employee, having a good-high household income and a high degree of education was protective against losing their jobs.

**Conclusion:** It is very important to understand the causes of unemployment among cancer survivors and solve these issues in order to increase the well-being, quality of life, and survival of the patient, as well as improve the economic and social status of society.

**Keywords:** Unemployment, cancer, COVID-19, pandemic

## INTRODUCTION

Thanks to the advances in cancer care, the survival rate of cancer patients is increased (1,2). This resulted with an increased number of cancer survivors in working life (2). Furthermore, return to work of cancer patients resulted with improved health outcomes and quality of life (3). Also, job insecurity is an important predictor for depression and poorer cognitive function in female breast cancer survivors (4). Despite this important situation cancer survivors have a high risk of unemployment (5). A meta-analysis showed that being a cancer survivor increased the unemployment 1.37 times when compared with a healthy control group. This meant a %39 increased unemployment in cancer survivors (6). In another meta-analysis, it is shown that %53 of the cancer survivors lost their jobs (7). Another

meta-analysis of return to work of cancer patients showed that overall RTW rate was %57 (%50-60) and the rate of resuming in work was between 25-73% (8). The unemployment of a cancer survivor is not just an individual problem of the patient, but negatively effects the working life and the society (9).

COVID-19 pandemic caused a global economic distress and put a great burden on the healthcare system (10). This situation affected the cancer survivors further. Firstly, cancer survivors are particularly susceptible for having a more serious course of disease than the normal population (11). They are also more prone to financial problems than other chronic diseases (12) and unemployment (5). COVID-19 may be a concurrent risk along with cancer, as a barrier for return to work (13).

It is important to investigate unemployment among cancer survivors during COVID-19 pandemic. However, until now, relatively few studies investigated this topic. One study investigated financial toxicity in young adult cancer survivors (14), another one searched the effect of COVID-19 on job security among female breast cancer survivors (4). But these studies investigated the effects of unemployment during the pandemic among other factors such as psychological distress, in populations with cancer. However, we investigated the factors that are associated with unemployment among cancer survivors, during COVID-19 pandemic. Thus, we would suggest correcting these risk factors in order to maintain employment status of cancer survivors and prevent the undesired individual and global economic and health outcomes.

## MATERIAL AND METHOD

All procedures were carried out in accordance with the ethical rules and the principles of the Declaration of Helsinki, and in line with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement. We performed the study between July 2020 and November 2020 after the ethical approval was obtained from Ankara Oncology Training and Research Hospital Non-interventional Clinical Researches Ethics Committee (Date: 22.07.2020, Decision No: 2020-07/721).

This is a cross-sectional, descriptive study. Control patients who applied to Ankara Oncology Training and Research Hospital Medical Oncology outpatient clinic, over 18 years old, diagnosed with cancer, completed adjuvant chemotherapy and / or radiotherapy treatment, the disease has not relapsed, and working before March 2020 were included to the study. The survey collection process for the study was carried out between July 2020 and November 2020. Questionnaires were offered to all eligible patients according to the format suitable for the patient (face-to-face, distribution and collection of questionnaires and telephone questionnaire methods), and they were made on a voluntary basis. In the questionnaire prepared by the researchers, general demographic information of the patients, information about their working life, information about cancer diseases and changes in employment status during COVID-19 pandemic were collected. Information about the cancer diseases, stage and treatment status of the employees was checked from the hospital electronic information management system. The frequency of changes in the employment status of the patients (leave, dismissal, leaving the job) in the patient group after the outbreak of the pandemic was examined.

## Statistical Analyses

Statistical analyses were performed using SPSS version 20 (IBM Corp., Armonk, NY). There were no missing data on the variables in the study. The Shapiro–Wilk test was used to evaluate the distribution of the data. Descriptive data are presented as the median, with the interquartile range (IQR) for non-normally distributed numerical variables and as the frequency (n) and percentage (%) for categorical variables. A chi-square test was used to compare nominal variables between independent groups. Spearman’s correlation analysis was used to evaluate the correlation between numerical and ordered categorical variables. The Mann–Whitney U test was employed to compare linear variables between independent groups. A value of  $p < 0.05$  was considered statistically significant.

## RESULTS

There were 146 participants (65 male (44,5%) and 81 female (%55,5)). The descriptive properties of the participants are given in **Table 1**.

	N (%)	Years
Age		
Male	65 (44.5)	41.8±9.7
Female	81 (55.5)	43.8±6.2
Accommodation		
Province	39 (26.7)	
District	105 (71.9)	
Village	2 (1.4)	
Education		
Primary school	34 (23.3)	
High school	57 (39)	
University	55 (37.7)	
Marital status		
Married	111 (76)	
Single	24 (16.4)	
Divorced	11 (7.6)	
Income		
Low	21 (14.4)	
Average	58 (39.7)	
Good	58 (39.7)	
High	9 (6.2)	
Chronic disease (other than cancer)		
No	21 (14.4)	
Yes	125 (85.6)	
Total	146	

When the cancer diagnoses of the participants were examined, it was seen that there was a total of 18 diagnosis groups. When the groups with less than 10 cases are combined under “others” heading; 73 people

(50%) have breast cancer, 19 people (13%) testicular cancer, 13 people (8.9%) colon cancer and 41 people (28.1%) have other cancer diagnoses. When cancer stages are evaluated, 2 people (1.4%) Stage 0, 28 people (19.2%) Stage 1, 56 people (38%) Stage 2, 56 people (38%) Stage 3, and 4 people (2.7%) was identified as stage 4.

Forty of the participants (27.4% – 11 missing data) stated that they could not apply to the hospital for their chronic diseases. 33 of them stated that they could not go to the hospital because of the fear of contagion, and 4 of them stated that they could not go to the hospital because they could not get an appointment.

When data of the participants about working life is examined, it is seen that 10 people (6.9%) work without insurance, 62 people (42.5%) are contracted workers, 17 people (11.6%) are self-employed, and 57 people (39%) are working as a civil servant (government employee).

42 (28.8%) of the 146 participants stated that they quit their jobs during the pandemic. According to the employment status, it is seen that all 10 uninsured employees quit their jobs, 27 (43.5%) of 62 employees with contracted worker status (SGK), and 4 out of 17 self-employed (23.5%), and 1 (1.8%) of 57 people working as civil servants quit their jobs. In the cross-table statistics, it was determined that the frequency of leaving the job of those working as uninsured or contracted workers was statistically significantly different from those working as civil servants (Fisher's exact test,  $p < 0.001$ ). When employees were divided into 2 groups as civil servants and others, non-civil servants left their jobs 26.25 times (95% CI: 3.71-185.6) higher.

The status of quitting their jobs was analyzed according to the income status, gender, and age. While 76.2% of those who stated their income status as low quit their jobs, 91.4% of the participants who stated their income status as good did not quit their jobs. According to the chi-square analysis, the difference was statistically significant ( $p < 0.001$ ). When the income levels of the participants are combined in two groups as low-medium and good-high, those with low-medium income status left their jobs 9.41 times (95% CI: 3.04-29.15) higher. Statistical analyses showed no difference in the frequency of leaving work according to gender and age.

In our study, when the frequency of leaving the job is examined according to education level, 52.9% of primary school graduates quit their job, while 12.7% of university graduates quit. The difference was found to be statistically significant ( $p < 0.001$ ).

## DISCUSSION

In our study, we found that approximately 30 percent of the participants left their jobs during COVID-19 pandemic. Being a government employee, having a good-high household income and high degree of education were protective against losing their jobs.

Thom et al. (14) conducted a cross-sectional survey about economic distress among adult cancer survivors during COVID-19 pandemic. They found that 19% of the participants lost their job and 15% reported decreased pay. Chapman et al. (4) investigated the effects of COVID-19 pandemic on job security amongst breast cancer survivors. As a result of the outbreak, 50 (21.41%) participants stated they were no longer working or had been furloughed by their employer. In a cross-sectional survey with 1510 patients, Matthews et al. (15) found that COVID-19 pandemic caused an acute employment loss, which increased from 4% to 14% in March 2020.

In their systematic review, Gordon et al. (16) showed that cancer survivors who have a low income at the beginning are expected to have more financial toxicity. Another study found that experiencing job loss or a furlough during the pandemic was associated with lower income ( $\chi^2=9.5$ ;  $P=.002$ ) and lacking full-time employment ( $\chi^2=6.8$ ;  $P=.009$ ) (14). Similarly in our study, we found that lower household income resulted with unemployment. Our study also showed that lower degree of education was associated with leaving job. Other studies also showed that cancer patients with lower education are more susceptible to losing their jobs (3,17).

In their review Mehnert et al. (7) proposed advanced tumor stage and having an additional chronic disease increased the unemployment among cancer survivors. However, in our study we did not find an association between tumor stage or having a chronic disease and leaving job.

In our study, the frequency of leaving job did not differ according to age or sex. Thom et al. (14) also found that job loss was not associated with age, race/ethnicity, time since treatment, or education. Similarly in a systematic review by Tavan et al., (8) the authors noted no articles analyzed gender as a factor for return to work, or resuming the employment. However, there are studies that show cancer survivors with old age are more prone to lose their jobs (3,17).

In the present study, approximately 30% of the participant stated that they could not perform their hospital visits, due to the fear of acquiring COVID-19 infection. In a study in Turkey, Guven et al. (18) found that more than 90% of the participants had some degree of COVID-19 fear and approximately 85 percent of patients expected an interruption in their patient care.

## CONCLUSION

It is very important to understand the causes of unemployment among cancer survivors and solve these issues in order to increase the well-being, quality of life, and survival of the patient, as well as improve the economic and social status of the society.

The most striking finding in our study is cancer patients who are government employees or civil servants did not have to leave their jobs when compared to paid workers and self-employed persons. This is not investigated extensively in literature; however, we think that this is very important. The employment status itself should not be a risk factor for losing jobs. There should be legal protective measures to keep cancer patients in working life, in times like COVID-19 pandemic which causes economic crisis. There also should be professional rehabilitation and return to work (RTW) programs, which are designed for the specific needs of the cancer survivors. This would increase the return to work and being employed among this population.

## ETHICAL DECLARATIONS

**Ethics Committee Approval:** The study was carried out with the permission of Ankara Oncology Training and Research Hospital Non-interventional Clinical Researches Ethics Committee (Date: 22.07.2020, Decision No: 2020-07/721).

**Informed Consent:** Because the study was designed retrospectively, no written informed consent form was obtained from patients.

**Referee Evaluation Process:** Externally peer-reviewed.

**Conflict of Interest Statement:** The authors have no conflicts of interest to declare.

**Financial Disclosure:** The authors declared that this study has received no financial support.

**Author Contributions:** All of the authors declare that they have all participated in the design, execution, and analysis of the paper and that they have approved the final version.

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