Mental Distress and Fears and Their Association with Health Care Access and Non-Adherence of Patients with Cancer to Treatment during COVID-19 Pandemic

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Abstract

Background: The COVID-19 pandemic significantly challenged cancer patients' health and disease management.
Objective(s): Assessment of mental distress and fears and their association with access to health care and non-adherence of patients with cancer to treatment during COVID-19 pandemic.
Methods: The study was conducted using a cross sectional approach. Data was collected from 285 randomly selected patients with cancer from a sizeable university hospital. The collected data included sociodemographic characteristics, medical histories, and medication adherence. The Kessler 6-item fear of COVID-19, fear of cancer recurrence scale, and medication adherence report scale were used.
Results: Breast cancer was the most prevalent type of cancer (44.9%). About 23.2% of patients reported experiencing more mental distress during the pandemic. The mean values of the COVID-19 and cancer recurrence fear scales were 13.2 and 11.3, respectively. More than half (51.9%) of interviewees reported decreased access to healthcare services, primarily because of hospital precautions and a shortage in prescription drugs (39.9% and 39.2%, respectively). A greater fear score of cancer recurrence, younger age, higher mental health distress, and the perceived influence of COVID-19 on social life were the significant variables associated with a rising COVID-19 fear score.
Conclusion: The pandemic adversely affected patients with cancer access to care, mental health, and treatment adherence. Appropriate policies should be considered to mitigate this impact in future similar events.

Keywords: COVID-19, non-adherence, healthcare access, mental health, fears, cancer patient

INTRODUCTION

Cancer, the second leading global cause of death, poses a significant healthcare challenge due to complex medical supervision, fatal consequences, and psychosocial consequences. [1] Cancer sufferers have been severely affected by the COVID-19 pandemic, which started in Wuhan, China, and spread throughout the world over the three years prior. As a result, extra special care is needed during emergencies like epidemics and environmental crises. [2],[3]

The COVID-19 pandemic and its consequent restrictive measures have negatively impacted patients' physical and mental health, leading to increased fears, limited healthcare access, and non-adherence to cancer treatment due to emotional stress and potential halts in medical services. [4]

COVID-19 has raised concerns among cancer patients by causing compromised immune systems and increased susceptibility to infections. The high case fatality rate of up to 25.6% has impacted their mental health and willingness to seek medical care. [5-7] The lockdown has also impacted their psychosocial and physical health. [8]

Furthermore, The COVID-19 pandemic has strained healthcare systems, causing resource reallocation and delays in routine care. In Egypt, over 300 public hospitals were converted into isolation facilities, resulting in decreased capacity for cancer diagnosis, treatment, and follow-up care. This has hampered access to specialized cancer care, especially for cancer patients. [9] Studies have found delays, disruptions, and changes to treatment plans, such as extending treatment intervals and switching to oral chemotherapy. Telehealth has been the major pattern

of most health service provision. [10,11] In 2020 and 2021, oncology treatment consumption decreased by 36.2% and 31.4%, respectively, compared to 2019. [12]

Another worrying effect of the COVID-19 pandemic is the increased risk of cancer treatment non-adherence. This problem is influenced by several circumstances, such as delays in diagnosis, changes in treatment, access restrictions to healthcare facilities, and financial restraints. Treatment schedule changes, such as postponements or revisions to chemotherapy regimens, can affect treatment effectiveness and perhaps have an impact on patient outcomes. The inability of cancer patients to follow their recommended treatment plans may also be hampered by the limited availability of medications like immunosuppressants or supportive therapy. [13-16]

COVID-19's immediate health effects primarily affect cancer patients, but its larger impact on healthcare is crucial. The probability of a recurrence persists even after the World Health Organization pronounced the pandemic over in May 2023. [17] Research on multicultural settings is essential to preparing for disasters in the future. Thus, the purpose of this study was to assess mental distress and fears and their association with access to health care and non-adherence of patients with cancer to treatment during COVID-19 pandemic.

METHODS

Study Design
A cross-sectional study was conducted from December 1, 2020, to July 31, 2021.

Study Setting
The study was carried out at a sizable university hospital, one of only two local hospitals that provides adult cancer patients with nuclear therapy and oncology services.

Participants
Adult patients who had received a cancer diagnosis that was confirmed at least a year before the study started were included. Patients with confirmed psychiatric disorders (i.e. obsessive-compulsive disorders, psychotic disorders, major depression, bipolar depression, and anxiety disorders were excluded from the study.

Sample size and sampling
The sample size required to perform the study was calculated using OpenEpi, Version 3based on confidence level 95%, power 80%, design effect 1, and the proportion of the patients who postponed their CT due to COVID-19 fear. (79.2%), [18] The total required sample size to perform the study was 275.

After screening of patients' records, 1126 patients were found eligible for the study (representing the sample frame). A simple random sample of eligible patients was then selected, and records assigned unique numbers were generated automatically by a computer program.

Conceptual framework of the study
Dependent variables included non-adherence to treatment and reduced access to non-COVID health services. In this study, non-adherence to treatment was defined as a deviation from the prescribed medication regimen significant enough to negatively affect the regimen's intended effect. [19] Whereas reduced access to non-COVID health services was defined as failing to show up for prearranged general or cancer-related clinic visits, investigations, or inpatient or emergency care when necessary. [20]

The COVID-19 pandemic mental distress, fears, and cancer recurrence fears were independent variables. The latter was described as anxiety over the chance that the cancer could return to the same location or another area of the body. [21],[22]

The study participants' sociodemographic characteristics, medical history, including the type of cancer, disease duration, primary treatment, medications, other chronic conditions, and patients' perceptions of their health and well-being (such as physical health, mental health, and social life) were all covariates. Figure 1. shows how variables are conceptualized in this study.
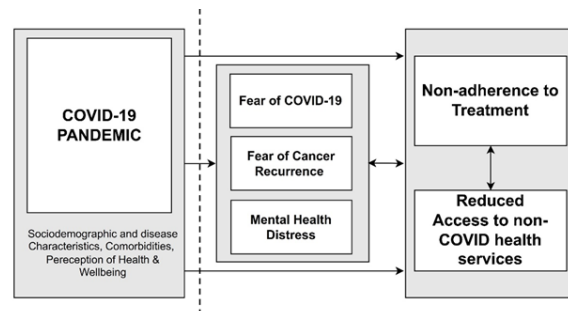
Figure 1. Conceptual framework of the study

Data collection and measures
The selected patients were scheduled for a phone interview to gather their data after receiving a call outlining the goals, methods, and ethical considerations of the study. Three nurses in the study setting conducted planned phone interviews after receiving training on data collection methods.

A structured questionnaire was used to collect the following data
1- Patients' demographics, medical history, management strategy, pattern of care such as frequency, coverage, use of electronic communication technologies to receive care, access to care during pandemic (hospital/emergency admissions when indicated,

postponed/cancelled prescheduled services), and patients' perceived health and well-being (4 questions on a 5-point rating scale assessing physical health, mental health, ability to maintain daily activities, and social life).This section of the questionnaire was developed by the authors.

2- Arabic version of medication adherence report scale (MARS-5): a 5-item version questionnaire that measures patients' adherence to medication. [23]

Each item is scored from 1 to 5 (1 = always, 5 = never) resulting in a minimum sum score of 5 and a maximum sum score of 25[24]. The cutoff point of adherence was set at MARS-5 total score ≥20 as recommended by Al-Qerem et al. [25] The scale proved valid and reliable research instrument with good internal consistency Cronbach's alpha (0.8). [23] Arabic version of Kessler 6-items scale (K6) to measure psychological stress. [26] This section of the questionnaire was divided into two sections to assess mental distress: one section before COVID-19 pandemic and one section after COVID-19 pandemic. Patients were asked to give their responses at the time of study and to recall and report their response before the occurrence of pandemic to detect the change in mental distress level before and after the pandemic. The overall score is 0–24, which can be explained as follows: low distress is 0–7, moderate distress is 8–12, and high risk of psychological distress is 13–24. The scale was found to significantly discriminate against those with serious mental illness and to have good internal consistency and reliability (Cronbach's alpha=0.89) as well as consistent psychometric features across key sociodemographic subsamples. [27]

3- Fears of COVID-19 scale (FCV-19S) to measure specifically COVID-19-related fears. Since the pandemic, the measure has been created and used extensively with excellent discriminating validity and high internal consistency (Cronbach's alpha = 0.90). A five-item Likert-type scale with the following items: "strongly disagree," "disagree," "neither agree nor disagree," "agree," and "strongly agree" was used to compute the total score. For every question, there is a minimum score of 1 and a maximum score of 5. A total score is calculated by adding up each item score (ranging from 7 to 35) with higher scores indicating greater levels of COVID-19 fear. [28]

4- Fear of cancer recurrence scale (FRC-4) was employed to measure the fear of the chance that the cancer could recur in the same place or in another region of the body. The scale is an abbreviated version of the FCR-7, consisting only of its first four items that assess fear about a cancer recurrence. On a 5-point scale, the four items are scored. The grading scale is as follows: "1 = not at all," "2 = a little," "3 = sometimes,"

"4" = a lot," and "5" = always. Higher scores imply more performance on the five items that made up the overall score. FCR-4 scale has positive psychometric support due to its key association patterns, discriminability indices and internal consistency (Cronbach's alpha of 0.93). It has been reported as a quick, simple, low-burden screening tool for usage in clinical settings and research inquiries. [29]

Using the translation-back-translation technique, two of the study researchers who are native Arabic speakers and are proficient in English translated FCV-19S and FCR-4 into Arabic.

A group of experts composed of a public health researcher, a psychiatrist, and a psychometrist then assessed the translated versions to ensure conceptual correspondence and item appropriateness, relevance, and clarity of the scales' Arabic translation. The scales showed satisfactory internal consistency reliability in the current study with Cronbach's alpha of 0.82 and 0.71 respectively.

Statistical Analysis

All statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS version 25.0; IBM Corporation). Demographic and clinical characteristics were presented as frequencies and percentages (%) of categorical variables and mean (±standard deviation) of continuous variables. Binary logistic regression (Backward LR method) was performed to identify the predictors of reduced access to healthcare services and non-adherence to medications during COVID-19 pandemic. Likewise, a stepwise backward linear regression model was used to identify the predictors of fears of COVID-19. The variables entered in the first step along with model fit indices of each model were reported in the table's footnote of each model. Model findings were presented as β and standard error, p-value, and 95% confidence interval for either the β (linear regression) or odds ratio (in logistics regression). A p-value <0.05 was considered statistically significant.

Ethical considerations

The Institutional Medical Research Ethics Committee gave its approval to the study protocol (approval number: 4339/2020), ensuring all patients provided informed consent for the publication of their anonymous data and obtaining the required administrative consents as well.

RESULTS

This study included a total of 285 cancer patients (316 patients were contacted and response rate=90%) who aged 19 – 82 years with a mean age of 50.2 ± 12.7 years and 68.8% were female patients. Other demographic, health, and cancer- related

characteristics are presented in table 1. Over half of participants had chronic comorbidities, including diabetes mellitus (5.3%), hypertension (4.2%), coronary heart disease (3.9%), chronic kidney diseases (2.8%), chronic pulmonary diseases (2.5%), and other chronic diseases (9.5%). Most patients (89.1%) were covered by public health insurance (Table 1).

The duration of cancer ranged from 1-12 years with a mean of 3 years. Breast cancer comprised 44.9% of all cancers in the study sample. Chemotherapy was the main current modality of treatment (55.4%). During the COVID-19 pandemic, 29.1% of patients used electronic communication to receive care whereas the most used methods were social media (71.1%) and phone call/SMS (60.2%). About half of the participants were dispensing their medication once a month, mostly by themselves or their relatives. About two-thirds of participants have reported cancer-related complications in the last 12 months; only 11.6% needed hospitalization. The mean perceived physical, mental, social, and daily-life-activities ability ranged from 1.48 to 1.77 on a scale from 0 to 4 (Table 1).

Table 1. Demographic, health- and cancer-related characteristics of the studied cancer patients

Characteristics	Cancer patients (n = 285) No. (%)
Age (years):	
Mean ± SD.	50.2 ± 12.7
19 –	19 (6.7%)
30 –	39 (13.7%)
40 –	80 (28.1%)
50 –	73 (25.6%)
60 +	74 (26.0%)
Gender:	
Male	89 (31.2%)
Female	196 (68.8%)
Residence:	
Urban	90 (31.6%)
Rural	122 (42.8%)
Remote governorates	73 (25.6%)
Education Level:	
Illiterate	66 (23.2%)
Read and write.	32 (11.2%)
Primary/ preparatory	38 (13.3%)
Secondary	91 (31.9%)
University/ postgraduate studies	58 (20.4%)
Marital Status:	
Single	21 (7.4%)
Married	203 (71.2%)
Divorced/ widowed	61 (21.4%)
Work:	
Not working	173 (60.7%)
Full-time job	68 (23.9%)
Part-time job/ Freelance	44 (15.4%)
Number of co-morbidities:	
None	132 (46.3%)
Single	92 (32.3%)
Multiple	61 (21.4%)
Health insurance:	
Public health insurance	254 (89.1%)
Private health insurance	21 (7.4%)
No health insurance (Out-of-pocket)	10 (3.5%)

Characteristics	Cancer patients No. (%)
Years since cancer diagnosis:	
Mean ± SD (Min – Max)	**3.0 ± 2.7 (1 – 12)**
1 –	176 (61.8%)
3 –	69 (24.2%)
5 -	25 (8.8%)
10 +	15 (5.3%)
Type of cancer:	
Breast	128 (44.9%)
Genitourinary ‡	49 (17.2%)
GIT ‡	43 (15.1%)
Hematological	25 (8.8%)
Respiratory ‡	21 (7.4%)
Others ‡	19 (6.7%)
Current treatment modality:	
Radiotherapy	56 (19.6%)
Chemotherapy	158 (55.4%)
Others (e.g., immunosuppressive, and hormonal therapy)	71 (24.9%)
Use of telemedicine:	
Never	202 (70.9%)
Yes	83 (29.1%)
Method of electronic communication(n=83):	
Phone call/SMS	50 (60.2%)
Social media Apps (WhatsApp, Facebook, Telegram)	59 (71.1%)
Specific medical app	7 (8.4%)
Frequency of dispensing medications	
More than one time /month	108 (37.9%)
Once a month	149 (52.3%)
Less than once per month	28 (9.8%)
Person in-charge of medications dispensing:	
Patient himself/herself	173 (60.7%)
Offspring /relatives	110 (38.6%)
Others (friend, company representative)	2 (0.8%)
Cancer-related complications during the last 12 months:	
Seldom †	191 (67.0%)
Sometimes †	68 (23.9%)
Often †	26 (9.1%)
Severity of complications:	
Needed hospitalization.	33 (11.6%)
Did not need hospitalization	252 (88.4%)
Perceived health status, mean ± SD (range)	
Physical health	1.77 ± 0.98 (0 - 4)
Mental health	1.82 ± 1.08 (0 - 4)
Ability to do daily-life activities	1.48 ± 0.97 (0 - 4)
Impact of COVID-19 on social life	1.65 ± 1.38 (0 - 4)

‡ GIT: colorectal, hepatobiliary, pancreas and gastric; Respiratory: lung and larynx; Genitourinary: kidney, bladder, uterine, cervical, prostate, ovarian and testicular; Others: thyroid, brain, bone, soft tissues, and nasopharyngeal cancers.

† Seldom: Never/ less than once a month; Sometimes: 1 – 3 per month; Often: 1 – 3 per week.

¥ 6-item Kessler scale

Table 2 shows that before the pandemic, 16.5% of participants had reported high mental distress compared to 28.1% during the pandemic, with a net change of 23.2% increase, 6.3% had a decrease and 70.5% had no change in the mental health distress. The mean score of fears of COVID-19 and fears of recurrence was 13.2 and 11.3, respectively.

Half of the participants (51.9%) reported reduced access to healthcare services (40.4% missed at least a clinical appointment, 13.3% had limited access to emergency services, and 8.1% had limited access to inpatient care). Figure 2 shows the reasons for the reduced healthcare access as reported by the study participants. The most frequently reported reasons

were hospital policies and precautions (39.9%) and shortage in medications (39.2%). Non-adherence to treatment was reported by 37.2% of the study participants. Figure 3 shows the reasons for patients' non-adherence, where forgetfulness was the main reason (58.5%) (Table 2).

Table 3 shows that residence, frequent cancer-related complications, fears of COVID-19 and, high mental distress during the pandemic were significant predictors of reduced access to healthcare services among this study participants. Patients residing in rural areas and patients from remote areas had 2.4 and 4.0 greater odds for reduced healthcare access compared to urban Ismailia. Patients who often had cancer-related complications had 2.9 greater odds for reduced access than those who seldom had complications. Higher scores of fears of COVID-19 were associated with greater odds of reduced access. Patients with high mental health distress during the pandemic had 1.23 times greater odds of reduced access.

Likewise, Table 4 shows the predictors of non-adherence to medications among the studied patients. Patients with high mental health distress during the pandemic had 2.0 times greater odds of non-adherence compared to those with low or moderate distress. Higher perceived physical health was associated with 25% less odds of non-adherence while higher ability to do daily life activities was associated with 1.5 greater odds of non-adherence. In Table 5, younger age, increased mental health distress during the

pandemic, higher score of fears of recurrence, and a higher score of perceived impact of COVID-19 on social life were the significant predictors and were associated with an increasing score of fears of COVID-19.

Table 2. Mental health distress, access to cancer care services, and non-adherence to cancer treatment among studied cancer patients during COVID-19 pandemic

Variable	Cancer patients (n = 285) No. (%)
Mental Health Distress:	
Before the pandemic	
Low	183 (64.2%)
Moderate	55 (19.3%)
High	47 (16.5%)
During the pandemic	
Low	151 (53.0%)
Moderate	54 (18.9%)
High	80 (28.1%)
Change in mental health distress:	
No change	201 (70.5%)
Reduced	18 (6.3%)
Increased	66 (23.2%)
Fears of COVID-19, mean ± SD	13.2 ± 6.0 (7 - 28)
Fears of recurrence, mean ± SD	11.3 ± 4.5 (4 – 20)
Access to healthcare services:	
Reduced	148 (51.9%)
Not reduced	137 (48.1%)
Non-adherence to treatment:	
Yes	106 (37.2%)
No	179 (62.8%)
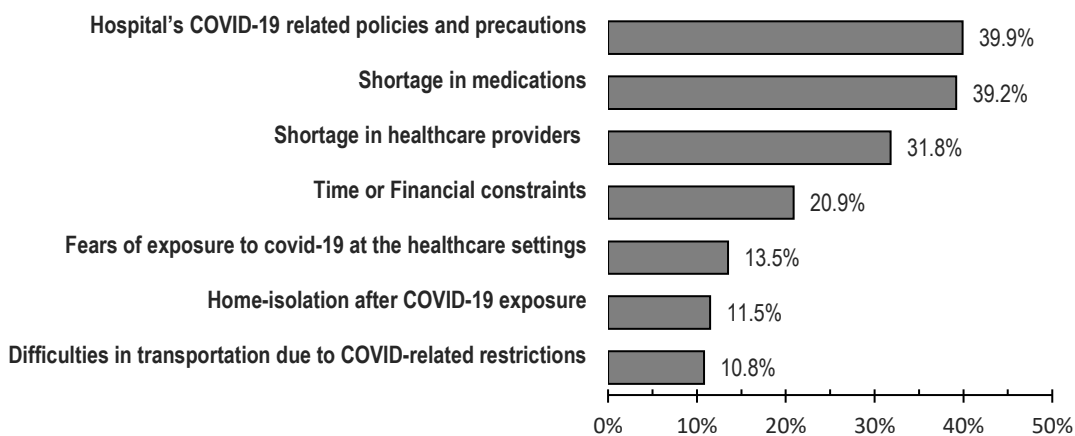
Figure 2. Reported reasons for reduced access of cancer patients to healthcare services during the COVID-19 pandemic (n=148)

- Hospital's COVID-19 related policies and precautions — 39.9%
- Shortage in medications — 39.2%
- Shortage in healthcare providers — 31.8%
- Time or Financial constraints — 20.9%
- Fears of exposure to covid-19 at the healthcare settings — 13.5%
- Home-isolation after COVID-19 exposure — 11.5%
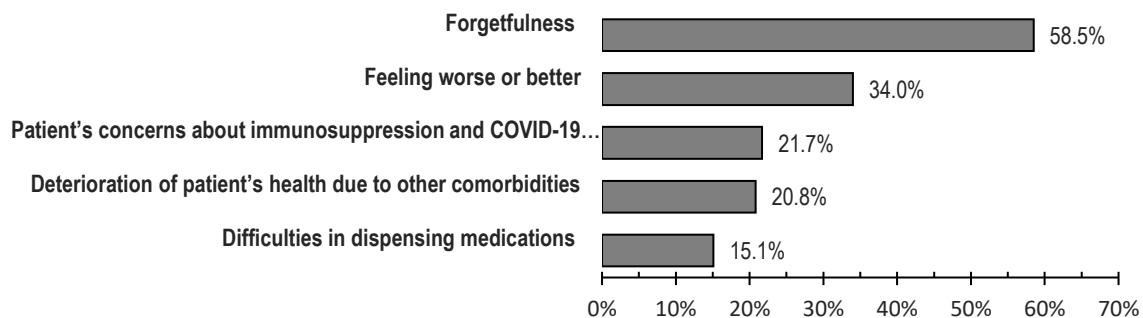- Difficulties in transportation due to COVID-related restrictions — 10.8%

Figure 3. Reported reasons for non-adherence to medications among cancer patients during the COVID-19 pandemic (n=106)

Table 3. Predictors of reduced access to healthcare services during COVID-19 pandemic among the studied cancer patients (n =285)

Predictor variables [a]	β (S.E.)	p-value	OR (95% CI)
Residence (*vs. Urban*)		<0.001*	
Rural	0.87 (0.32)	0.006*	2.40 (1.29 – 4.46)
Other governorates	1.39 (0.36)	<0.001*	3.99 (1.97 – 8.09)
Current treatment modality (*vs. Chemotherapy*)		0.079	
Radiotherapy	0.07 (0.35)	0.847	1.07 (0.54 – 2.12)
Other medications	0.74 (0.40)	0.065	2.10 (0.95 – 4.62)
Cancer-related Complications (*vs. Seldom*)		0.089	
Sometimes	0.09 (0.32)	0.776	1.09 (0.59 – 2.03)
Often	1.07 (0.49)	0.028*	2.92 (1.12 – 7.58)
Fears of COVID-19 score	0.07 (0.03)	0.007*	1.07 (1.02 – 1.13)
High mental health distress during the COVID-19 pandemic			
(*vs. low/moderate*)	0.87 (0.34)	0.010*	1.23 (1.21 – 4.60)
Constant	-2.12 (0.50)	<0.001*	0.12

Abbreviations: S.E.: Standard Error, OR: Odds Ratio, CI: Confidence Interval.

[a] Method: Backward (LR) binary logistic regression; 19 variables entered on the first step (age, gender, residence, education, marital status, work, number of comorbidities, health insurance, duration of cancer, current treatment modality, cancer-related complications, frequency of dispensing medications, fears of recurrence, fears of COVID-19, perceived physical health, perceived mental health, perceived impact on social life, mental health distress during the pandemic, daily life activities)

[b] Overall model predictability (Last Step): 67.4%, Hosmer and Lemeshow Test: χ^2 (8) = 10.16 (*p*-value=0.254), Model fit: χ^2 (9) = 54.35 (*p*-value <0.001); Nagelkerke R Square: 0.232   *. Statistically significant β coefficient at *p* <0.05

Table 4. Predictors of non-adherence to medications during COVID-19 pandemic among the studied cancer patients (n =285)

Predictor variables [a]	β (S.E.)	p-value	OR (95% CI)
High mental health distress during the COVID-19 pandemic	0.70 (0.29)	**0.018***	2.01 (1.13 – 3.58)
(*vs. low/moderate*)			
Perceived physical health status	-0.30 (0.15)	**0.049***	0.74 (0.55 – 0.99)
Ability to do Daily-Life Activities	0.42 (0.16)	**0.010***	1.50 (1.10 – 2.03)
Perceived impact of COVID-19 on social life	0.19 (0.10)	0.063	1.20 (0.99 – 1.46)
Constant	-1.12 (0.32)	<0.001	0.33

Abbreviations: S.E.: Standard Error, OR: Odds Ratio, CI: Confidence Interval.

[a] **Method:** Backward (LR) binary logistic regression; 19 variables entered on the first step (age, gender, residence, education, marital status, work, number of comorbidities, health insurance, duration of cancer, current treatment modality, frequency of dispensing medications, fears of recurrence, fears of COVID-19, perceived physical health, perceived mental health, perceived impact on social life, mental health distress during the pandemic, daily life activities, and reduced access to healthcare services)

[b] **Overall model predictability (Last Step)**: 69.1%, **Hosmer and Lemeshow Test**: χ^2 (8) = 10.48 (*p*-value=0.233), **Model fit**: χ^2 (5) = 22.78 (*p*-value <0.001); **Nagelkerke R Square**: 0.11

*. Statistically significant β coefficient at *p* <0.05

Table 5. Predictors of Fears of COVID-19 among the studied cancer patients (n =285)

Predictor variables [a]	β (S.E.)	p-value	95% CI
Age (years)	-0.07 (0.02)	0.001*	-0.11, -0.03 ,
Number of comorbidities	0.51 (0.26)	0.050	-0.001, 1.03
Change in mental health distress (increased)	1.91 (0.64)	0.003*	0.66, 3.17
Fears of recurrence	0.58 (0.06)	<0.001*	0.46, 0.70
Perceived impact of COVID-19 on social life	1.41 (0.20)	<0.001*	1.02, 1.80
Constant	7.00 (1.34)	<0.001*	4.36, 9.63

Abbreviations: β: Beta coefficient, S.E.: Standard Error, CI: Confidence Interval.

[a] Method: Backward multiple linear regression; 24 variables entered on the first step (age, gender, rural residence, residence in other governorate, education, married, divorced/widow, part-timework, full-time work, number of comorbidities, private health insurance, no health insurance, duration of cancer, currently receiving chemotherapy, currently receiving other treatment, complications, frequency of dispensing medications, fears of recurrence, perceived physical health, perceived mental health, perceived impact on social life, increased mental health distress, decreased mental health distress, and daily life activities)   [b] Model adjusted R Square: 0.442, Model ANOVA: $F = 46.03$, $p < 0.001$

*. Statistically significant β coefficient at $p < 0.05$

DISCUSSION

The current study pointed out the adverse effect of COVID-19 pandemic on a sample of Egyptian cancer patients regarding mental health, fears, cancer care access, and adherence to cancer treatment.

Nearly half of patients reported high and moderate levels of psychological distress and more than one-fifth of patients showed a before-after pandemic increase in their mental distress. Most participants had moderate levels of fear of COVID-19 specifically, and moderate levels of fear of cancer recurrence.

The current results were consistent with Conev et al [30] findings that over 50% of cancer patients experienced fear about their disease more than the virus. One third (33.6%) fear cancer progression due to treatment delays. Furthermore, Juanjuanet al [31] explored that perceived risk, fear, and depression, were common during the pandemic among patients with breast cancer (39.3% 34% and 24%respectively). Additionally, distress levels have increased by 16.7% before and after the COVID-19 outbreak in German cancer patients. [32]

According to Erdogan et al, [33] 66.8% of patients mentioned they were extremely terrified of the coronavirus and 66.3% said they feared losing their lives as a result. Chen et al [34] even reported a higher rate: 86.5% of patients expressed concern throughout their illness.

These variations in findings between studies could be attributed to diverse tools used to assess mental health in different studies.

In this study, an increased mental health distress during the pandemic, a higher score of fears of recurrence, and a higher score of perceived impact of COVID-19 on social life were the significant predictors and were associated with an increasing score of fears of COVID-19.

The study also supports findings from a Chinese study that reported that cancer patients have moderate COVID-19 concerns, with fear positively correlated with infection risk, death risk, and loneliness. [35]

Moreover, previous studies reported a significant increase in fears about infection and exposure risks in medical care, leading to psychological distress, poor outcomes, and poor quality of life among young adults and adolescents with cancer. [36, 37]

Regarding access to cancer care, this study found that about half of the patients were not able to get cancer care. This was in line with Patt et al [2] who reported that the COVID-19 pandemic has significantly reduced cancer screenings, visits, therapy, and surgeries in the USA, with significant reductions in hospital outpatient evaluations, management visits, new patient visits, and established patient visits. Additionally, about half of the patients reported delays in receiving treatment. [2]

Jazieh et al [15] multicenter multinational survey revealed that most of the surveyed respondents experienced care reductions during the pandemic. However, a study on Saudi patients revealed that a small percentage reported a decline in their cancer care. [38]

On the other hand, a survey of 5302 cancer patients in the Netherlands revealed challenges during oncological treatment or follow-up, with chemotherapy and immunotherapy being the most frequently adjusted treatments. [39] This study found that 39.9% of participants reported hospital restrictions and prescription shortages as the main barriers to healthcare access, along with other factors like staff shortages and transportation difficulties.

Caston et al [36] reported that 80% of the delays were drawn to service disruptions at the provider and healthcare system levels indicating that only few causes could be traced to patient choice. In contrast, reported relatively lower rates (12.9% of disruption in cancer care access (i.e., a postponement, cancellation, or another type of treatment/mode of communication, like videoconferencing. [10,11].

Lower healthcare system resilience and low health literacy in lower-income countries could have contributed to the reduced health care access of cancer care found in this study.

The study found that 13.5% of cancer patients prioritized COVID-19 exposure over scheduled care, while 37.2% did not follow their treatment regimen. This was consistent with another Egyptian study that found that 29.7% of patients had modified their cancer treatment regimen. [9]

In contrast to the current study, Eckford et al [16] reported that 13% of patients indicated that their treatment or care plan had changed. For those patients who underwent adjustments, the bulk of these involved changes to post-treatment follow-up care (56%), treatment monitoring (29%), and psychological counseling (20%).

In this study patients with high mental health distress during the pandemic had 2.0 times greater odds of non-adherence compared to those with low or moderate distress. These findings were consistent with Kalpathi et al, [40] most treatment delays were brought on by a concern of contracting COVID (50.6%), then by medical complications (26%) and problems with transportation and travel (23.4%). Additionally, Karacin et al [18] documented that COVID-19 fear was the third most common reason for CT postponement among cancer patients.

While interpreting the results of the current study, it is important to keep in mind some of its limitations. Firstly, this study was a single-center experience, reflecting its methods and resources for cancer care. Secondly, potential information bias due to data reporting by interviewers including those related to mental health status. Thirdly, assessing mental health distress level before the epidemic through recall could have been another source of bias. Finally, the study's cross-sectional design reflects the pandemic situation and the restrictive measures at the time and in the setting where it was conducted. Lastly, the study's cross-sectional design considers the limitations and the pandemic scenario that prevailed at the time and in the setting where it was conducted. This would therefore make it difficult to generalize the study's findings to other contexts or times throughout the pandemic. To address these problems, multicenter, long-term research is necessary.

CONCLUSION AND RECOMMENDATIONS

In conclusion, the COVID-19 pandemic related mental distress and fears have affected cancer patients' access to care and treatment adherence, highlighting the need for policy intervention. The study recommends providing psychological and mental support services for cancer patients, but further research is needed to understand the long-term impact of mental distress and evidence-based strategies.

CONFLICT OF INTEREST
The authors have no conflict of interest to declare.

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