Original article

The Confusion Caused by the Fear of COVID 19 in the Future of Cancer Patients

Ferhat EKİNCİ[1], Gonca Akdere ATEŞ[2], Atike Pınar ERDOĞAN[3], Cumali ÇELİK[4], Ahmet DİRİCAN[5], Gamze GÖKSEL[6]

Abstract

Objective: The "centrality of events scale" (CES) was formed to determine to what extent this localisation of a traumatic memory is formed. The CES was used in this study to determine how overshadowed the cancer disease was by fear of COVID-19 in cancer patients or how centralised the cognitive trauma was in this patient group.***Materials and Methods:*** In the first paragraph of the short 7-item CES, it was written, "Please think about the most stressful or traumatic event in your life", then 3 options were given. These alternatives were: A) I am currently being treated here for my disease., B) I am likely to catch COVID-19 and C) Other. After marking one of these options, the subjects were instructed to mark their level of agreement with the 7 items as stated by Berntsen and Rubin, and thus this section was the same as the original questionnaire. To be able to evaluate the questionnaire results taking the disease characteristics into account, a record was made of age, gender, treatment history (chemotherapy and radiotherapy), current treatment (chemotherapy, hoemone therapy, immunotherapy, monoclonal antibodies, tyrosine kinase inhibitors) treatment aim (adjuvant, neoadjuvant, palliative), disease status on presentation (no spread, local, metastatic).The questionnaires were administered to all the cancer patients who presented at the oncology clinic between 1 April and 1 October 2020. ***Results****:*This study was conducted to seek an answer to this question, and it was seen that of a total of 523 patients diagnosed with cancer, the vast majority (n:368, 70.4%) saw the most traumatic and stressful event of their life as cancer, with the response to option A on the questionnaire. The possibility of contracting COVID-19 was selected by 83 (15.9%) patients as the most stressful or traumatic event in their life. The option of C was marked by 72 (13.8%) patients. This showed that neither cancer nor fear of coronavirus infection was strong enough to replace the traumatic event experienced and centred in the identity of these 72 patients. These traumas of the patients were analyzed with the mean CES points. The highest points were obtained by those who marked option A, at 3.71, which was statistically significantly higher than the 3.29 points for B and 3.29 points for C (p:0.004).***Conclusion*****:**A trauma left in the past actually lives on in the cognitive memory and may even be established at the centre of the self and personal identity. Thus, by modifying the short 7-item CES, developed by Berntsen and Rubin to be an objective, measurable format, the results of this study demonstratated both the extent to which the possibility of contracting COVID-19 has started to be established in cancer patients and the unshakable but declining centrality of cancer in the traumatic past.

Keywords: Cancer patients: centrality of events scale; COVID-19: trauma

Bangladesh Journal of Medical Science Vol. 22 No. 01 January'23 Page : 68-76
DOI: https://doi.org/10.3329/bjms.v22i1.61855

1. Ferhat EKİNCİ, Manisa Celal Bayar University, Medical Oncology Department, Manisa, Turkey Uncubozköy Street, Celal Bayar University Health Sciences Campus, No: 173, 45030 Yunusemre / Manisa. Email: drferhatekinci@hotmail.com. 90 (0236) 233 85 86. Orcid ID: 0000 0002 9317 942X
2. Gonca Akdere ATEŞ, Manisa Celal Bayar University, Medical Oncology Department, Manisa, Turkey Uncubozköy Street, Celal Bayar University Health Sciences Campus, No: 173, 45030 Yunusemre / Manisa Email: gonca_akdere@hotmail.com. 90 (0236) 233 85 86. Orcid ID: 0000 0003 0373 7561
3. Atike Pınar ERDOĞAN, Manisa Celal Bayar University, Medical Oncology Department, Manisa, Turkey Uncubozköy Street, Celal Bayar University Health Sciences campus, No: 173, 45030 Yunusemre / Manisa Email: dr_pinarcan@yahoo.com. 90 (0236) 233 85 86. Orcid ID: 0000 0003 4859 7574
4. Cumali ÇELİK, Manisa Celal Bayar University, Medical Oncology Department, Manisa, Turkey Uncubozköy Street, Celal Bayar University Health Sciences campus, No: 173, 45030 Yunusemre / Manisa Email: cumalicelik84@hotmail.com. 90 (0236) 233 85 86. Orcid ID: 0000 0001 9236 1716
5. Ahmet DİRİCAN, Izmir University of Economics, Medical Park Hospital, Medical Oncology Department, Izmir. Email:ahmetdirican@yahoo.com. Uncubozköy Street, Celal Bayar University Health Sciences campus, No: 173, 45030 Yunusemre / Manisa. 90 (0236) 233 85 86. Orcid ID: 0000 0001 6992 9289
6. Gamze GÖKSEL, Manisa Celal Bayar University, Medical Oncology Department, Manisa, Turkey. Uncubozköy Street, Celal Bayar University Health Sciences campus, No: 173, 45030 Yunusemre / Manisa. Email: gamzegoksel@hotmail.com. 90 (0236) 233 85 86.Orcid ID: 0000 0002 7991 0036
7. Ferhat EKİNCİ, Manisa Celal Bayar University, Medical Oncology Department, Manisa, Turkey
8. Uncubozköy Street, Celal Bayar University Health Sciences Campus, No: 173, 45030 Yunusemre / Manisa. Email: drferhatekinci@hotmail.com. 90 (0236) 233 85 86. Orcid ID: 0000 0002 9317 942X

Correspondence: Ferhat EKİNCİ, Manisa Celal Bayar University, Medical Oncology Department, Manisa, Turkey

Introduction

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection causing coronavirus disease 2019 (COVID-19) has been shown to result in higher mortality in the elderly and in patients with other active comorbidities, including cancer[1]. Although no treatment which could be effective in changing the course of the disease has been determined as yet, critical patients are referred to Intensive Care Units for treatment[1, 2]. The mortality rate is approximtely 3.6% but the risk is greatly increased in patients of advanced age with comorbidities, including the presence of cancer [2,3]. As anti-cancer treatments such as chemotherapy or surgery cause systemic immunosuppression, cancer patients are more susceptible to infection than individuals without cancer. Therefore, cancer patients may be at increased risk of catching COVID-19, and the prognosis may be worse [2-5].

As the rapid spread of the disease could not be halted, there was great uncertainty in the initial stage of the COVID-19 pandemic, especially for oncologists, and this led to panic[5-7]. This made a significant contribution to the negative course of the disease in those with comorbidities, and naturally to a more fatal course in cancer patients, and to cancer patients receiving anti-cancer treatments (surgery, systemic chemotherapy or radiotherapy)[2,8]. Clinicians therefore found themselves in the predicament of how to apply treatment during the pandemic in accordance with the basic principle learned in medical training of "first do no harm". Although the potential benefit of chemotherapy will not change during the pandemic, the risk of harm will easily increase by an immeasurable level[8].

When viewed from the patient's perspective, this situation becomes more complex. As social isolation is the primary measure taken to prevent infection, this is perhaps the first of the most difficult obstacles for them to overcome. The preventative measures implemented such as quarantine, confinement to the home, and restrictions on visitors and carers, not only create an obstacle to accessing physical therapy, but can also render their already fragile mental state intolerable[8]. Many oncology clinicians were transferred to pandemic triage, meaning that patients may not have been able to see the primary clinician who has treated and followed them up, possibly for years. This situation becomes a source of anxiety and problems for patients.

Although the vaccination program, which started in Turkey on the first anniversary of the pandemic, offers hope, it is still uncertain when the pandemic will end. For cancer patients deprived of treatment, a shadow falls on the advocated approach of "even one disease-free day is valuable". Even before catching COVID-19, the fear of infection can become a nightmare of hopelessness for patients. In this study it was planned to use the "centrality of events" scale, which has started to be used for the analysis of post-traumatic stress disorder (PTSD), as a scale which may reflect the mental state observed in clinical practice[6]. The aim of this scale is to evaluate the degree to which the traumatic or stressful event is seen as the centre of the identity and life story of the individual, and to reveal the relationship between this and PTSD symptoms[7].

Although the meaning of the word "trauma" is defined as "injury formed with a physical agent", it is extremely new to deal with a mental trauma event scientifically together with the psychological background. Since 1980, the World Health Organization (WHO) definitions started from "events causing severe emotional stress" and are now shown as approaches centred on death and the fear of death. The SAMSHA definition published in 2012 can be considered to meet current needs. In this definition, trauma is stated as an event that an individual experiences as physically or emotionally harmful, and which negatively affects physical, social, or emotional functionality, or mental well-being, originating from a sequence of events or a series of conditions. The emphasis on death in the WHO definition actually highlights how much importance should be given to traumatic events. As a result, these events may not only lead to great fear and desperation but can imprison the indivdual for a long time, possibly permanently (9). Therefore, the traumatic event experienced can be a determinant of life expectancy.

Or, as emphasised by Berntsen and Rubin in 2006, can identity and personality be the key from that moment on?[6]. As trauma is extremely emotional when compared to original and more ordinary experiences, it occupies an important place in the memory and remains a more vivid memory which can be accessed. Therefore, it can form a cognitive reference point for a series of events encountered in the future.

Thus trauma can be defined as an event that remains at the centre of what will later be experienced and it

continues to grow and be re-lived, and perhaps takes root in the memory as a 'new trauma'. The "centrality of events scale" (CES) was formed to determine to what extent this localisation of a traumatic memory is formed [6, 7].

This scale measures 3 main characteristics of the trauma memory: 1-the formation of a reference point for daily implications, 2- becoming a turning point in life history, and 3- being a central component of personal identity[6]. The scale consists of 20 items to objectively measure these, and each item is scored on a 5-point Liker-type scale starting from "I completely disagree" and finishing with "I completely agree". In addition to this long 20-item scale, there is also a 7-item short version, which was used in this study[6,8].

The CES was used in this study to determine how overshadowed the cancer disease was by fear of COVID-19 in cancer patients or how centralised the cognitive trauma was in this patient group. However, it was necessary to make some modifications to the existing format to be able to reach the desired result. In the first section of the scale, the subjects were instructed to mark one of the options described by considering the most stressful or traumatic event that has affected them (As shown in supplementary material). After selecting one of these, the other 7 items in the original scale were not altered and the subjects completed these. The main aim of this questionnaire was to determine the extent of fear of catching coronavirus infection as a new entitity central to life in cancer patients presenting at the oncology polyclinic.

MATERIAL and METHOD:

Questionnaire Design and Method of Application:

In the first paragraph of the short 7-item CES, it was written, "Please think about the most stressful or traumatic event in your life", then 3 options were given. The patients were instructed to mark either A, B, or C, as most appropriate. These alternatives were:

A) I am currently being treated here for my disease.

B) I am likely to catch COVID-19

C) Other

Option A refers to cancer, but the actual word was not used because openly stating this word could cause a new trauma in patients and some patients may not have been aware of their disease. After marking one of these options, the subjects were instructed to mark their level of agreement with the 7 items as stated by Berntsen and Rubin, and thus this section was the same as the original questionnaire. Each item was scored from 1 to 5 where 1 = I completely disagree and 5= I completely agree.

Before completing the questionnaire, all the patients were given verbal information and all provided written informed consent.

Patient Characteristics and Data Collection

The questionnaires were administered to all the cancer patients who presented at the oncology clinic between 1 April and 1 October 2020. To be able to evaluate the questionnaire results taking the disease characteristics into account, a record was made of age, gender, treatment history (chemotherapy and radiotherapy), current treatment (chemotherapy, hoemone therapy, immunotherapy,monoclonal antibodies, tyrosine kinase inhibitors) treatment aim (adjuvant, neoadjuvant, palliative), disease status on presentation (no spread, local, metastatic).

The patients were separated into 6 categories according to the diagnosis types: breast, gastrointestinal system, thorax, urogenital, head and neck, and other cancers. A record was also made of whether or not the patient was attending for follow-up, the dates of diagnosis, metastasis , and presentation, and exitus status during the data analysis period.

Statistical Analysis:

Data obtained in the study were analyzed statistically using IBM SPSS vn. 23 software. Conformity of the data to normal distribution was examined with the Kolmogorov-Smirnov test. In the comparisons of categorical variables, the Chi-square was used. One-Way variance analysis was used in the comparisons of quantitative data with normal distribution, and in multiple comparisons, the Duncan test was applied. Continuous data results were stated as mean±standard deviation (SD) and median (minimum- maximum) values, and categorical data were stated as number (n) and percentage (%). A value of $p<0.05$ was accepted as statistically significant.

Ethical clearence:

Approval number 20478486-050.04.04 by the ethics committee of Manisa Celal Bayar University.

RESULTS:

Evaluation was made of 523 patients, comprising 172 (32.9%) males and 351 (67.1%) females with a mean age of 56.40±12.13 years (As shown in table 1 and table 2.). The diagnosis types were breast in 238

(45.5%) patients, thorax in 37 (7.1%), gastrointestinal in 109 (20.8%), urogenital in 87 (16.6%), head and neck in 22 (4.2%), and other less commonly seen cancers in 30 (5.7%) (As shown in table 3). When disease status of the patients at presentation was categorised, 153 (29.3%) patients had no disease seen radiologically, pathologically or clinically, 134 (25.6%) had local disease, and 236 (45.1%) were at the stage of metastasis.

Table 1. Comparison of the disease characteristics of the patients according to the most stressful traumatic moment in their lives

	A: I am currently being treated here for my disease	B: I am likely to catch COVID-19	C: Other	Total	p
Gender					
Male	122 (33,2)	25 (30,1)	25 (34,7)	172 (32,9)	0,815
Female	246 (66,8)	58 (69,9)	47 (65,3)	351 (67,1)	
Exitus	52 (14,1)	8 (9,6)	5 (6,9)	65 (12,4)	
Disease status at admission					
There is no spread	115 (31,3)	18 (21,7)	20 (27,8)	153 (29,3)	
Local-regional	88 (23,9)	24 (28,9)	22 (30,6)	134 (25,6)	0,384
Metastatic	165 (44,8)	41 (49,4)	30 (41,7)	236 (45,1)	
CT history	325 (88,3)	74 (89,2)	65 (90,3)	464 (88,7)	
RT history	126 (34,3)	40 (48,2)	33 (46,5)	199 (38,2)	
Current KT status	166 (45,1)	22 (26,5)	18 (25)	206 (39,4)	
KT purpose					
Adjuvant	40 (24,1)	5 (22,7)	3 (16,7)	48 (23,3)	
Neoadjuvant	30 (18,1)	5 (22,7)	8 (44,4)	43 (20,9)	0,142
Metastatic-palliative	96 (57,8)	12 (54,5)	7 (38,9)	115 (55,8)	
Receiving HT	103 (28)	31 (37,3)	20 (27,8)	154 (29,4)	
Receiving IT	7 (1,9)	4 (4,8)	4 (5,6)	15 (2,9)	
The type of IT recipients					
Pembrolizumab	0 (0)	1 (25)	1 (25)	2 (13,3)	
Nivolumab	7 (100)	2 (50)	3 (75)	12 (80)	0,257
Atezolizumab	0 (0)	1 (25)	0 (0)	1 (6,7)	
Receiving TKI MoAb	58 (15,8)	23 (27,7)	11 (15,3)	92 (17,6)	
Control patient	60 (16,3)	13 (15,7)	19 (26,4)	92 (17,6)	

CT: Chemotherapy RT: Radiotherapy TKI: Tyrosine kinase inhibitor. MoAb: Monoclonal antibody, HT: Hormonotherapy, IT: Immunotherapy

Table 2. Comparison of the age at presentation and the center of the event scale score according to the most stressful traumatic moment in the patients' lives.

The most stressful or most traumatic moment in your life	**Age at Application**		**Event Centrality Scale**	
	Mean ± SD	Mean (min- max)	Mean ± SD	Mean (min- max)
A: I am currently being treated here for my disease	56,67 ±11,79	57,00(20,00-89,00)	3,61 ± 1,01	3,71 (1,00 -5,00)
B: I am likely to catch COVID-19	56,34 ±11,62	57,00 (26,00 -78,00)	3,33 ± 1,04	3,29 (1,00 -5,00)
C: Other	55,08 ±14,34	57,00 (19,00 -84,00)	3,24 ± 1,14	3,29 (1,00 -5,00)
Total	56,40 ±12,13	57,00 (19,00 -89,00)	3,51 ± 1,04	3,57 (1,00 -5,00)
p	0,677		**0,004**	

SD: Standart deviation, Min: Minimum, Max: Maximum

Chemotherapy at any stage was being received by 464 (88.7%) patients and 59 (11.3%) were not receiving chemotherapy. The patients not receiving chemotherapy formed a group with no treatment indication, still at the treatment plan stage. The reason for presentation was for chemotherapy in 206 (39.4%) patients, and for reasons other than chemotherapy in 317 (60.6%). When the patients receiving chemotherapy were classified according to treatment aim, 48 (23.3%) were receiving adjuvant therapy, 43 (20.9%) neoadjuvant therapy, and 115 (55.8%) at the metastatic stage were receiving palliative therapy.

Radiotherapy was received by 199 (38.2%) patients and not by 322 (61.8%) patients. The other treatments were separated as hormone therapy and targeted treatments. Hormone therapy was received by 154 (29.4%) patients, immunotherapy by 15 (2.9%) and tyrosine kinase inhibitors or monoclonal antibody therapy by 92 (17.6%). A total of 92 (17.6%) patients were designated as control patients as they were not receiving treatment, should not have attended hospital during the COVID-19 pandemic, and presented for tests.

The mean points of the CES were examined according to the A,B, C categories recorded on the day of questionnaire completion (As shown in supplementary). The highest points were recorded in the B option (I am likely to catch COVID-19) and were seen to correspond to the middle of summer when the number of cases was lowest. During the period of data analysis, mortality developed in 65 (12.4%) of patients.

The degree of centrality of the traumas of the patients was analyzed with the mean CES points. The highest points of the patients who marked option A was 3.71 points, followed by 3.39 points for option B, and 3.29 points for option C. The difference between the points was determined to be statistically significant (p:0.004) (As shown in table 2 and other responses are shown in table 4).

Table 3. Comparison of diagnosis types of patients according to the most stressful traumatic moment in their lives.

	A: I'm currently being treated here for my disease	B: I'm likely to catch COVID-19	C: Other	Total	P
Diagnosis					
Breast	168 (45,7)	40 (48,2)	30 (41,7)	238 (45,5)	
Thorax	24 (6,5)	5 (6)	8 (11,1)	37 (7,1)	
GIS	79 (21,5)	17 (20,5)	13 (18,1)	109 (20,8)	
UGS	63 (17,1)	14 (16,9)	10 (13,9)	87 (16,6)	0,591
Head and neck	17 (4,6)	1 (1,2)	4 (5,6)	22 (4,2)	
Rare tumors and others	17 (4,6)	6 (7,2)	7 (9,7)	30 (5,7)	

GIS: Gastrointestinal system. UGS: Urogenital system

Table 4. Comparison of categorical variables according to the most stressful Traumatic moment in the patients' lives.

	A: I'm currently being treated here for my disease	B: I'm likely to catch COVID-19	C: Other	Total	p
Frequency distribution of patient groups. N (%)	368 (70,4)	83 (15,9)	72(13,8)	523 (100)	
1:I feel like this event has become part of my personality.					
I do not agree at all	42 (11,4)	18 (21,7)	17 (23,6)	77 (14,7)	
Slightly agree	51 (13,9)	16 (19,3)	17 (23,6)	84 (16,1)	
I agree moderately	74 (20,1)	16 (19,3)	10 (13,9)	100 (19,1)	**0,005**
I mostly agree	90 (24,5)	16 (19,3)	8 (11,1)	114 (21,8)	
I totally agree	111 (30,2)	17 (20,5)	20 (27,8)	148 (28,3)	

2: This event has become a reference point for the way I understand myself and the world					
I do not agree at all	39 (10,6)	7 (8,4)	7 (9,7)	53 (10,1)	
Slightly agree	50 (13,6)	15 (18,1)	17 (23,6)	82 (15,7)	
I agree moderately	82 (22,3)	18 (21,7)	14 (19,4)	114 (21,8)	0,228
I mostly agree	96 (26,1)	24 (28,9)	10 (13,9)	130 (24,9)	
I totally agree	101 (27,4)	19 (22,9)	24 (33,3)	144 (27,5)	
3:I feel like this event has become a central part of my life story					
I do not agree at all.	34 (9,2)	10 (12)	11 (15,3)	55 (10,5)	
Slightly agree	37 (10,1)	8 (9,6)	9 (12,5)	54 (10,3)	
I agree moderately	70 (19)	23 (27,7)	22 (30,6)	115 (22)	**0,035**
I mostly agree	96 (26,1)	22 (26,5)	8 (11,1)	126 (24,1)	
I totally agree	131 (35,6)	20 (24,1)	22 (30,6)	173 (33,1)	
4: 'This event has colored the way I think and feel about other experiences					
I do not agree at all.	44 (12)	10 (12)	9 (12,5)	63 (12)	
Slightly agree	38 (10,3)	14 (16,9)	14 (19,4)	66 (12,6)	
I agree moderately	77 (20,9)	18 (21,7)	21 (29,2)	116 (22,2)	0,146
I mostly agree	89 (24,2)	20 (24,1)	10 (13,9)	119 (22,8)	
I totally agree	120 (32,6)	21 (25,3)	18 (25)	159 (30,4)	
5: This event permanently changed my life					
I do not agree at all.	35 (9,5)	13 (15,7)	15 (20,8)	63 (12)	
Slightly agree	50 (13,6)	15 (18,1)	8 (11,1)	73 (14)	
I agree moderately	58 (15,8)	16 (19,3)	12 (16,7)	86 (16,4)	0,112
I mostly agree	85 (23,1)	12 (14,5)	13 (18,1)	110 (21)	
I totally agree	140 (38)	27 (32,5)	24 (33,3)	191(36,5)	
6: Often this event will have on my future think about the effects					
I do not agree at all.	35 (9,5)	12 (14,5)	11 (15,3)	58 (11,1)	
Slightly agree	42 (11,4)	9 (10,8)	20 (27,8)	71 (13,6)	
I agree moderately	74 (20,1)	16 (19,3)	14 (19,4)	104(19,9)	**0,006**
I mostly agree	91 (24,7)	19 (22,9)	8 (11,1)	118(22,6)	
I totally agree	126 (34,2)	27 (32,5)	19 (26,4)	172(32,9)	
7: This event was a turning point in my life					
I do not agree at all.	35 (9,5)	11 (13,3)	11 (15,3)	57 (10,9)	
Slightly agree	34 (9,2)	13 (15,7)	12 (16,7)	59 (11,3)	
I agree moderately	63 (17,1)	16 (19,3)	14 (19,4)	93 (17,8)	**0,008**
I mostly agree	75 (20,4)	19 (22,9)	3 (4,2)	97 (18,5)	
I totally agree	161 (43,8)	24 (28,9)	32 (44,4)	217(41,5)	

Discussion:

Cancer patients experience a period of intense anxiety from the time of diagnosis to treatment, surgery, and in metastasis for those at advanced stages [10,11]. In addition, pain, loss of appetite, cachexia, changes in the sense of taste, hair loss, nausea, vomiting, mucositis, fatigue, shortness of breath, and depressive states are often observed associated with the disease itself or treatments. Emotional and behavioural reactions may completely change in these patients compared to the pre-diagnosis period[10-13]. It is also known that psychiatric problems are seen more in cancer patients than in the normal population.

In an analysis of 215 patients in 3 cancer centres in 2004, despite normal adaptation to stress in 53% of the patients, clinically apparent psychiatric disorders were determined in the remaining 47%. Of those with a psychiatric disorder, adaptive disorders with

a depressive or anxious mental state were seen in two thirds (68%), major depression in 13%, organic mental disorder in 8%, personality disorder in 7%, and a pre-existing anxiety disorder in 4%. The authors concluded that approximately 90% of the psychiatric disorders had manifested as a response to the disease or treatment. It has also been suggested that personality and anxiety disorders could make cancer treatment more difficult[13]. In the basic interpretation of all these data, which are updated from time to time by the WHO and stated by SAMSHA, it can be said that a cancer diagnosis and the subsequent period result in intense mental trauma (9).

Based on the hypotheses of Berntsen and Rubin, an individual places a traumatic and stressful event at the centre of personality and it is used as a reference point to give meaning to relationships by placing the event in a construct which can change life thereafter. Consistent with this hypothesis, from the aspect of the WHO definition of death-themed trauma, it is inevitable that a traumatic event will sit at the centre of an individual's self [6, 8, 12].

To what extent could this be due to fear because of the likelihood of contracting coronavirus infection? This study was conducted to seek an answer to this question, and it was seen that of a total of 523 patients diagnosed with cancer, the vast majority (n:368, 70.4%) saw the most traumatic and stressful event of their life as cancer, with the response to option A on the questionnaire. It is most likely that these individuals have a traumatic memory representing a reference to events in their life before the cancer diagnosis. However, the cancer diagnosis has become centralised by replacing this previous trauma[14]. The possibility of contracting COVID-19 was selected by 83 (15.9%) patients as the most stressful or traumatic event in their life. Similarly, the patients who marked this option could have a memory of a stressful or traumatic event which is seen as a reference point explaining events experienced in the past and shaping the future. Unlike the patients who marked option A, the centrality of this traumatic event may have been replaced by the cancer diagnosis. The fear of coronavirus infection can be interpreted as leading to a trauma sufficient to replace both of these. The option of C was marked by 72 (13.8%) patients. This showed that neither cancer nor fear of coronavirus infection was strong enough to replace the traumatic event experienced and centred in the identity of these 72 patients.

These traumas of the patients were analyzed with the mean CES points. The highest points were obtained by those who marked option A, at 3.71, which was statistically significantly higher than the 3.29 points for B and 3.29 points for C (p:0.004). To summarise, it can be said that the disease in these cancer patients was so firmly established in their identity that it had both replaced an old trauma and could not be replaced by a new trauma or the fear of coronavirus infection. The higher mean points of the CES strengthen this hypothesis.

The placement at the centre of personal identity or life history of a previously experienced traumatic, or extremely stressful, or highly emotional event was first determined objectively by Berntsen and Rubin with the CES [6, 15]. Rather than the damage of the event experienced left in the subconscious, the scale examines the centrality of the event in the lifestory of the person. To be able to correlate this, it is applied using the post-traumatic stress scale.

In the current study, the trauma experienced by the cancer patients was categorised with 3 questions at the start of the questionnaire. The distribution of the responses to the statement, "I feel that this event has become a part of my identity" showed that 30.2% of those who marked A completely agreed, 21.7% of those who marked B completely disagreed, and 27.8% of thoe who marked C completely agreed. The difference between these responses was determined to be statistically significant (p=0.005). There may not have been time yet for the fear of COVID-19 infection to become a part of the traumatic identity. However, this comment is negated as the trauma experienced by those who marked the other option probably occurred before the cancer diagnosis. To the statement, "I feel that this event has become a central part of my life story", 35.6% of the A option group completely agreed, 27.7% of the B group moderately agreed, and 30.6% of the C group moderately or completely agreed, and the difference between the groups was determined to be statistically significant (p=0.035).

A statistically significant difference was also determined between the groups in respect of the responses to the statement, "I often think that this event will affect my future" (p:0.006). Of those who marked option A, 34.2% completely agreed, 32.5% of B group completely agreed, and 27.8% of C group slightly agreed. This last item forms the backbone of the hypothesis and is the main concept that the questionnaire aims to reveal [15].

The responses to the item, "This event was a turning point in my life" were seen to be statistically significantly different between the groups in favour of those who marked option A (p=0.008). The reason for this in the scale is that a traffic accident experienced for the first time does not just remain as a traffic accident but has been associated by psychoanalysts as representing a turning point which could direct the rest of life [15]. This is verified by the individual seeing this trauma as a turning point in life.

The mean points of the CES were examined according to the A, B, C categories recorded on the day of questionnaire completion (As shown in figure). The highest points were recorded in the B option (I am likely to catch COVID-19) and were seen to correspond to the middle of summer when the number of cases was lowest. Just as in those who marked option C, these individuals have a trauma at the centre of their life, but time is required for the fear of COVID-19 to replace it in the memory. For this, the fiction based on old trauma must be distorted and reshaped in memory and reach a position that can be a reference for the future. This is indicated by the increase in the mean CES points in the period when the number of COVID-19 cases was lower [16].

When the patient characteristics of the groups were examined, there was seen to be no significant difference in the CES points according to age and gender, and they were distributed homogenously, which was consistent with literature (14, 16). That there was a greater number and proportionally more patients who were receiving chemotherapy who marked A was attributed to the trauma having shaped the patient's life and to the trauma still continuing. Although there have been previous studies of patient groups with known and evident trauma, such as military veterans and sexual abuse victims, no comparison could be made with literature, as no studies could be found related to the disease characteristics of cancer in this context [17, 18].

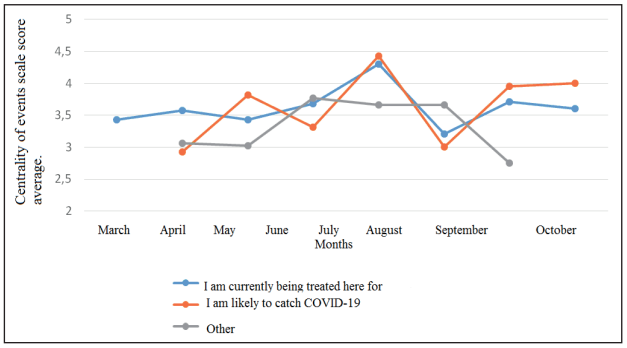

Figure : Line graph of the Event Centrality scale score

Conclusion:

A trauma left in the past actually lives on in the cognitive memory and may even be established at the centre of the self and personal identity. Thus, by modifying the short 7-item CES, developed by Berntsen and Rubin to be an objective, measurable format, the results of this study demonstratated both the extent to which the possibility of contracting COVID-19 has started to be established in cancer patients and the unshakable but declining centrality of cancer in the traumatic past.

Acknowledgement:

No financial support was received for our research and no funding

Source of fund: The authors did not get any funding for the preparation of this article. The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Conflicting interests:

The authors have no conflicts of interest to declare.

Authors's contribution:

Data gathering and idea owner of this study: FE, APE; Study design: FE, GG; Data gathering: GAA, CÇ; Writing and submitting manuscript: FE; Editing and approval of final draft: GG, APE, AD

References:

1. Banna G, Curioni-Fontecedro A, Friedlaender A, Addeo A. How we treat patients with lung cancer during the SARS-CoV-2 pandemic: primum non nocere. ESMO Open. 2019;**4**:e000765. https://doi.org/10.1136/esmoopen-2020-000765.
2. Ayhan M, Odabas H, Turan N, Ozyukseler DT, Kostek O, Alkan G, et al. Factors affecting the mortality rate of patients with cancer hospitalized with COVID-19: a single center's experience. *Journal ofChemotherapy*. 2021;**3**(7):499-508.https://doi.org/10.1080/1120009X.2021.1923153
3. Sartelli, M. (). The Paradox of the COVID-19 Pandemic. *Bangladesh Journal of Medical Science*, 2021;***20***(5): 15-16. https://doi.org/10.3329/bjms.v20i5.55395
4. Chowdhury, K., Etando, A., Shahwan, M., Škrbić, R., Jairoun, A. A., Haque, M., & Godman, B. (). COVID-19 and the impact on the education of healthcare professionals across countries with a particular focus on developing countries. *Bangladesh Journal of Medical Science*, 2022;**21**(2): 221–232. https://doi.org/10.3329/bjms.v21i2.58053
5. Ankaralı, H., Erarslan, N., Pasin, Özge, & Mahmood, A. K. (). Modeling and Short-Term Forecasts of Indicators for COVID-19 Outbreak in 25 Countries at the end of March. *Bangladesh Journal of Medical Science*, *19*,2020; 6-20. https://doi.org/10.3329/bjms.v19i0.47611
6. Berntsen D, Rubin DC. The centrality of event scale: A measure of integrating a trauma into one's identity and its relation to post-traumatic stress disorder symptoms. Behaviour Research and Therapy. 2006 Feb;**44**(2):219-31.https://doi.org/10.1016/j.brat.2005.01.009.
7. Gehrt TB, Berntsen D, Hoyle RH, Rubin DC. Psychological and clinical correlates of the Centrality of Event Scale: A systematic review. Clin Psychol Rev. 2018;**11**;65:57-80.. https://doi.org/10.1016/j.cpr.2018.07.006.
8. Egeci İS, Doğruyol B. OLAYLARIN MERKEZİYETİ ÖLÇEĞİNİN FAKTÖR YAPISINA YENİ BİR BAKIŞ. *Elektronik Sosyal Bilimler Dergisi*. 2019 Jul;**15**:18.71201: 1040-1050.https://doi.org/10.17755/esosder.432453
9. Kutikov A, Weinberg DS, Edelman MJ, Horwitz EM, Uzzo RG, Fisher RI. A War on Two Fronts: Cancer Care in the Time of COVID-19. *Annals of Internal Medicine*. 2020 Jun 2;**172**(11):756-8. https://doi.org/10.7326/M20-1133.
10. Erdoğan AP, Ekinci F, Acar Ö, Göksel G. Level of COVID-19 fear in cancer patients. *Middle East CurrPsychiatry*. 2022 Dec; ***29***(1), 1-8. https://doi.org/10.1186/s43045-022-00181-5
11. Ernstmann N, Neumann M, Ommen O, Galushko M, Wirtz M, Voltz R, et al. Determinants and implications of cancer patients' psychosocial needs. *Support Care Cancer*. 2009 Nov;**17**(11):1417-23.https://doi.org/10.1007/s00520-009-0605-7.
12. Akagunduz B, Ozer M, Karacin C, Atcı MM, Yıldırım HC, Unver E. Impact of coronaphobia on treatment and follow-up compliance of cancer patients. *Future Oncology*. 2021 Jul;**17**(20):2621-9https://doi.org/10.2217/fon-2021-0020
13. Massie MJ. Prevalence of Depression in Patients With Cancer. *Journal of the National Cancer InstituteMonographs*. 2004 Jul 2004;(32):57-71. https://doi.org/10.1093/jncimonographs/lgh014.
14. Ionio C, Mascheroni E, Di Blasio P. The Centrality of Events Scale for Italian adolescents: Integrating traumatic experience into one's identity and its relation to posttraumatic stress disorder symptomatology. *Eur J Psychol*. 2018 Jun 19;**14**(2):359-72. https://doi.org/10.5964/ejop.v14i2.1465
15. Berntsen D, Rubin DC. When a trauma becomes a key to identity: enhanced integration of trauma memories predicts posttraumatic stress disorder symptoms. *Appl Cognit Psychol*. 2007 May;**21**(4):417-31.https://doi.org/10.1002/acp.1290
16. Rubin DC, Berntsen D, Bohni MK. A memory-based model of posttraumatic stress disorder: Evaluating basic assumptions underlying the PTSD diagnosis.. *Psychological Review*. 2008 Oct;**115(**4):985-1011. . https://doi.org/10.1037/a0013397.
17. Brown AD, Antonius D, Kramer M, Root JC, Hirst W. Trauma centrality and PTSD in veterans returning from Iraq and Afghanistan. *J Traum Stress*. 2010 Aug;**23**(4):496-9. https://doi.org/10.1002/jts.20547.
18. Robinaugh DJ, McNally RJ. Trauma centrality and PTSD symptom severity in adult survivors of childhood sexual abuse. J Traum Stress. 2011 Aug;24(4):483-6. https://doi.org/10.1002/jts.20656.