

# **International Journal of Research Publication and Reviews**

Journal homepage: www.ijrpr.com ISSN 2582-7421

# **Post-Traumatic Stress Disorder in Patients with Cancer: Incidence and Determinant Factors.**

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#### SUMMARY.

Introduction. Post-traumatic stress disorders (PTSDs) have been established to occur after traumatic events in life such as cancer announcement. Goals. Our study sought to evaluate the prevalence but also identify the determining factors of PTSDs in Morocco patients after cancer announcement.

Methods. Patients submitted to PCL5 questionnaire, seeking PTSDs criteria.

**Results.** For the 93 cases (59 women, 34 men; mean age: 59 years) included in the study and suffering for diverse cancer types, the threshold of 38 in the PCL5 scale, indicative of the presence of PTSDs was equaled or exceeded in 41 patients (38.4 %). On the other hand, the statistical analysis was not able to exhibit any correlation between age, sex, marital status, type of cancer, delay of cancer, or type of treatment and PTSDs.

**Conclusion.** PTSDs are frequent after cancer announcement in our context, with no evident precipitant factor. The results of our study raise up the need for appropriate therapeutic support in this patients populations.

## **1. INTRODUCTION.**

Post-traumatic stress disorders (PTSDs) have been recognized to potentially occur after traumatic events such as cancer and an extensive literature has evaluated the prevalence, predictors, and correlates of cancer-related post-traumatic stress disorder (PTSDs) symptoms and diagnoses [1, 2].

Morocco is a kingdom of North Africa with 40 million inhabitants and 55,000 new cases of cancer per year, and with a mortality rate by cancer of 86.9 per 100000 inhabitants [3].

According to a Moroccan national survey on the prevalence of mental illnesses, 26.5 % of Moroccans are potentially suffering from depression, 9 % from anxiety, 5.6 % from psychotic troubles and 6.5 % from suicidal thoughts. So, it seems that mental illnesses are frequent in the kingdom [4].

Our psychiatric unit, which is part of the Tangier – Tetouan – Al Hoceima university hospital center (UHC), serves the entire northern part of the country. In order to evaluate the prevalence of PTSDs and their determining factors in the specific setting of cancer in our lands, we conducted this study, in collaboration with the oncologic unit of our UHC.

#### 1.1. Issue of the problem.

The process leading to identification of cancer is long and stressful with an increased risk of psychiatric disorders occurrence (depression, anxiety, others stress disorders). Cancer survivors report that cancer can elicit symptoms of traumatic stress. Thus, there is a growing awareness of the psychological impact of cancer diagnosis and treatment on the patient. At the same time, major advances in cancer treatment have led to increased survival periods but when cancer-related PTSDs are untreated, medical and psychiatric morbidity increase. Thus, the recognition and good quantification of cancer-related PTSDs is essential for correct treatment. Despite the prevalence, impact, and morbidity of cancer-related PTSD, access to mental health care in cancer patients remains limited. It is therefore important to increase mental health providers' awareness of cancer-related PTSD, given rising cancer rates and the potential for enhancing quality of life [5].

#### 1.2 Study objectives.

4 main objectives were assigned to this study; to:

- 2) Exhibit the main socio-epidemiological characteristics of the relation between PTSDs and cancer in our setting;
- 3) Raise awareness on the reality of PTSDs in cancer patients;
- 4) Highlight the facts that suggest to take into consideration PTSDs when dealing with cancer patients in our context.

# 2. METHODOLOGY.

We conducted, in collaboration with the oncologic unit of our UHC, this descriptive and analytic transverse study in the psychiatric unit of Tangier – Tetouan – Al Hoceima University Hospital Center (UHC), during the period running from the 1<sup>st</sup> January to the 28<sup>th</sup> February, 2023.

#### 2.1. Inclusion criteria.

Every patient admitted in the oncologic unit for treatment after a diagnosis of cancer was potentially eligible for this study. Patients were approached during their medical consultation, and they were offered to join the study. So, well informed consent was required for inclusion.

#### 2.2. Exclusion criteria.

No consent, extreme asthenia or unconsciousness were the main exclusion criteria.

## 2.3. Data collection.

All the patients included into the study were subsequently submitted to the PCL5 questionnaire (PTSD checklist for diagnostic and statistical manual for mental disorders fifth edition (PCL5), table 1) [6], which has 20 items, in order to identify troubles related to post-traumatic stress disorders (PTSDs). In the PCL5 questionnaire, the quantification of the disorders is carried out according to a scale going from 0 (not at all) to 4 (extreme seriousness). The patient then had to make a choice between 0 (not at all), 1 (a little bit), 2 (moderately), 3 (quite a bit) and 4 (extremely). The total score of a given patient was obtained by adding the different numbers chosen in each item. A total score equal or greater than 38 was indicative of PTSDs.

	In the past month, how much were you bothered by:	Not at all	A little bit	Moderately	Quite a bit	Extremely
1.	Repeated, disturbing, and unwanted memories of the stressful experience?	0	1	2	3	(4)
2.	Repeated, disturbing dreams of the stressful experience?	0	1	2	3	4
3.	Suddenly feeling or acting as if the stressful experience were actually happening again (as if you were actually back there reliving it)?	0	1	2	3	(4)
4.	Feeling very upset when something reminded you of the stressful experience?	0	1	2	3	4
5.	Having strong physical reactions when something reminded you of the stressful experience (for example, heart pounding, trouble breathing, sweating)?	0	1	2	3	(4)
6.	Avoiding memories, thoughts, or feelings related to the stressful experience?	0	1	2	3	4
7.	Avoiding external reminders of the stressful experience (for example, people, places, conversations, activities, objects, or situations)?	0	1	2	3	(4)
8.	Trouble remembering important parts of the stressful experience?	0	1	2	3	4
9.	Having strong negative beliefs about yourself, other people, or the world (for example, having thoughts such as: I am bad, there is something seriously wrong with me, no one can be trusted, the world is completely dangerous)?	0	1	2	3	4
10	. Blaming yourself or someone else for the stressful experience or what happened after it?	0	1	2	3	4
11	. Having strong negative feelings such as fear, horror, anger, guilt, or shame?	0	1	2	3	4
12	. Loss of interest in activities that you used to enjoy?	0	1	2	3	4
13	. Feeling distant or cut off from other people?	0	1	2	3	4
14	. Trouble experiencing positive feelings (for example, being unable to feel happiness or have loving feelings for people close to you)?	0	1	2	3	4
15	. Irritable behavior, angry outbursts, or acting aggressively?	0	1	2	3	(4)
16	. Taking too many risks or doing things that could cause you harm?	0	1	2	3	(4)
17	. Being "superalert" or watchful or on guard?	0	1	2	3	(4)
18	. Feeling jumpy or easily startled?	0	1	2	3	(4)
19	. Having difficulty concentrating?	0	1	2	3	(4)
20	. Trouble falling or staying asleep?	0	1	2	3	4

#### Table 1. PCL5 questionnaire.

Others socio-demographic data such as age, gender, marital status but also time since cancer diagnosis, type of cancer, specific treatment administered, were also collected. Depending on their nature and the intended purpose, percentages or mean values of all these parameters under investigation were obtained.

#### 2.4. Statistical analysis.

Statistical analysis were performed using the software SP55v28, looking for any significant correlation between a particular parameter among those under study, and the occurrence of PTSDs.

#### 3. RESULTS.

93 patients (59 women, 34 men) with a mean age of 52 years (21-80) were included in this study, all of them being on treatment at the time of the survey. Patient characteristics are summarized in table 1. The marital status was characterized by 55 % married, 18 % single, 15 % divorced and 12 % widowed. 80 % of our study population have had the diagnosis of cancer made since less than one year. Although we observed a majority of breast (37.5 %), cervical (12.9 %) and lung (12.9 %) cancers, the type of cancer was very diverse. Chemotherapy and primary surgery were the main treatment options.

Considering the results of the main objective of this study, 38.7 % (n = 36) of the survey participants had a PCL5 score equal or greater than 38, namely they exhibited features of PTSDs. On the other hand, near than 10 % (n = 9) exhibited a total score of zero, while 51.6 % (n = 48) had a total score between 1 and 37.

The statistical analysis looking for a possible significant correlation between a specific parameter (age, gender, marital status, time since cancer diagnosis, cancer type, treatment modality) and a score greater than or equal to 38 was inconclusive. Also, the comparison between PTSDs and non-PTSDs patients objected no relationship for any of these socio-demographic parameters.

Variable.	Ν		
Moon age (veers)	59 (21-80)		
Wean age (years).	59 (21-80)		
Sex (male/female).	(34/59; 0,576).		
Marital status.			
Married.	55 %.		
Single.	18 %.		
Divorced.	15 %.		
Widowed.	12 %.		
Time since cancer diagnosis.			
Less than 1 year.			
Between 1–3 years.			
More than 3 years.			
Type of cancer.			
Breast.	37.6 %.		
Cervical.	12.9 %.		
Lung.	12.9 %.		
Colon.	07.5 %.		
Endometrial.	05.4 %.		
Stomach.	05.4 %.		
Leukemia.	03.2 %.		
Bladder.	03.2 %.		
Prostate.	02.2 %.		
Others.	09.8 %.		
Type of cancer treatment.			
Chemotherapy.	41.46 %.		
Chemotherapy + radiotherapy.	16.13 %.		
Surgery.	03.23 %.		
Primary surgery.	31.18 %.		

#### Table 2. Patient characteristics.

ITEM.	Not at all.	A little bit.	Moderately.	Quite a bit.	Extremely.	
SCORE.	0	1	2	3	4	
1.	33,3	16,1	08,6	25,8	16,1	
2.	40,2	18;5	06,5	26,1	08,7	
3.	28	25,8	08,6	29	08,6	
4.	22,6	29	12,9	26,5	08,6	
5.	22,6	30,1	11;8	25,8	09,7	
6.	20,7	31,5	16,3	23,9	07,6	
7.	22	28,6	17,6	24,2	07,6	
8.	21,5	29	16,1	24,7	08,6	
9.	23,7	24,7	17,2	25,8	08,6	
10.	21,7	26,1	16,3	28,3	07,5	

Table 3. Distribution of the patient answers for the 10 first items.

#### Table 3 (continuous). Distribution of the patient answers for the items 11-20.

ITEM.	Not at all.	A little bit.	Moderately.	Quite a bit.	Extremely.
SCORE.	0	1	2	3	4
11.	22,6	22,6	18,3	30,1	06,2
12.	23,7	22,6	19,4	26,9	07,5
13.	21,1	28,9	14,4	27,8	07,8
14.	21,7	26,1	15,2	28,3	08,6
15.	15,1	23,7	10,8	35,5	15,1
16.	28	29	09,7	24,7	08,6
17.	24,7	28,1	09	29,2	09
18.	22,6	30,1	10,8	28	08,6
19.	19,6	30,4	09,8	31,5	08,6
20.	19,6	32,6	09,8	30,4	07,6

#### Table 4. Total score in PCL5 questionnaire.

Score value.	Ν	%
0	09	09.7
1-37.	48	51.6
38 or greater.	36	38.7

# 4. DISCUSSION.

In 2018, IARC estimated the burden cancer worldwide with 18.1 million new cases and 9.6 million deaths. These are all latest estimates of incidence and mortality in 185 countries and for 36 types of cancer as well as for all cancer sites combined [3].

In Morocco, the annual incidence of new cases of cancer was 40,000 in 2012, while projections show a multiplication of this figure by 3 by 2030 [7]. Thus, cancer is currently a major health problem in our country.

Emotional responses to being diagnosed with and treated for cancer can range from acute fear, sadness, and anger to enduring adjustment difficulties, anxiety and depression [8].

On the basis of studies documenting traumatic stress-like reactions (eg, intrusive ideation, reactivity to reminders, avoidance) in patients with cancer, the DSM-IV-TR1 post-traumatic stress disorder (PTSDs) [9] diagnostic criteria were expanded to include diagnosis and treatment of a life-threatening illness as a stressor that could elicit PTSDs [8]. An extensive literature emerged, evaluating the prevalence, predictors, and correlates of cancer-related PTSD symptoms and diagnoses [10-13]. Also, the need to treat cancer-related PTSD in order to decrease medical and psychiatric morbidity and thus improve clinical outcomes has been highlighted [5].

As we already said in the introduction of this study, the prevalence of mental illnesses within the general Moroccan population is substantial. Thus, in a study such as ours, one would expect high rates of PTSDs. So, our values are in accordance to those usually reported in the literature for cancer-related PTSDs, based on DSM-IV-TR criteria [1].

But even prevalence estimates based on DSM-IV-TR criteria suggest that although self-reported symptoms are common, only a minority of patients with cancer meet formal diagnostic criteria for cancer-related PTSD (DSM-5). Across studies, more than 50% of patients with cancer meet the DSM-IV-TR stressor criteria (ie, they perceive cancer to involve a threat to their life or physical integrity), and they experience fear, helplessness, or horror [14].

The high percentage rates observed during our study, can firstly be explained by the fact that the majority of studies having used the PCL cut-off method, like us, were characterized by a population of breast cancers at an early stage only, and therefore more homogeneous. On the other hand, cancer types were very diverse and at different levels of severity in our study. All participants were in treatment phase, which corresponds to a critical mental situation. Also, we had a great diversity in terms of age, socioeconomic level, social support. Moreover, despite all the progress made in recent years in the Kingdom's public hospitals, particularly in the treatment of cancers (equipment and materials, care circuit, training of oncologists, treatment costs, etc.), the Moroccan citizen retains a relative lack of confidence in these places and many cancer patients still consider the hospital to be the place where they will die **[15]**.

It would therefore make sense in the future to develop, in the specific context of cancer, assessment tools that take into account all these dimensions and specificities of the problem.

Mundy et al [16] reported that lifetime post-cancer PTSDs was as high as 35 %. In the same order of ideas, Smith et al [] reported subclinical cancerrelated PTSDs to be around 60 %. Finally, Gurevich, Devins and Rodin [17] reported that, although PTSDs are seen at rates around 3.5 % in the general population, they climb up to 20 % at the announcement of a cancer to reach 35 % during treatment. So, our results seem therefore quite acceptable.

Our study sample was balanced: the proportions of representativeness of age and sex groups, types of cancer and even marital status in relation to the cancer population of our country, were respected. We can therefore say that our sample is quite representative of the national reality concerning cancer and probably cancer-related PTSDs.

10 % of our participants had a score of zero. The question of disease denial or dissociative amnesia has been known since Janet during the first half of the last century. These patients tend to minimize or even not admit their condition [18].

Many precipitating factors have been identified for PTSDs occurrence in cancer patients: female sex, young age at the time of diagnosis, low socioeconomic level, emotionally reactive temperament, avoidance of adaptation, poor social support, poor social activity, reduced physical activity [8-10]. However, none of those investigated in this study turned out to be decisive in our context.

There is evidence of a considerable decline in PTSDs symptomatology in the majority of patients within 3 months of diagnosis or at the end of treatment [1, 10].

Nevertheless, in some patients, PTSDs have a fluctuating nature. Tjemsland et al. reported that in their study, 8% of cases met PTSD criteria 6 weeks postoperatively but 12% of their sample met PTSD criteria 12 months postoperatively **[19-21]**.

Treatment of cancer-related PTSDs follows general guidelines for the management of PTSDs but evidence base available to inform treatment of cancerrelated PTSD is limited. [22].

Decisions should be informed by clinical practice guidelines for PTSD and for management of distress in patients with cancer [23].

The study of the incidence of PTSDs in the case of cancer presents many difficulties of approach. First of all, nearly all studies evaluating the prevalence of PTSDs in cancer are transverse. There is therefore a strong need for prospective studies. Secondly and with regard to the assessment tools, the PLC has a trend of increasing false positives. Moreover, some authors argued that it fails to establish whether an individual meets the stressor criterion for PTSD [2, 14]. Finally, in the literature reports, sampling is characterized by a high sample variability while many studies include only early to moderate homogeneous cancers.

#### 5. FUTURE PROSPECTS.

Our study clearly demonstrates that the influence of socio-demographic factors as well as that of a possible history of unrecognized PTSDs should be best characterized in this category of patients in our context. Also, a psychiatric data sheet in order to assess any cancer patient, seems required. On an international scale, the pathophysiological model of cancer-related PTSDs needs to be better refined, as is required to closely estimate the PTSD (DMS-5 ?).

# 6. CONCLUSION.

The incidence of PTSDs is high in cancer patients in our context. It would then be wise to integrate this reality into the management process for this category of patients. However, the application of the PTSD diagnosis to cancer-related adjustment difficulties is not without controversy.

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