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Effect of Psychological First Aid Intervention Program on Post-traumatic Growth among Recently Diagnosed Cancer Patients

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Abstract: **Cancer diagnosis and related treatment represent one of the most painful and distressing events that human beings can meet in their life. This causes a serious crisis in the lives of patients, their families, and those around them. This study aims to evaluate the effect of psychological first aid intervention program on post-traumatic growth among recently diagnosed cancer patients. Study design: A quasi-experimental design was utilized. Setting: The study conducted in the following hospitals at Ismailia city: Suez Canal University Hospitals and Ismailia Oncology Hospital. Subject: A sample of 52 recently diagnosed cancer patients. Tools of data collection: Two tools were used: Tool (I) demographic characteristics and medical background. Tool (II) Post-traumatic Growth Inventory (PTGI). Results: Findings revealed that, recently diagnosed cancer patients had low level of post-traumatic growth in pre-program phase while, post and follow up phases, the results revealed that patients had high level of post-traumatic growth. Conclusion: Psychological first aid intervention program had significant effect on improvement of post-traumatic growth of recently diagnosed cancer patients in post, and follow up study phases compared with pre-program phase. Recommendation: Psychological first aid based interventions can be combined with care programs of hospitals and daily clinical works as a complementary intervention.**

Keywords: **Cancer, Post-traumatic growth, Psychological first aid, Recently diagnosed.**

I. INTRODUCTION

Cancer is a serious health problem that requires long-term struggle physically, psychologically, financially and spiritually in all societies. Cancer remains the second leading cause of death worldwide, despite the improvement in survival rates over the past two decades due to diagnostic and therapeutic advances ***(Şirin & Göksel, 2021; Fung et al., 2022; Siegel et al., 2022)***.

Cancer is a major life stressor and traumatic event, especially for recently diagnosed cancer patients, as it accompanied by negative symptoms and consequences such as anxiety and depression, fear of cancer recurrence and its progression to other organs, fear of the future, fatigue, pain, physical limitations, possible social isolation, invasive medical procedures and their side effects, as well as changes in social roles and interpersonal relationships. Therefore, recently diagnosed cancer patients are considered a vulnerable segment of the population suffering the action of many stressors ***(Benli et al., 2022)***.

Cancer is thought to be a unique traumatic stressor when compared to other serious illnesses and non-medical traumatic events. As a result, post-traumatic stress and growth are common reactions to cancer diagnosis. In meaning that, cancer diagnosis as a traumatic experience can conversely have a positive effect on patients known as post-traumatic growth (PTG).Viewing post-cancer as a start of a new life that may lead them to change everything in their lives ***(Chen et al., 2019; Evans et al., 2022)***.

Posttraumatic growth (PTG) refers to the subjective, positive psychological changes that occur after a major life crisis or traumatic event. These changes typically result in benefits such as increased life appreciation, renewed or altered life priorities, an enhanced sense of personal strength, improved social relationships, perceived new possibilities, developing a deeper sense of spirituality and personal meaning, increased bodily care, positive health behaviour changes, and enhanced feelings of personal control ***(Seiler & Jenewein, 2019; Park et al., 2022)***.

The role of psychological factors of cancer care has been an interesting research topic over the last decades. In which covering the psychosocial needs should be an integral part of quality cancer care, as, it is impossible to provide good-quality cancer care without addressing the patient's psychosocial health needs ***(Grassi, 2020)***.

Therefore, psychological first aid PFA is regarded as a critical psychological intervention tool for reducing the negative effects of traumatic events on people who witness or survive humanitarian crises. Because the individual's physical, mental, behavioural, and spiritual reactions may interfere with adaptive coping and impede the recovery process ***(Shah et al., 2020)***.

Recently, there has been significant attention to complementary and alternative medicine (CAM) as a safe nursing intervention in patients with various types of cancer. Therefore, in daily clinical practice, psycho-oncology nurses play an important role in providing CAM-based supportive care as a psycho-social intervention to cancer patients ***(Harorani et al., 2020)***.

Accordingly, psycho-oncology nurses through using supportive, psychological, and compassionate approach; they can identify urgent and basic needs of individuals experiencing intense stress. Thus, they can provide the appropriate physical and psychological support most acutely needed by the affected individuals. Thanks to their communication knowledge and skills, they can assist cancer patients in using rational coping behaviours in difficult situations and recovering their strengths ***(Kilic & Şimşek, 2018)***.

Therefore, the present study aimed to evaluate the effect of psychological first aid intervention program on post-traumatic growth among recently diagnosed cancer patients.

II. SUBJECTS AND METHOD

2.1. The aim of the study: The present study aimed to evaluate the effect of psychological first aid intervention program on post-traumatic growth among recently diagnosed cancer patients**.**

2.2. Research hypothesis:

The study hypothesis was that, patients who receive psychological first aid intervention program will show significant improvement in post-traumatic growth.

2.3. Study design: A quasi-experimental design was utilized in this study.

2.4. The subjects of study: Purposive sample of 52 recently diagnosed cancer patients (18 male and 34 female)**.**

2.5. Study setting: The study conducted in the following hospitals at Ismailia city/ Egypt: Suez Canal University Hospitals (oncology outpatient clinics and inpatient oncology departments) and Ismailia Oncology Hospital include (oncology outpatient clinics and inpatient departments)**.**

2.6. Tools of data collection:

Data were collected using the three following tools:

Tool (I): Demographic characteristics and medical background:

Demographic characteristics included (Age, gender, marital status, level of education, place of residence, etc). Where, the medical background included: (Type of cancer, duration of the disease, disease stage, …etc).

Tool (II): Post-traumatic Growth Inventory (PTGI):

The Post-traumatic Growth Inventory (PTGI) was developed by ***(Tedeschi & Calhoun, 1996)***, and translated from English language into Arabic language by ***(Qumssan, 2016)***. It consisted of 21-item to measure the positive changes following adversity or trauma across five (PTG) dimensions: Relating to others (6, 8, 9, 15, 16, 20, 21), new possibilities (3, 7, 11, 14, 17), personal strength (4, 10, 12, 19), spiritual change (5, 18), and appreciation of life (1, 2, 13). Each item was rated along a 6-point Likert-type scale 0 "I did not experience this change as a result of my illness" to 5 "I experienced this change to a very great degree as a result of my illness".

Scoring system:

The total scores of the scale ranged from 0 to 105, in which the cutoff point regarding PTG level was determined as follow: scores of 45 and below represented non to low PTG levels, whereas scores of 46 and above represented medium to very high PTG levels ***(Mazor, Gelkopf et al. 2016).***

Validity and reliability:

Tools of data collection were clear, relevance, applicable, comprehensive, understandable, and ease for implementation. Reliability of scores on the Post-traumatic Growth Inventory (PTGI) estimated using Cronbach's α was (0.869) ***(Qumssan, 2016).***

2.7. Administrative design:

An official approval letters explaining the aim of the study were directed from the Dean of the faculty of Nursing, Suez Canal University to the directors of selected settings (Suez Canal University hospitals and Ismailia Oncology hospital) to obtain their permission and cooperation to conduct the study.

2.8. Ethical consideration:

The study proposal approved by the Research Ethics Committee at Faculty of Nursing, Suez Canal University code number (64/8-2019). Each patient was asked to give written consent to participate in the study after full explanation of the nature and the main aim of the study and its expected outcomes. The patient had the right to withdraw from the study at any time without any rationale, also they were informed that data not included in any further researches without another new consent from them. The gathered data were assured through coding of all data for confidentiality.

2.9. Field of Work:

The study conducted through four phases: Assessment (pre-test), program planning, program implementation, and evaluation (post-test).

Phase (1): Assessment (Pre-test):

Before starting up program planning, the researcher met the patients, introduce himself, and explained to them the aim and the benefits of the study to obtain their consent, establish trust relationship, gain their cooperation and confidence. After obtaining their written consent to participate on the study, the researcher started to fill-in study questionnaires form through personal interviewing.

Phase (II): Program planning:

Psychological First Aid intervention program (PFA, RAPID-Model) developed by ***(Everly Jr et al., 2014)*** was used in this study.

The aim of Psychological First Aid intervention program (PFA): Was to improve post-traumatic growth among recently diagnosed cancer patients.

The objectives of Psychological First Aid intervention program (PFA):

At the end of psychological first aid intervention program, the patients will able to:

1. Express their inner feelings and negative emotions using "here and now" approach.

2. Stabilize acute psychological and / or behavioral reactions.

3. Mitigate acute distress, post-traumatic stress, impairment, or dysfunction to assist in early recovery.

4. Develop suitable ways to foster natural coping, and post-traumatic growth mechanisms for future traumatic events.

Duration: The program consisted of 8 sessions in form of two sessions per week, each session lasting 60 - 90 minutes. It covered in a period of 24 weeks, from January 2021 to June 2021.

Content: The eligible cancer patients had been met individually. The researcher explained to the patients the aim of the study and encouraged them to participate. The researcher assured them about confidentiality to gain their trust, cooperation, and confidence. During the sessions, patients encouraged to ask questions, interjected their own experiences through active and reflective listening, and receiving feedback from them.

The program covered the **(RAPID)** Model of psychological first aid ***(Everly Jr et al., 2014)***, that included the following:

- Rapport and Reflective listening (two sessions).
- Assessment (one session).
- Prioritization (one session).
- Intervention (three sessions).
- Disposition (one session).

- **Phase (III): Program implementation:**

The program was implemented in form of sessions as follows:

Sessions (one & two): Rapport and Reflective listening (R):

These two sessions focused on establishing rapport and employing reflective listening to the patient as follows:

Session one: Included developing a trusting relationship with the patients, explain what will be done, utilize active and reflective listening techniques to establish some degree of empathy (perceived understanding) through listening to the patient story. Also, included description about psychological first aid and the aim of the program,

Session two: included providing the patients needed information and knowledge regarding main concepts of cancer diagnosis and related management e.g. (definition of cancer, type of cancer, treatment modalities….etc.), also included answering all patients' questions regarding cancer and all what they want to know regarding their diagnosis. In addition, included description about post-traumatic growth.

Session three: Assessment (A):

This session focused on, assessment of dimensional factors thatare likely to facilitate or impede rapid recovery of adaptive functioning, for example: the ability to understand and follow directions, the ability to express emotions in a healthful and constructive manner, social adaptability, and the ability to access interpersonal resources.

Session four: Prioritization (P):

This session focused on prioritization; that essentially as a triage task intended to guide an acute intervention plan for more severe psychological and behavioral reactions according the priority of patients' problems such as (post-traumatic stress symptoms, fear of treatment, fear of death, anxiety, loss of hope, in effective coping….etc.)

Sessions from (five to seven): Intervention (I):

These three sessions focused on using of different techniques to reduce acute distress and improve post-traumatic growth, as follows:

Session five: included cognitive restructuring and mindfulness (mindful breathing and mindful body scan).

Session six: included spiritual care (gratefulness, acceptance, and hopefulness)

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Session seven: included relaxation techniques (deep breathing exercises, progressive muscle relaxation, and guided imagery).

Session eight: Disposition (D):

This session involved the determination, if the patient regained the functional capacity to engage in the basic activities of daily living, needed further intervention or need referral and transitioning to other clinical or social supports.

Phase (IV): Evaluation (post-test):

After program implementation, the post-test was done immediately using the same pre-test tools to assess post traumatic growth.

Follow up: All tools of data collection were applied again three months later after program implementation as a follow up to assess the effectiveness of the program.

D. Statistical design:

Upon completion of data collection, variable included in each data collection sheet were organized and tabulated then coded prior to computerized data entry according to the three phases of the study (pre, post, and follow up). The data were then imported into Statistical Package for the Social Sciences (SPSS version 20.0) software for statistical analysis. Mean, stander deviation, Friedman test, Mann-Whitney test, Kruskal Wallis test, and spearman correlation coefficient were used for data statistical analysis.

III. RESULTS

Table (1): Distribution of studied subjects according to their demographic characteristics (No=52):

Demographic characteristics	No N=52	%
Age (in years)		
≤ 40	11	21.2
> 40	41	78.8
Mean ± SD 50.96 ± 12.641		
Marital status		
Married	50	96.2
Un married	2	3.8
Children		
Yes	49	94.2
No	3	5.8
Educational Level		
Basic education	42	80.8
High	10	19.2
Residence		
Rural	15	28.8
Urban	37	71.2
Work status		
Working	20	38.5
Not work	6	11.5
House wife	26	50

Table (1) shows demographic characteristics of the studied subjects, the mean age of the studied subjects was (50.96 ±12.641), most of them (96.2%) were married and (94.2%) of them had children. Concerning their education, the majority of them (80.8%) had basic education and nearly two third of them (71.2%) were living in urban areas. Regarding their work status, half of the studied subjects (50%) were house wives.

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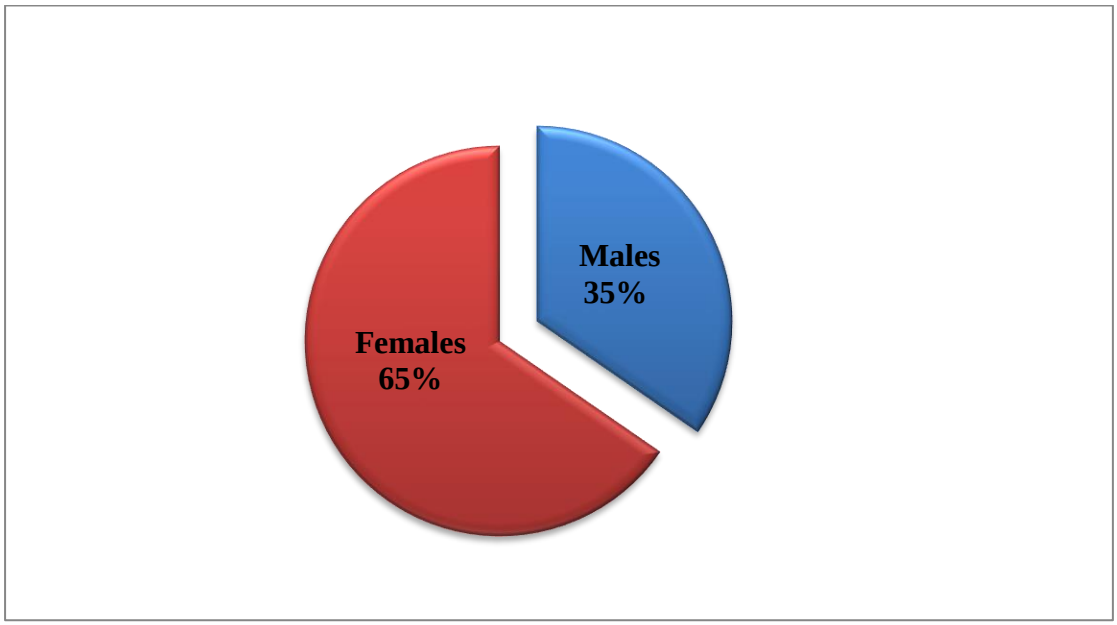

Figure (1) Distribution of studied subjects according their gender (No=52)

Figure (1) shows that; nearly two thirds (65%) of the studied subjects were female, while nearly one third (35%) of them were male.

Table (2): Distribution of studied subjects according to their medical background (No=52):

Medical background items	**No N=52**	**%**
Disease stage		
Stage I	11	21.2
Stage II	22	42.3
Stage III	14	26.9
Stage IV	5	9.6
Duration of diagnosis (in months) **Mean ± SD** 2.375 ± .585		
Type of current treatment		
Chemotherapy	17	32.7
Radiotherapy	6	11.5
Surgery	19	36.5
Not determined	10	19.2
Family support		
Yes	45	86.5
No	7	13.5

Table (2) shows medical background of the studied subject**s;** in which nearly one quarter of them (42.3%) had stage two of the disease. The mean score of disease duration in months was **(**2.375±.585). Regarding current treatment, nearly one third of the studied subjects (36.5%) were receiving surgical management. Concerning family support, the majority of the studied subject**s** (86.5%) were receiving family support.

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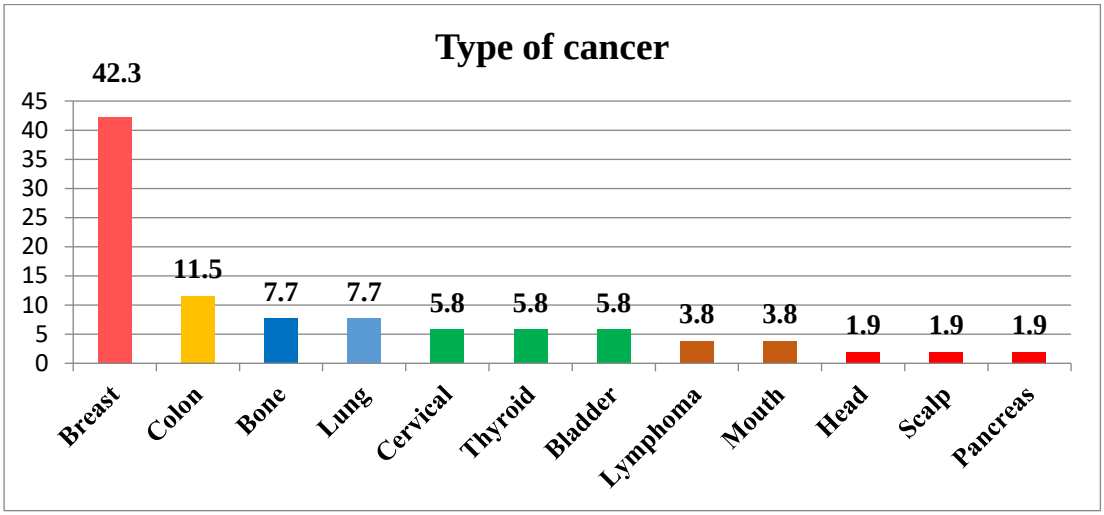

Figure (2) Distribution of studied subjects according to their type of cancer (No=52)

Figure (2) shows that; (42.3%) of the studied subjects had breast cancer, while (1.9%) of them had brain, scalp and pancreatic cancer.

Table (3): Distribution of the studied subject's according to post-traumatic growth (PTG) scale (No=52):

Post-traumatic growth subscales	Pre (Program)	Post (Program)	Follow up (program)	Friedman Test
	Mean ± SD	Mean ± SD	Mean ± SD	P-value
Relating to others	16.60 ± 1.612	28.79 ± 2.992	25.92 ± 3.022	<.001**
New possibilities	8.58 ± 1.363	19.65 ± 2.457	15.96 ± 2.835	<.001**
Personal Strength	8.46 ± 1.128	16.58 ±1.775	13.83 ±1.865	<.001**
Spiritual Change	6.21± .893	9.87 ± .525	9.67 ± .648	<.001**
Appreciation of Life	4.92 ± 1.341	12.50 ±1.674	10.19 ±1.645	<.001**

** Significant p –value ≤ 0.05 insignificant p –value > 0.05

Table (3) shows; the total means of relating to others subscale, in pre, post and follow up program were (16.60±1.612, 28.79±2.992, 25.92±3.022), respectively. While, new possibilities subscale in pre, post and follow up program were (8.58 ± 1.363, 19.65 ± 2.457, 15.96 ± 2.835), respectively. Concerning personal strength, the total mean pre, post and follow up program were (8.46± 1.128, 16.58±1.775, 13.83±1.865), respectively. Regarding spiritual change subscale, the total mean pre, post and follow up program were (6.21±.893, 9.87± .525, 9.67±.648), respectively. Lastly**,** appreciation of life subscale, the total mean pre, post and follow up program were (4.92 ± 1.341, 12.50 ± 1.674, 10.19 ± 1.645) respectively.

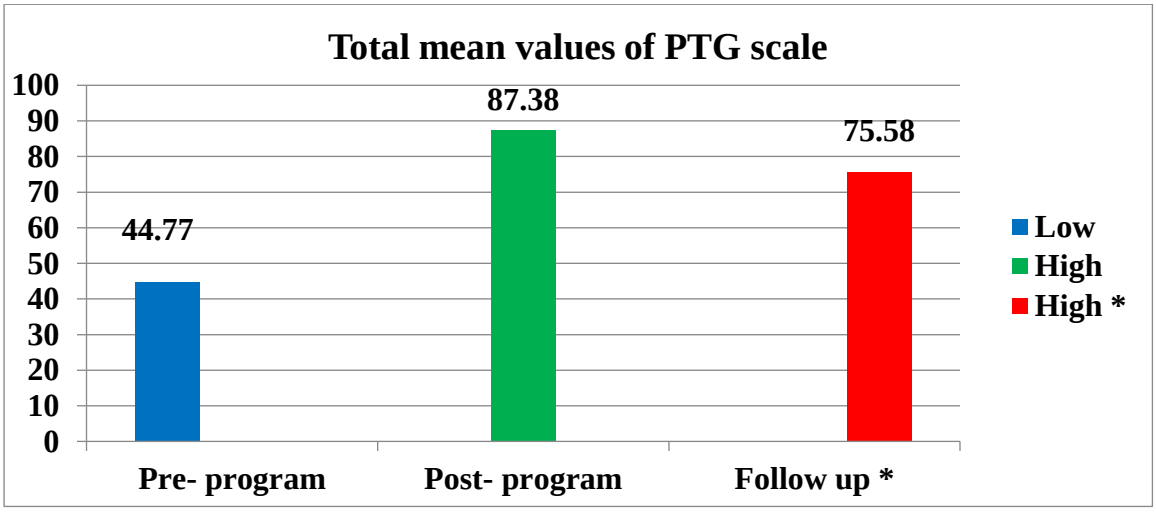

Figure (3) the level of post-traumatic growth (PTG) according to the total means values of (PTG) scale.

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Figure (3) shows that, the total mean of post-traumatic growth pre-program was (44.77± 3.929), which indicate low level of post-traumatic growth. Regarding, post and follow up-program, the total mean of post-traumatic growth were (87.38 ± 8.194) and (75.58 ± 8.398) respectively, that indicate high level of post-traumatic growth.

Table (4): Relation between demographic characteristics and post-traumatic growth of the studied subjects throughout study phases (No= 52):

Demographic characteristics	Pre (Program)		Post (Program)		Follow up (Program)	
	Mean ± SD	*P*- Value	Mean ± SD	*P*-Value	Mean ± SD	*P*- Value
Age (in years)	44.77 ± 3.929	.948[h]	87.38 ± 8.194	.169[h]	75.58 ± 8.398	.826[h]
Gender		.339[u]		.048[u]		.041[u]
Males	45.28 ± 3.177		89.06 ± 8.340		77.83 ± 11.531	
Females	44.50 ± 4.294		86.50 ± 5.863		74.38 ± 6.020	
Marital status		.943[u]		.489[u]		.233[u]
Married	44.74 ± 3.901		87.22 ± 8.242		75.34 ± 8.431	
Unmarried	45.50 ± 6.364		91.50± 7.778		81.50 ±6.364	
Children		.042[u]		.043[u]		.041[u]
Yes	49.67± 3.512		94.67 ± 4.041		83.67 ± 4.041	
No	44.47± 3.781		86.94± 8.194		75.08 ± 8.361	
Educational Level		.806[u]		.571[u]		.895[u]
Basic education	44.71 ± 4.140		87.21± 8.449		75.48 ± 8.506	
High	45.00 ± 3.055		88.10 ± 7.385		76.00 ± 8.353	
Residence		.090[u]		.723[u]		.266[u]
Rural	43.73 ± 4.383		85.27 ± 10.586		72.67± 10.05	
Urban	45.19 ± 3.711		88.24 ± 6.994		76.76 ± 7.485	
Work		.909[k]		.877[k]		.891[k]
Working	44.10 ± 4.327		86.80 ± 11.893		75.35 ± 11.641	
Not work	44.67 ± 2.338		88.50 ± 4.930		75.83± 7.548	
House wife	45.31 ± 3.937		87.58 ± 4.900		75.69 ± 5.424	

Significant *P* –value ≤ 0.05 **insignificant *P* –value > 0.05**

h. Spearman correlation coefficient **u. Mann-Whitney Test**

k. Kruskal Wallis Test

Table (4) shows statistical significant relation between post-traumatic growth and gender in post and follow up program (*p* value = .048 & .041) respectively. Furthermore, there was statistical significant relation between post-traumatic growth and having children in pre, post, and follow up program (*p* value = .042, .043 & .041) respectively.

Table (5): Relation between medical background and post-traumatic growth of the studied subjects throughout study phases (No= 52):

Medical background	Pre (Program)		Post (Program)		Follow up (Program)	
	Mean ± SD	*P*- Value	Mean ± SD	*P*-Value	Mean ± SD	*P*- Value
Disease stage		.886 [k]		.463 [k]		.583 [k]
Stage I	44.82 ± 3.573		89.45 ± 4.967		77.18 ± 6.705	
Stage II	45.32 ± 3.859		86.41 ± 9.011		74.82 ± 9.001	
Stage III	44.36 ± 3.713		86.64 ± 6.990		74.86 ± 7.492	
Stage IV	43.40 ± 6.107		89.20 ± 13.646		77.40 ±12.759	

Duration of diagnosis	44.77 ± 3.929	.640[h]	87.38 ± 8.194	.768[h]	75.58 ± 8.398	.705[h]
Current treatment		.119[k]		.239[k]		.699[k]
Chemotherapy	43.95 ± 4.288		84.53 ± 8.947		73.79 ± 8.760	
Radiotherapy	44.00 ± 3.553		88.24± 8.555		75.76 ± 9.523	
Surgery	46.67 ± 2.582		88.17 ± 5.565		76.17 ± 6.616	
Not determined	46.50 ± 4.035		90.90 ± 6.350		78.30 ± 6.734	
Family support		.034[u]		.014		.232[u]
Yes	45.22 ± 3.384		88.29 ± 8.024		76.16 ± 8.221	
No	41.86 ± 5.984		81.57 ± 7.277		71.86 ± 9.227	

Significant *P* –value ≤ 0.05 **insignificant *P* –value > 0.05**

h. Spearman correlation coefficient **u. Mann-Whitney Test**

k. Kruskal Wallis Test

Table (5): shows the relation between medical background and post-traumatic growth of the studied subjects; there was statistical significant relation between post-traumatic growth and family support in pre and post program phases (*p* value = .034 & .014) respectively.

IV. DISCUSSION

Cancer is showed as a substantial societal burden worldwide and has negative impact on the mental health of patients and their families. Cancer diagnosis perceived as a life-threatening and potentially traumatic illness because of its uncontrollable nature and sudden onset. Furthermore, cancer implies a risk of death or serious physical injury and elicits psychological responses such as fear, avoidance, and hyper-arousal ***(De Padova et al., 2021; Wang et al., 2022)***.

Patients with cancer may experience not only negative effects but also positive changes and a growth chances. There are positive effects on patients known as post-traumatic growth (PTG) that may conversely occur after a traumatic experience. Post-traumatic growth refers to positive mental changes that occur as a result of a struggle following a traumatic event, as it reflects the individual's experiences arising from growth following an illness or adverse life event, such as finding meaning, developing new goals, and rebuilding life ***(Chang et al., 2022; Evans et al., 2022***; ***Park et al., 2022)***.

Indeed, psychological first aid (PFA) is undoubtedly important in enhancing patients' mental and emotional recovery after traumatic experiences. Psychological interventions are essential for promoting resiliency and recovery by reducing mental breakdown. Psychological first aid is considered a crucial psychological intervention tool for decreasing the adverse impacts of traumatic events ***(Shah et al., 2020)***.

Therefore, the current study aimed to evaluate the effect of Psychological First Aid intervention program on post-traumatic growth among recently diagnosed cancer patients.

The present study revealed that, recently diagnosed cancer patients had a significant improvement in their post-traumatic growth after receiving psychological first aid intervention program through post and follow up phases compared with pre-program phase. The preceding results are congruent with the current study hypothesis in which, patients who receive psychological first aid intervention program will show significant improvement in post-traumatic growth.

Regarding pre-program phase, findings of the present study revealed that, recently diagnosed cancer patients had low level of post-traumatic growth PTG. This may be due to, the extent of PTG experience affected by the nature of the trauma. Accordingly, cancer is different compared to other traumas in terms of the internal nature of the crisis, the multiple stressors, and future focused fears. Furthermore, cancer often has a nuanced onset (routine screening examinations), continues through cancer diagnosis and treatments, and it goes on for many years with the fear of future recurrences or disease progression ***(Greup et al., 2018)***.

Focusing on the effect of psychological first aid (PFA) intervention program on post-traumatic growth in post and follow up study phases. The present study revealed that there was a significant improvement in post-traumatic growth in both post and follow up program phases. As the results revealed that recently diagnosed cancer patients had high post-traumatic growth in both post and follow up program phases with total mean (87.38 ± 8.194) and (75.58± 8.398) in post and follow up program respectively, compared with (44.77± 3.929) pre-program.

With regard to the importance psychological first aid program as an early psycho-social intervention for cancer patients to improve post-traumatic growth, ***Ochoa Arnedo, Sánchez, Sumalla, & Casellas-Grau, (2019)*** demonstrated that, it would be more appropriate to provide growth-promoting therapies such as meaning-making and psychological intervention during primary cancer treatment, as cancer patients begin to accommodate their experience and become open to considering main vital changes.

In similarity, ***Peng et al., (2019)*** added that, cancer patients who have been diagnosed for less than 6 months may perceive less PTG due to a lack of cancer knowledge and coping strategies, lowering the perceived meanings and benefits of the cancer experience. Furthermore, a shorter time since cancer diagnosis may make it more difficult for patients to cope with psychological effects of a traumatic event. As a result, patients who have recently diagnosed with cancer require more attention and support.

At the same line, ***Evans et al., (2022)*** mentioned that, post-traumatic growth does not occur as a result of the trauma itself, but rather as a result of the struggles and efforts required to deal with the demanding situation. Indeed, early psychological intervention is critical for cancer patients' early recovery. As a result, encouraging resilience and post-traumatic growth during cancer treatment may result in improved psychological adjustment and psychosocial functioning during and after cancer treatment, facilitating recovery from the cancer itself.

Focusing on psychological first aid (PFA) intervention techniques that were used to improve post-traumatic growth in recently diagnosed cancer patients in the present study that included; cognitive restructuring, mindfulness, spiritual care and relaxation techniques.

Regarding cognitive restructuring and its effective role in improving PTG in the current study, ***Seiler & Jenewein, (2019)*** demonstrated that, PTG emerges when an event is associated with a level of stress enough to threaten or even destroy a person's life expectations, beliefs, or even life itself.

For instance, dealing with a potentially traumatic illness like cancer can be so stressful that it prompts someone to question their place in the universe and general worldview. This method is predicated on the idea that the trauma's disruption and discomfort cause the experience to be cognitively processed and restructured (post-trauma processing), leading to fresh insights and altered beliefs that better reflect the person's new reality.

In congruent with previous results, ***Greup et al.,(2018***) reported that, the ability to reevaluate and constructively reconstruct one's perception of oneself, others, and the significance of the event is essential for PTG and good coping after a traumatic incident. In other words, cognitive restructuring enables the person to reconcile the painful experience and create a new meaning.

Concerning mindfulness and its effective role in improving post-traumatic growth in the current study, ***Xunlin, Lau, & Klainin-Yobas, (2020)*** demonstrated that, PTG is achieved when people, who experienced trauma (such as cancer diagnosis), sense a resolution to the traumatic event. The influx of negative thoughts from the traumatic event triggers stress responses, anxiety, hyper-vigilance, and dissociation. The awareness of negative thoughts and emotions, and non-judgmental view increased with mindfulness practice increases.

In consistent with prior results, ***Matis et al., (2020); Xunlin, Lau, & Klainin-Yobas, (2020)*** reported that, in mindfulness-based intervention cancer patients were more likely to experience changes in posttraumatic growth, bodily symptoms, quality of life, depression, anxiety, and stress relating to their health and disease progression.

Regarding spiritual care and its effective role in improving post-traumatic growth in the present study, according to the holistic perspective, Human health refers to the state of one's well-being and includes five dimensions: physical, mental, emotional, social, and spiritual. The spiritual element has been compared to a basic "artery" that permeates other dimensions of a person and keeps them alive through giving them energy. There are decisions, behaviors values, thoughts, experiences, and concerns around this artery ***(Moosavi, Rohani, Borhani, & Akbari, 2021)***.

In this respect, ***Connolly & Timmins, (2021)*** added that, reliance on spirituality may often come as a surprise to patients and their family as an untapped resource that becomes supportive when dealing with a diagnosis of cancer and the potential poor prognosis of advanced disease. It is also important that any such support is individualistic, determined by patient's particular needs, and takes account of any potential negative beliefs arising from personal faith.

The preceding result goes along with, ***Moosavi, Rohani, Borhani, & Akbari, (2021)*** who demonstrated the significant role of "spirituality" in all cancer stages. Due to the nature of the disease; chronic, fatality and mortality rate. Spiritual need is considered one of the important needs of cancer patients. Therefore, the spiritual dimension of the patients should take special attention, in addition to other dimensions. As cancer is one of the most important causes of disability and mortality in the world which affects all human dimensions.

At the same line, ***Koral & Cirak, (2021)*** stated that, Often, when people are faced with grave and sometimes fatal difficulties, they frequently turn to a higher power or religion as a coping mechanism. Numerous studies in the literature have suggested that spirituality and religion are important extra aspects that facilitate easier coping and have a positive effect on those suffering from diseases**.**

Concerning relaxation techniques (progressive muscle relaxation, guided imagery, and deep breathing) and their effective role in improving post-traumatic growth in the present study, ***Shahriari et al., (2017)*** demonstrated that, in progressive muscle relaxation, the mind is taught to concentrate on various bodily organs and become isolated from the world as a result. This attention helps to release and reduce muscular tension, which leads to a state of peace and comfort.

Regarding guided imagery, pretty and lovely images stimulate the body to release endorphins, which in turn relieves tension and brings about calm and, ultimately, a sense of bliss. Concerning deep breathing, deep, careful breathing gives the body more oxygen. As a healthy breathing habit, this practice improves people's capacity to handle stress, especially physical tension. The three strategies all naturally result in an improvement in QoL and overall domains based on the aforementioned justifications

(Tang et al., 2020).

The preceding results are in congruent with, ***Parás-Bravo et al., (2017)*** who mentioned that, the perceived quality of life of cancer patients with anxiety and stress symptoms who received a protocol of abbreviated progressive muscle relaxation training were improved. Patients who performed the technique experienced an increase in overall quality of life as well as in emotional, functional, and physical wellbeing that in turn improve post-traumatic growth.

Focusing on the statistical relation between post-traumatic growth PTG with demographic data and medical background throughout study phases. The findings of the present study revealed that, there was statistical significant relation between post-traumatic growth and the gender of the studied subjects in post and follow up program phases, in which male patients had higher post-traumatic growth than female patients.

This result may be due to, in our society and cultures males take the responsibilities of their families and those around them, their thoughts about illness not the end of their life, beside their personality trait like hardiness that usually prevent them from weakness, giving up and despair.

In congruent with the preceding result, ***Seiler & Jenewein, (2019)*** demonstrated that, hardiness is a personality trait that may withstand exposure to a great deal of stress and may aid in the healing process. Achieving a sense of calm and purpose in life, feeling in control of one's experiences and outcomes, and learning and developing from both positive and negative life experiences are all aspects of being hardy. There is some evidence that hardiness plays a significant role in resilience and PTG in cancer survivors.

Regarding the relation between post-traumatic growth and having children, findings of the present study revealed that, there was statistical significant relation between post-traumatic growth and having children in pre, post, and follow up program phases, in which patients who have children had higher post-traumatic growth than patients didn't have children.

This result may be due to, children provide the patients with promotion, motivation, optimism and hope to fight the disease, to be able to take care of their children and enjoyed with them. In addition children provide them with positive energy and social support that make them stronger in face of cancer and its treatment. According to, ***Zhang et al., (2020)*** study results, revealed that, the most crucial predictor of PTG is social support. Patients who receive greater social support typically score higher on the PTG. Also, ***Shand et al., (2015)*** reported that, there was positive association between optimism and PTG.

Concerning family support, findings of the current study revealed that; there was statistical significant relation between post-traumatic growth and family support in pre and post-program phases, in which patients who were receiving family support had higher post-traumatic growth.

This result may be due to, by enhancing cognitive processing of the experience, social support from family and friends may facilitate the formation of meaning and growth. Cancer patients may benefit from social support, which can help them process their trauma, make coping easier, and improve adjustment. Ongoing assistance encourages cancer patients to discuss their disease openly and think about it by self-disclosing ***(Greup et al., 2018)***.

In agreement with preceding results, ***Roohi, Salehi, Mahmoodzadeh, & Morovati, (2020)*** reported that, there are positive relationship between post-traumatic growth and social support. As, in cancer patients social support enhances and facilitates post-traumatic growth by reducing the negative impact of stressful events. Additionally, ***Warmoth et al., (2020)*** added that, social support has been linked to greater post-traumatic growth and positively correlated with it.

V. CONCLUSION

Based on the findings of the present study, it can be concluded that, recently diagnosed cancer patients had low post-traumatic growth in pre-program phase. While in post and follow up phases the results revealed that, they had high level of post-traumatic growth after receiving psychological first aid intervention program.

VI. RECOMMENDATION

1. A structured training program should be conducted through periodical workshops for nurses dealing with cancer patients focusing on the associated psycho-social problems that may occur and how to deal with them.

2. Psycho-oncology services should be generalized by Ministry of Health to all hospitals dealing with cancer patients especially oncology hospitals. In which psychological interventions are critically important.

3. Psychological first aid based interventions can be combined with care programs of hospitals and daily clinical works as a complementary program.

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