

**Deanship of Graduate Studies
Al-Quds University**



**Effect of Group Play Therapy on Reducing Anxiety
among Palestinian Children with Cancer**

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M.Sc. Thesis

Jerusalem-Palestine

1442/2020

**Effect of Group Play Therapy on Reducing Anxiety
among Palestinian Children with Cancer**

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Thesis Submitted in Partial Fulfillment of Requirements for
the Degree of Master of Community Mental health-
Psychotherapy Track\ School of Public Health\
Al-Quds University - Palestine

1442/2020

Al-Quds University

Deanship of Graduate Studies

School of Public Health



Thesis approval

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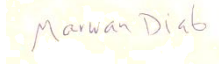


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Jerusalem – Palestine

1442/2020

Dedication

To the souls of my parents who taught me that love and care can heal.

To the souls of my brother Nasser and my sister Shadia

To all Palestinian children with cancer who resist pain by hope and patience.

Khaled Yousef Melad

Declaration

I certify that this thesis submitted for the degree of master is result of my own research, and that this study (or any parts of the same) has not been submitted for a higher degree to any university or institutions.

Signed

Khaled Yousef Melad

September 2020

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

(إِنَّمَا يُوفَّى الصَّابِرُونَ أَجْرَهُمْ بِغَيْرِ حِسَابٍ)

[الزمر: 10]

Acknowledgement

My endless thanks to ALLAH for his endless boons always and forever.

I would like to express my sincere gratitude to my supervisor Dr. Marwan Diab for the continuous support of my master study, for his patience, motivation, and immense knowledge. His guidance helped me in all the time of research and writing of this thesis.

My deepest thanks and appreciation for the team "the brave children" (the participants of my study) and their parents, who inspired me to conduct the study, whose patience and support helped me complete this study, who taught me a lot by their power of hope.

I would like to thank the team of Palestine Children`s Relief Fund at Dr. Musa and Suhila Nasir Pediatric Cancer Department for their great support.

I appreciate with my great thanks my college Dr. Wael El Sadwai for his great help and assistance.

Finally, I must express my very profound gratitude to my family for providing me with unfailing support and continuous encouragement throughout my years of study and through the process of researching and writing this thesis. This accomplishment would not have been possible without them.

Special thanks for Al-Quds University, represented by Dr. Basam Abu Hamad , Dr. Khitam Abu Hamad and Dr. Yehia Abed for their endless support throughout my thesis.

Abstract

This study aimed to investigate the effect of group play therapy program in reducing anxiety among Palestinian children with cancer.

According to the purpose of the study, the researcher implemented group play therapy program based on cognitive behavioral theory (Coping Cat Program) with a group of 10 children with cancer aged 9-12 years in Gaza strip, suffering from anxiety, which is a significant psychological sequel of cancer. The sampling process was convenient in which 20 children diagnosed with cancer and have anxiety were selected and randomly assigned into intervention and control group (10 children in each group). The intervention group received 12 group play therapy session twice a week and were followed up after 1 month.

The analysis used to measure the effectiveness was through the paired samples t- test to evaluate the difference between the mean of pre and post levels of anxiety among children in the intervention group. Results show that there is a significant difference between the mean of pre and post levels of anxiety, where the mean is reduced from 20.60 scores in the pre level of anxiety to 12.50 scores in the post level of anxiety, with an effect size by using the Cohen's $d=10.97$, which indicates a very large effect of the intervention. Furthermore, there is a significant difference between the mean of pre and follow up levels of anxiety at 0.05 level of significance, where the mean is reduced from 20.60 scores in the pre level of anxiety to 12.50 scores in the follow up level of anxiety, and the effect size by using the Cohen's $d=6.787$, indicates a very large effect of the intervention.

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Chapter One

Introduction

1.1 Background

Childhood is the period of life for children to be in school and play, to grow strong and be confident with love and encouragement of their family. It is a precious time in which children should be given a chance to live free from fear, diseases and protected from stress and anxiety. As such, childhood means much more than just the period between birth and adulthood. It refers to the state and condition of a child's life, and the quality of those years (UNICEF, 2006).

As defined by WHO (2013), "cancer is a term used to describe a group of diseases characterized by abnormal growth of cells and spread of these cells into adjacent areas of the body in addition to its ability to invade other organs, it can affect any part of the body leading to significant morbidity and mortality". As stated by (Noll, 2015), childhood malignancies are very threatening disorders with great impact on children and their families during different stages of diagnosis, management and recovery. Noll (2015) also showed that cancer is a significant cause of death among children and about 12,500 children below the age of 20 (including 11,000 below the age of 15) are diagnosed in the United States every year with the most widely recognized types of malignancy in children being leukemia (blood cell cancers, 37%), brain and other central nervous system (CNS) tumors (25%), and lymphomas (24%).

Bray, Ferlay, and Soerjomataram (2018) revealed that the estimates of cancer is about 18.1 million new cases and 9.6 million deaths from cancer in 2018, emphasizing that cancer is a significant cause of morbidity and mortality worldwide (in every country regardless of its developmental level) and being the first or second cause of early death in

about one hundred country around the world. According to (Steliarova-foucher et al. 2017), cancer in children is a significant cause of death all around the world and the registered incidence tend to increase in the future.

In Palestine, in 2017, the reported cancer crude incidence rate was 113.7 per 100,000 of the population, and 5.0% of the cases were reported among the age group under 15-years-old. Death percentage was 14.7% of the total reported deaths with 53.2% of cancer deaths among males, and 46.8% among females. Among children, the first cause of cancer deaths in 2017 were leukemia (8.4%), brain cancer (8.2%) (Halahleh & Gale, 2018). In addition, 10% of new cancer cases were in children below the age of 15 years and the three most common cancers in children are leukemia (30%), brain and other central nervous system cancers (20%), and lymphomas (14%).

In their study about prevalence of psychiatric disorders among Palestinian children with cancer in Gaza strip aged 6-12 years old, Mansour and Thabet (2006) concluded that 56% of children suffering from cancer had anxiety disorders, and 64% of suffering from moderate to severe depression, and 58% of them had Post Traumatic Stress Disorder (PTSD). In addition, Mullick, Mohammad, Algin, and Sultana (2011) found that 53% of children and adolescent suffering from cancer had been suffering from any ICD-10 psychiatric disorders represented by 87.5% emotional difficulties and 34.7% behavioral disorders.

Barakat, Kazak, Gallagher, Meeske, and Stuber (2000) concluded that the somatic symptoms of cancer and its treatment, may lead to severe social and emotional consequences for the child as negative perception of self-appearance usually found among children with cancer and associated with academic, social, and psychological impairment, low self-esteem, and depression. In addition, the tragic event of being diagnosed with

cancer subject children to significant risk for a range of short- and long-term social, emotional, and behavioral difficulties. Furthermore, the stressful events associated with childhood cancer, such as pain due to treatment, side effects such as hair loss, reduction or gain of weight, physical side effects, and repeated nonattendances to school and communication with peers, badly affect children's social and psychological adjustment (Torro, A. 2019)

The researchers (Bodrova & Leong 2015) indicated that play is an important factor in the development of cognitive and social skills of the children and its necessary for learning and acquiring knowledge. Furthermore, play has a great role in improvement of memory, behavior control, verbal language, and symbolic language. The researcher emphasize the importance of play in school accommodation and enhancement of social relations, and with improvement in reading with proficiency and other aspects of academic knowledge. Play is considered children's natural approach of self- representation and a way by which children explore their environment. It has significant implication for the biopsychosocial development of children.

Play therapy takes advantages of the therapeutic power of play and considers its important application through skilled professionals to promote certain therapeutic outcome within therapeutic settings (Sommer & Sommer, 2002). In addition, Kool, Lawver, Medical, and Force (2010) consider play therapy as a novel mode of management that is not only intended for children, but is gave rise to a language children can understand and use the language of play. Play therapy aids children to enhance their self-assurance and confidence. This is achieved through mastery of worries, skill acquirement, and attainments of new tasks, children freeing feelings through action, usage of innovational thinking to resolve dilemmas, explore themselves, and acquire lucidity about their lives,

emotions, and capacities. In addition, children master communication and act more effectively, and encouragement of children to explore strategies will result in flourishing consequences including attenuation of anxiety and better behavioral outcomes (Pehrsson, Ed, & Aguilera, 2007).

1.2 Research Problem

According to the American Psychiatric Association (2013), some medical conditions can cause anxiety as a symptomatic manifestation such as neoplasm or cancer. Anxiety due to another medical condition can be diagnosed in individuals who are suffering from cancer, if the medical disease is known to cause anxiety and the medical disease occurred before the onset of the anxiety disorder.

Anxiety disorders are considered the most prevailing psychiatric disorders in children, with community studies demonstrating period prevalence between 9% and 32% during childhood and adolescence. Further, anxiety disorders commonly have a negative effect on academic performance, household life and leisure activities; and frequently accompany other anxiety disorders, depression and behavioral disorders (Creswell, Waite, & Cooper, 2014).

According to Pao and Bosk (2010), chronic medical disease is a considerable risk factor for the occurrence of anxiety disorders and the prevalence rate of anxiety disorders among children and adolescent with chronic medical illnesses is higher in comparison with their healthy peers. In addition, exposure to somatic pain early in child's life and many agonizing medical procedures are associated with fearfulness and anxiety throughout subsequent procedures and treatments and may lead to medical noncompliance and other comorbidities (Pao, & Bosk, 2010).

Based on the above discussion, reviewing of literatures indicating the negative consequence of anxiety on health, and studies of psychological disorders among children with cancer in Gaza strip, it is evident that children with cancer are not consistently receiving evidence-based psychological therapies in routine clinical care. In addition, little is known about the effect of group play therapy on reducing anxiety among children with cancer in our context. Therefore, to inform medical and mental health professionals dealing with those children on effect of group play therapy, it is crucial to implement evidence based program to explore its effect on reducing anxiety in children with cancer. In brief, this study attempted to bridge the information gap pertaining to effect of play therapy as effective psychological intervention in reducing anxiety among children with cancer in our community.

1.3 Justification of the Study

Cancer is considered a significant stressor to the child and the family as indicated by Li, Chung, and Chiu (2010) on their study about the impact of cancer on children's physical, emotional, and psychosocial well-being, where they found that children reported markedly high anxiety scores on admission for treatment of cancer, and cancer was associated with more self-reported depressive symptoms. Moreover, the elevated anxiety would impair children's abilities to cope with the disease and treatment. In addition, Nazari, Bakhshi, Kaboudi, Dehghan, and Ziapour (2017) concluded that children diagnosed with cancer have remarkably lower quality of life and significantly increased levels of depression and anxiety as compared with children who are healthy. They recommended psychological interventions to be used along with medical treatments with the aim of improving the quality of life and reducing depression and anxiety in children with cancer (Nazari et al., 2017).

In their study about psychiatric disorders among children attending cancer unit, Mansour and Thabet (2006), concluded that anxiety, depression and posttraumatic stress disorders were the prevailing psychiatric disorders among Palestinian children with cancer. Even after survival from cancer, children are at greater risk of developing psychological late effects due to treatment which include anxiety and posttraumatic stress disorder (Bitsko et al., 2017). Research found that there was no difference between male or female patients and recommend psychological therapies to be included in management plan for children with cancer (Mansour & Thabet, 2006).

Based on the key literature review, play therapy could be an important psychological intervention for reducing anxiety and suffering prior to medical procedures in children with cancer (Orhan, 2017). In addition, it was found that group play therapy is special psychological intervention that can be applied in hospital to control pain and suffering that children with cancer encounter (Scarponi & Pession, 2016).

To the researcher's knowledge, there is no national studies about the effect of group play therapy on reducing anxiety among children with cancer in Gaza strip. Therefore, this study will tackle this key issue in the Palestinian context.

1.4 Aim of the Study

The overall aim of this study is to evaluate the effect of group play therapy - based on cognitive behavioral therapy - on reducing anxiety among a group of children with cancer in the Gaza strip. It is our aim in this study to provide mental health professionals and medical staff dealing with children with cancer with a program that could be helpful for those children in overcoming fear and anxiety, with its positive consequence on their health.

1.5 Research Objectives

1. Preparation of a group play therapy program based on cognitive behavioral theory (modified form of Coping Cat program).
2. To evaluate the effectiveness of group play therapy program on reducing anxiety among children with cancer.
3. To evaluate the difference in the level of anxiety in the intervention group in pre intervention, post intervention and in follow up assessment.
4. To evaluate level of anxiety in the control group in pre innervation, post intervention assessment.
5. To identify common fears and worries faced by children with cancer suffering from anxiety disorder.

1.6 Research Questions

The main research question was this: Is group play therapy effective in reducing anxiety disorder among Palestinian children with cancer in the Gaza strip?

The researcher hypothesized that children engaged in group play therapy will have reduced level of anxiety and those who do not participate in group play therapy will have the same level of anxiety or their condition may become worse.

Several sub-questions stemmed from this main research question, as follows:

- Is group play therapy effective in reducing the level of anxiety in children with cancer?
- Are there statistically significant differences between intervention and control group in level anxiety?

- Are there statistically significant differences between pre-intervention and post-intervention level of anxiety in intervention group of children with cancer?
- Are there statistically significant differences between pre-intervention and follow up level of anxiety in intervention group of children with cancer?
- Are there statistically significant differences between post-intervention and follow up level of anxiety in intervention group of children with cancer?
- Are there statistically significant differences between pre-intervention and post-intervention level of anxiety in control group of children with cancer?
- Are there statistically significant differences between pre-intervention and follow up level of anxiety in control group of children with cancer?
- Are there statistically significant differences between pre-intervention and post-intervention level of anxiety in children with cancer according to gender?
- Are there statistically significant differences between pre-intervention and post-intervention level of anxiety in children with cancer according to socioeconomic status?
- Are there statistically significant differences between pre-intervention and post-intervention level of anxiety in children with cancer according to family size?
- Are there statistically significant differences between pre-intervention and post-intervention level of anxiety in children with cancer according to period of illness?
- What are the common fears and worries faced by children with cancer suffering from anxiety disorder?

1.7 Context of the Study

The occupied Palestinian territory includes two geographically separate areas of the West Bank and Gaza. These areas are located between the Mediterranean Coast and the

Jordan River. The Gaza strip is a narrow piece of land with an area of 365 sq. km. The area has a dense population mainly concentrated in the cities and refugee camps.

In the State of Palestine, 3.020 million Palestinians live in the West Bank (59.9%) and 2.019 million Palestinians live in Gaza Strip (40.1%) at the end of 2019. Gaza governorate constitute 13.6% of all population in state of Palestine , , (PCBS, 2019). The population aged under 15 years at the end of 2019 constitute about 38.7% of total Palestinian society, 19.8% males and 18.9 females, 36.7% in the West Bank and 41.6% in Gaza Strip. (PHIC,2019).

According to annual report of Ministry of Health in Gaza strip (2019), the most common diseases in school children in the governorate schools were visual problems, underweight, short stature, obesity, hearing problems, heart problems, skin diseases, hernias and acute cases, while in the United Nations relief and work agency for Palestine refugees (UNRWA) schools, the most common diseases among school children were visual problem, hearing impairment, heart problems, goiter, skin diseases, motor disabilities, bronchitis and congenital malformation (PHIC,2019). The health status of Palestinian children is affected by low economic status, siege, environmental degradation, chronic stress due to frequent violence against Palestinian people including children. It was found that the main causes of morbidities were; nutritional disorders, accidents, disabilities, violence against children and mental health problems, which include experiencing being threatened, lack of safety, fear and anxiety (Waterston, and Nasser 2017).

The health services are provided to the Palestinian children mainly by Ministry of Health through primary health care centers which constitute 63.9% of total centers operate in primary health care services in Palestine, in addition to secondary health care services

where it operate 3.462 beds in 27 hospitals. Furthermore, children receive health care by other providers including the United Nations relief and work agency for Palestine refugees (UNRWA), non-governmental organizations, Palestinian red crescent society, private sectors and military medical services (PHIC,2019).

Mental health problems in Palestinian children in Gaza strip for the age group 0-9 years was 5.1% , and for the age group 10-19 years was 10.7% of all mental health disorders registered in the year 2018. These mental health disorders include; autism, attention deficit hyperactivity disorders, intellectual disabilities, schizophrenia, bipolar disorders, depression, anxiety disorders, posttraumatic stress disorders, obsessive compulsive disorders and personality disorders (PHIC,2018).

In Palestine, the mental health services provided by Ministry of Health through 16 specialized psychiatric and community mental health clinics in west Bank and 6 community mental health clinics and one psychiatric hospital in Gaza strip, in addition to services provided by United Nations Relief and Work Agency for Palestine refugees (UNRWA), non-governmental organizations and Palestinian Red Crescent Society (PHIC,2019).

A central event in Palestinian history is the 1948 Nakba, the Arabic word for Catastrophe, during which hundreds of thousands of Palestinians were uprooted from their homes and became refugees in Gaza, the West Bank, and surrounding countries. From 1948 until 1967, Egypt administered Gaza and Jordan administered the West Bank. Since 1967, the Israeli occupation has had a crushing impact on life in Palestine through imposing poverty, unemployment, pervasive violence, trauma, and imprisonment, the restriction of resources (such as water, building materials, and electricity), and intermittent restrictions of movement.

The study conducted at Dr. Abd El Aziz Al-Rantissi pediatric hospital, which is a specialized pediatric hospital officially opened in 2008. The hospital consists of several departments such as: gastroenterology, chest diseases, kidney diseases, neurosurgery, heart diseases, endocrinology, intensive care, blood diseases, oncology, outpatient clinics, dialysis, and physical therapy. The oncology department was previously located in El Nasser pediatric hospital till the year 2017 when a new pediatric oncology department established in Dr. Abd El Aziz Al-Rantissi pediatric hospital which includes 15 outpatient beds, 16 fully equipped rooms, 2 working doctors, 3 examination rooms, a blood bank section, dental clinic, pharmacy, pediatric oncologist, laboratory and play room, 28 nurses.

Chapter Two

literature review

2.1 Conceptual framework

The researcher drawn the conceptual framework according to the literature and personal experience. The framework helped understanding of psychopathology of anxiety and its characteristic features and the intervention program as shown in Figure 2.1.

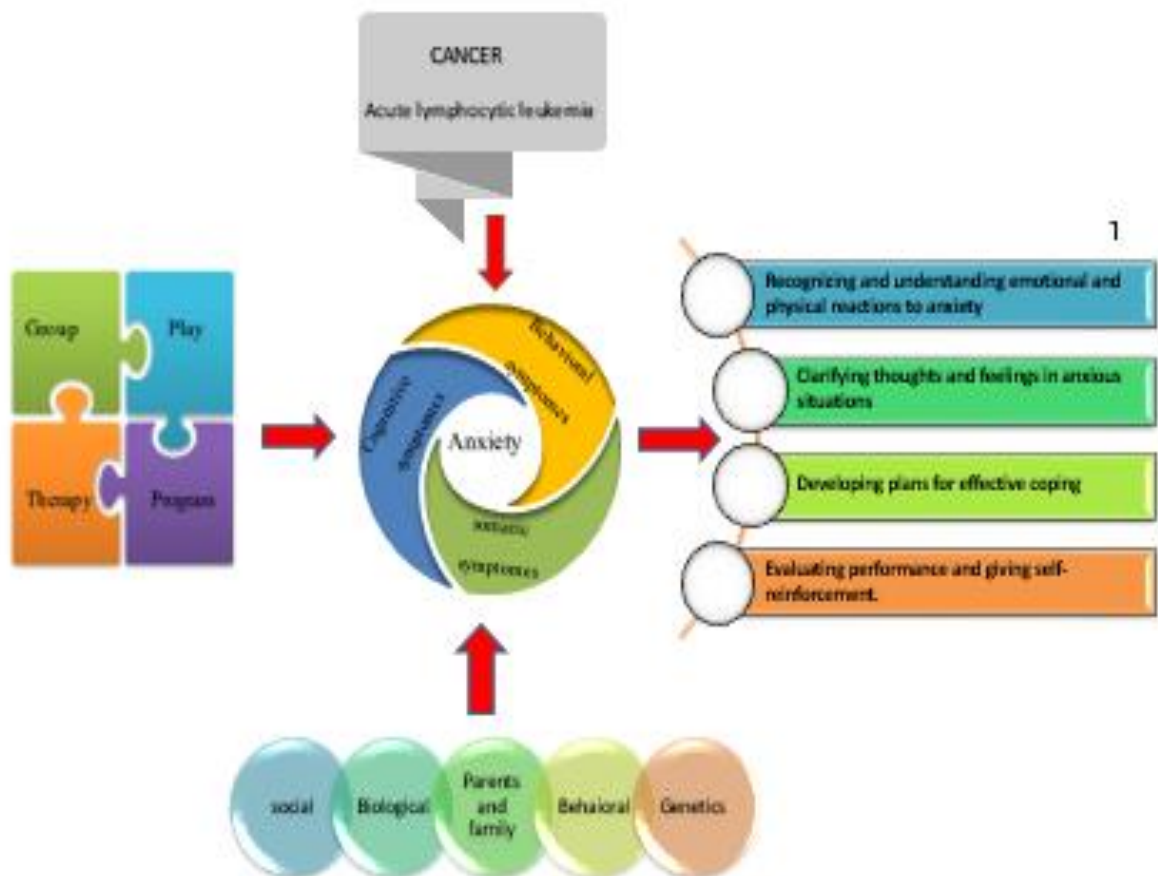


Figure 2.1 Conceptual framework. self-constructed.

2.1.1Anxiety

Anxiety disorders are a group of disorders that have in common excessive fear and anxiety and associated behavioral disruptions. Fear is the expressive response to actual or apparent impending threat; whereas anxiety is expectation of upcoming threat. In addition, each disorder is distinguished from the other by the types of objects or circumstances that cause fear, anxiety, or avoidance behavior, and the accompanying cognitive ideation. They differ from the normal fear or anxiety that are appropriate for the developmental stage by being exaggerated or continuing beyond normal developmental stage (American Psychiatric Association, 2013).

2.1.1.1 Definition of anxiety

Sadock, Ruiz and Kaplan (2015) defined anxiety as a "*diffuse, unpleasant, vague sense of apprehension, often accompanied by autonomic symptoms such as headache, perspiration, palpitations, tightness in the chest, mild stomach discomfort, and restlessness, indicated by an inability to sit or stand still for long.*" Huberty (2012) states that anxiety is uncontrolled and excessive worrying about the future outcomes of a wide range of events and activities. Moreover, Skuse, Bruce, Dowdney and Mrazek (2011) define anxiety, as is an unpleasant feeling of tension or apprehension accompanied by physiological changes and worries or fears. It can become maladaptive if it became excessive or developmentally inappropriate and causes significant functional impairment.

2.1.1.2Epidemiology of anxiety disorders in childhood:

The prevalence of anxiety disorders differs according to the age group of the children surveyed and the diagnostic tools used. Lifetime prevalence of any anxiety disorder in children and adolescents ranges from 10 percent to 27 percent (Sadock, Sadock

& Ruiz, 2015). In addition (Beesdo et al. (2009) reported that there is convincing evidence from a several research that anxiety disorders are the most common psychological disorders in children and adolescents, with most cases occurring in childhood before the age of 12 years, compared with females, males show a somewhat earlier onset of specific phobia of natural environmental type, and a later onset of GAD. Regarding sex differences, all anxiety disorders more commonly occur among females than among males (Beesdo et al. (2009).

Anxiety disorders are more common in girls than boys in the general population. Most population studies estimate around 1.5-2 times as many girls compared to boys for most anxiety disorders. Furthermore, anxiety disorders considered to be one of the earliest disorders to appear and usually begin by middle childhood to mid adolescence (Rapee, 2018).

Yatham, et al (2018) in their study about depression , anxiety, and posttraumatic stress disorders among children and adolescent in low and middle income countries including states affected by familial health concerns or armed conflict, found that up to 28% of youth in low and middle income countries suffering from important symptoms of depression or anxiety, and up to 87% of youth exposed to traumatic events with symptoms of posttraumatic stress disorders , though these rates varied widely depending on several factors, including the assessments tools used. Moreover, Thabet and Thabet (2015) found that 30.9% of children had anxiety disorder in their study about trauma, posttraumatic stress disorders, anxiety, and resilience in Palestinian Children in the Gaza Strip with no differences in anxiety disorder between boys and girls and anxiety was more in children living in camps and lower family monthly income.

2.1.1.3 Characteristics of anxiety

Anxiety Disorders share features of chronic worry about current or future events, anticipation of threat and can involve a number of common response patterns: behavioral (escape and avoidance), cognitive (low self-esteem), and physiological (involuntary vigilance : palpitation, dyspnea, tremors, and muscle tension), (Rapee,2018).

Cognitive symptoms include problems in concentration, memory, attention, problem solving, in addition to cognitive distortion and deficiency. Cognitive distortion occurs when the child misinterprets received information leading to errors in thinking and problem solving while cognitive deficiencies is a result of impairment of thoughts due to because of anxiety and lead to lowered performance (Huberty, 2012). In addition, cognitive bias is considered in diagnosis of anxiety in children who report intensified beliefs and expectations of threat. Anxious children have both a bias in attention toward threat and a bias to interpret vague information in a threat- consistent way. (Rapee,2018) and there is link between threat bias and pediatric anxiety symptoms, which propose that arousal to external threats expressed more obviously in symptoms of social anxiety and school phobia, regardless of age and gender (Abend et al., 2018).

Huberty (2012) states that Behavioral Symptoms are the most simply observed signs of anxiety include motor restlessness, fast speech, inconsistent behavior, Absence of participation, failing to complete tasks and avoidance, which is the main feature of anxiety disorders and could be obvious like avoidance of particular circumstances, places, or stimuli or subtle hesitancy, uncertainty, withdrawal, or stereotyped actions. (Rapee, 2018).

2.1.1.4Types of anxiety:

According to (American Psychiatric Association, 2013) anxiety disorders characterized by excessive fear and anxiety and related behavioral disturbances and include:

Separation Anxiety Disorder, Selective Mutism, Specific Phobia, Social Anxiety Disorder, Panic Disorder, Agoraphobia, Generalized Anxiety Disorder (GAD),

Substance/Medication-Induced Anxiety Disorder, Anxiety Disorder Due to another Medical Condition, Other Specified Anxiety Disorder, Unspecified Anxiety Disorder.

Where as in international classification of diseases (World Health Organization, 2018), anxiety disorders included within Anxiety and fear-related disorders and classified to:

Generalized anxiety disorder ,Panic disorder, Agoraphobia ,Specific phobia, Social anxiety disorder ,Separation anxiety disorder, Selectivemutism , Substance-induced anxiety disorders, Hypochondriasis, Secondary anxiety syndrome , Other specified anxiety or fear-related disorders , Anxiety or fear-related disorders, unspecified

1- Generalized anxiety disorders

The American Psychiatric Association (2013) stated that, the main characteristic of generalized anxiety disorder is marked anxiety and worry (anxious anticipation) about a number of events or actions. The intensity, extent, or occurrence of the anxiety and worry is inappropriate to the real possibility or effect of the expected event. Children with generalized anxiety disorder tend to be anxious overly about their ability or the quality of their performance. During the progression of the disorder, the attention of worry may shift from one worry to another. Generalized anxiety disorder despite being among the most common psychopathology of children and adolescents, often goes undetected and

untreated. Imran, Haider, & Azeem, (2017) describe Generalized as a disorder is characterized by excessive worry for more than 6 months about a diversity of circumstances, events, or activities, inability to take control of it, and presence of at least one physical symptom. The interaction of several risk factors (hereditary, environmental, and psychosocial) and protective factors is seen in children with generalized anxiety disorder. GAD is a very common anxiety disorder that is associated with elevated rates of comorbidity and impairment (Cho, Przeworski, & Newman, 2019).

2- Anxiety Disorder Due to another Medical Condition

A variety of medical illnesses are known to have anxiety as a symptomatic manifestation among these disease, endocrine disease (e.g., hyperthyroidism, pheochromocytoma, hypoglycemia, hyperadrenocortisolism), cardiovascular disorders (e.g., congestive heart failure, pulmonary embolism, arrhythmia such as atrial fibrillation), respiratory illness (e.g., chronic obstructive pulmonary disease, asthma, pneumonia), metabolic disturbances (e.g., vitamin B12 deficiency, porphyria), and neurological illness (e.g., neoplasms, vestibular dysfunction, encephalitis, seizure disorders). Anxiety due to another medical condition is diagnosed when the medical illness is known to cause anxiety and when the medical illness preceded the onset of the anxiety. APA, (2013).

Chronic medical disease is an important risk factor for the occurrence of an anxiety disorder and the prevalence rate of anxiety disorders among children with chronic medical disease is higher compared to children without Chronic medical disease and can have significant outcome in children and adolescents with chronic and or life threatening medical disease (Pao, & Bosk 2011).

2.1.1.5 Psychopathology of anxiety:

1- Genetic context:

Huberty,(2012) states that there is considerable evidence that genetic factors plays a role in predispositions toward the development of anxiety disorders in children, as well as a greater likelihood toward specific disorders, such as social anxiety disorder, in addition family and twin studies demonstrate that genetics has an important role and anxiety disorders be likely to run in families but with little specificity, except for panic disorder(Skuse, Bruce, Dowdney & Mrazek, 2011).and best estimations propose that around 40% of the variance in anxiety symptoms and in diagnoses of anxiety disorder is arbitrated to genetic factors, but no evidence exists associating any individual gene specially to anxiety. (Rapee,2018) while. Domschke, (2014) states that the pathogenesis of anxiety disorders is due to multiple factors with an interaction of biological and environmental factors and among biological risk factors of anxiety disorders, a significant genetic influence has been validated by clinical genetic studies.

2- Biological context:

Activation of the autonomic nervous system stimulation in response to stimuli cause certain physiological symptoms such as tachycardia, headache, diarrhea, and tachypnea. The autonomic nervous systems of some patients with anxiety disorder, display increased sympathetic tone, adapt slowly to recurrent stimuli, and respond overly to moderate stimuli. on the bases of animal studies and responses to drug treatment three main neurotransmitters associated with anxiety are norepinephrine (NE), serotonin, and r-aminobutyric acid (GABA), (Sadock, Sadock and Ruiz, 2015).in addition, One of the most studied biological contributors to psychopathology is a child's temperament, which tends

to be stable and can predispose a child to develop certain forms of psychopathology, furthermore there is significant evidence that particular neural structures are involved in anxiety by affecting the ability to regulate mood. The septo-hippocampal area of the brain seems to be involved in anxiety disorders and neuropsychological functioning, (Huberty, 2012)

3- Environmental contexts:

(Silverman & Field, 2011) states that; children can acquire fears through three basic pathways: verbal threat information, indirect experience, and direct conditioning. Where in mental association is made between a previously neutral stimulus and a real or imagined threat outcome through learning process which can be utilized to conceptualize the underlying mechanisms of all three pathways. In addition, exposure to traumatic events is not rare in young people and has broad effects on general psychopathology, mostly on the anxiety disorders and depression.

Stressful life events in childhood consistently associated with the onset of anxiety disorders, mood disorders, substance abuse disorders, and externalizing disorders. In addition, a history of neglect or abuse was a strong predictor of psychiatric morbidity. (Beesdo et al., 2009)

4- Social /Cultural contexts:

(Huberty, 2012) states that socialization have a powerful effect on how children accommodate to stressors they come across. Socialization and life experiences affect personality traits and influence how they are expressed, and anxiety is a worldwide human emotion experienced by all children in every culture, even though its manifestation and manner of expression may vary considerably.

Culture has a considerable influence on the development and treatment of anxiety and in determining the way in which children and adolescents express psychopathological symptoms. (Hodes, Gau & de Vries, 2018)

5- Parent and family:

(Rapee, Schniering, & Hudson, 2009) states that intemperance of parenting will cause extremes of child behavior and eventually to disorder, where in two styles of parenting have been associated with the childhood anxiety disorders: overprotective parenting and negative or critical parenting.

Family play a significant role in development of child's personal, social, and academic aspects and multiple family contextual variables such as marital disharmony, poverty, single-parent families, parenting practices, and parental mental illness may be considered as risk factors for the development of behavioral problems including anxiety disorders. (Huberty, 2012)

Parents with generalized anxiety disorders may bias their children's dealing with potential threats in the environment by transmitting the message that the world dangerous place, that doubt is intolerable, that strong feelings should be avoided, and that anxiety helps to manage uncertainty, thereby conveying cognitive styles that characterize generalized anxiety disorders. (Aktar, Nikolić & Bögels, 2017).

(Telman, van Steensel, Maric, & Bögels, 2018) in their study of anxiety disorders in mothers, fathers, and siblings of children with anxiety disorders conclude that children with anxiety disorders were two to three times more likely to have at least

One parent with current and lifetime anxiety disorders than the control children and tend to have mothers with current anxiety disorders, fathers with lifetime anxiety disorders, but not siblings with anxiety disorders.

2.1.1.6 Treatment of anxiety

Wang et al. (2017) had reviewed 206 studies to evaluate the comparative effectiveness and safety of treatments for childhood anxiety disorders in children ages 3 to 18 years with panic disorder, social anxiety disorder, specific phobias, generalized anxiety disorder, or separation anxiety. They found that cognitive behavioral therapy is effective in reducing anxiety symptoms and improving function while drugs, mainly those targeting serotonin, are also effective and were associated with various short-term side effects. In addition, the combination of drugs and that cognitive behavioral therapy is likely more effective than either treatment alone.

Moreover, (Freidl et al. (2017) stated that among the available psychosocial interventions, cognitive behavioral and exposure-based therapies have emerged as the most well-approved therapy methods for managing anxiety disorders among children and adolescents. Medications, selective serotonin reuptake inhibitors have been recognized to be safe and effective for the treatment of children anxiety. In addition, cognitive behavioral therapy plus selective serotonin reuptake inhibitors drugs are most effective treatment of anxiety for youths ages 7 to 17, compared with either cognitive behavioral therapy or medication alone.

2.1.2 Cancer in children

Cancer can result if balance between mechanisms that increase cell numbers such as the restricted proliferation of differentiated cells and the activity of stem cells, and of

mechanisms limiting cell numbers, such as differentiation, replicative senescence, and apoptosis that guarantee tissue homeostasis (Stevens, Caron & Biondi, 2012)

2.1.2.1Epidemiology:

Total incidence of malignancy in children and adolescents be likely to be higher in developed countries and in parts of tropical Africa, and lower in unindustrialized countries in other areas of the world. The relative frequencies of different kinds of cancer also differ significantly between world regions and between ethnic groups in the same country (Stevens, Caron & Biondi, 2012)

Steliarova-foucher et al., (2017) in their study about international incidence of childhood cancer, 2001–10 found that ,the overall incidence rates in children aged 0–14 years was 140.6 per million person-years and the most common cancers were leukemia), followed by CNS tumors , and lymphomas .

2.1.2.2Types of cancer among children:

Stevens, Caron & Biondi, (2012) stated that for children aged 0 to 14 years, acute lymphoblastic leukemia (ALL) was the most common cancer, accounting for 25.4% of all cancer diagnoses. Acute myeloid leukemia (AML) was the next most common type of leukemia in this age group, occurring at a rate one-fifth of that for ALL. Central nervous system (CNS) cancers, primarily occurring in the brain, accounted for 20.6% of cancer diagnoses and together with ALL and AML made up one-half of cancer diagnoses among children younger than 15 years most common non-CNS solid tumor in the 0- to 14-year age group was neuroblastoma (7.0%), followed by Wilms' tumor (5.4%) and non-Hodgkin lymphoma (NHL) (5.9%). Other diagnoses that individually represented 2% to 4% of cancer diagnoses in this age group included Hodgkin disease, rhabdomyosarcoma, non-

rhabdomyosarcoma soft tissue sarcomas, germ cell tumors, retinoblastoma, and osteosarcoma.

2.1.2.3 Common manifestations of cancer:

(Marcdante, Kliegman & Nelson, 2019) conclude that ,the most common clinical features of childhood malignancy are tiredness, loss of appetite , malaise, pain, fever, abnormal lump or mass, pallor, bruising, petechiae, bleeding, headache, vomiting, visual changes, loss of weight, and night sweats. Lymphadenopathy and organomegaly are common in leukemia, particularly with T-cell ALL or non-Hodgkin lymphoma. Patients with solid tumors usually have a palpable mass. Other features may include limp, cough, dyspnea, cranial nerve palsies, and papilledema. Pathological confirmation by tissue diagnosis (bone marrow aspiration or biopsy of solid tumor is essential to confirm a diagnosis of cancer. because differentiating malignant process from another disease can be difficult.

2.1.3 Play

2.1.3.1 Definition of play:

Play is one of the highly essential needs of children. It can be considered as one of the ways through which children learn and discover the world and it also motivate children to express their emotions and to manage stress that they may encounter in their daily lives. Landreth (2012) states that "*play is enjoyable, voluntary, and not goal directed. In order to make children ' s play more acceptable, some adults have invented a meaning for play by defining it as work. In their push to be successful and to hurry up the process of growing up, many adults cannot tolerate "the waste of children ' s time by playing. " The attitude*

is that children must be accomplishing something or working toward some important goal acceptable to adults."

Play has significant role in children's development where it is considered important factor for overcoming emotional traumas or stress, and it is necessary for cognitive development, skills building and for socialization(Isenberg, & Quisenberry, 2012). According to (Barnett, 2018), children use much of their time and energy in play which serve an important role in functional and evolutionary development of the children in many aspects such as cognitive, social, motor, and emotional development.

From his or her point of view, Glenn, Knight, Holt, and Spence (2013), children have flexible attitude towards play, they can play in any place and share playing with nearly anyone, they like to participate in motion activities with little interest in television, and they can differentiate between interesting and tiresome activities with desire to play outdoors.

Lester and Russel (2008) state that there is no consistent understanding of 'play' within social policy, but play recognized to have various diverse forms, may serve different aims and has different defining features. In addition (Nijhof et al., 2018) report that play is easily recognized by observers and researchers , but, at present there is no formal agreement on a definition of play.

Play and play work authors recognized the features that define the qualities of play according to their particular value systems, where developmentalists define play as a method of learning, biologists as a mean of using the body, sociologists as process of social interaction, therefor play be likely to be defined in terms of what it was thought to attain or develop, rather than for its specific features.(Else, 2014).

The agreement among play researchers is that play or playful expressions (playful thoughts and actions) have certain features. The term ‘play’ is acceptable if the expression has in a cumulative manner some or all of these characteristics. Generally, play is associated with positive affect, is freely selected, is under the chief control of the player, is driven from within by the play manner, is important mainly as determined by the player, is active and continuing and often discloses an ‘as if’ or transformational attitude toward apparent reality, needs relaxed settings producing a psychological state in players that is not stressed, and is mutually related – that is, play actions and play thoughts build on one another. (Johnson & Dong, 2018).

(Pellegrini, 2011) states that it is essential to recognize the criteria for identifying play and it is essential to highlight that NO solo criterion, even if fulfilled, is alone adequate to label a behavior as play; All five need be met in at least one respect. Using this approach helps direct attention to the types of information wanted to approve that a behavior is play when available information addressing some of the criteria are positive, but adequate information for assessing the others is missing.

These criteria are|:

First, the performance of the behavior is not fully functional in the form or context in which it is expressed; that is, it includes elements, or is directed toward stimuli, that do not contribute to current survival.

Second, the behavior is spontaneous, voluntary, intentional, pleasurable, rewarding, reinforcing, or autotelic (“done for its own sake”).

Third, it differs from strictly functional expressions of behavior structurally or temporally in at least one respect: incomplete (generally through inhibited or dropped final elements),

exaggerated, awkward, precocious, or involves behavior patterns with modified form, sequencing, or targeting.

Fourth, the behavior is performed repeatedly in a similar, but not rigidly stereotyped, form during at least a portion of the animal's ontogeny.

Fifth, behavior is initiated when an animal is adequately fed, clothed, healthy, and not under stress (e.g., from physical danger, harsh weather, illness, social instability, family dysfunction), or intense competing systems (e.g., feeding, mating, competition, fear): In other words, the animal is in a "relaxed field."

2.1.3.2 Function of play:

(Howard & Sheridan, 2011) described several functions of play including:

Social and emotional development, where children have the chance to learn about themselves and others, becoming attentive of the effect of their behavior and develop abilities in conflict resolution, negotiation, trust and acceptance. Cognitive development, where play offers opportunities to learn about objects, concepts and ideas. For Language development, Play offers opportunities for the development of language skill. Physical development, where Play involves gross and fine motor movements and as such promotes co-ordination and visuo-spatial ability.

2.1.3.3 Types of play:

Some typologies of play report play activities that is seen in children throughout the course of their childhoods. These different types of play are contributing to development. These typologies can be simplistic or complex. (Howard & Sheridan, 2011)

Hughes (1999) as cited in (Howard & Sheridan, 2011) has compiled an extensive typology that describes sixteen different play types:

1. Rough and tumble – close-encounter activity involving touch, tickling and the use of relative strength with an indication that the activity is play
2. Socio-dramatic – the enactment of real and potential human experience
3. Social – play with rules for social engagement
4. Creative – play that facilitates a number of potential outcomes or responses
5. Communication – play using words, nuances or gestures
6. Dramatic – play which dramatizes events in which the child is not a direct participant
7. Symbolic – play where one thing can stand for another
8. Deep – play which allows the child to encounter risky experiences
9. Exploratory – play to access factual information about objects or concepts
10. Fantasy – play which rearranges the world in the child's way, a way which is unlikely to occur
11. Imaginative – play where the conventional rules that govern the physical world do not apply
12. Locomotor – movement in any or every direction for its own sake
13. Mastery – control of the physical and affective ingredients of the environment
14. Object – play which uses infinite and interesting sequences of hand-eye manipulations and movements
15. Role – play exploring ways of being, although not normally of an intense personal, social, domestic or interpersonal nature
16. Recapitulative – play that allows the child to explore ancestry, history, rituals, stories, rhymes, fire and darkness.

2.1.3.4 Benefits of play:

The global significance of play to the normal growth and integrity of children has been asserted by the UN proclamation of play as a global and inalienable right of children. Play is the particular essential activity of childhood, occurring at all times and in all places and is spontaneous, commonly pleasant, voluntary, and not goal directed. (Landreth, 2012).

Else, (2014) stated that , evidence of the direct advantages of play for children and others has been recognized; it is ‘of the moment’, and gives immediate pleasure and gratification, it aids development of stronger cortical links in the brain, helps with informal learning and creativity, as well as providing significant physical exercise.

Play is likely to be multifunctional. It may have more than one adaptive benefit, the advantages result from playing may be either instant or postponed. play tends to be a behavior carried out only after all other needs are met, so the opportunity to practice this behavior; can vary with food accessibility and with other environmental stressors, both physical and biological, the absence of play-derived experiences in the juvenile period leads to an altered development of the prefrontal cortex . In addition, experience of play directly and indirectly affects the development of the prefrontal cortex, this mechanism may be the vehicle play uses to train animals to be more resilient in the face of an unpredictable world. (Else, 2014)

(Cooke & Shukla, 2011) report that it is certain, that play experience increases the expression of genes that are identified to increase plasticity. Endogenous opioids control the expression of rough-and-tumble play while simultaneously increasing BDNF in the prefrontal cortex. The expression of these genes suggests that juvenile play remodels

synapses in the 'social behavior network' that eventually permits adult animals to live together so that they could fight for dominance, mate, and nurture their descendants.

2.1.4 Play therapy

"Play therapy is the systematic use of a theoretical model to establish an interpersonal process wherein trained play therapists use the therapeutic powers of play to help clients prevent or resolve psychosocial difficulties to achieve optimal growth and development" (Association for Play Therapy, 2013,p.2).

Wilson and Ryan (2005) have described play therapy as *"a means of creating intense relationship experiences between therapists and children or young people, in which play is the principal medium of communication. In common with adult therapies, the aim of these experiences is to bring about changes in an individual's primary relationships, which have been distorted or impaired during development. The aim is to bring children to a level of emotional and social functioning on par with their developmental stage, so that usual developmental progress is resumed"*.

(Kottman & Meany-Walen, 2018) describe play therapy as a therapeutic approach that utilize a wide set of methodologies to interconnect with clients, including journey therapy, storytelling and therapeutic metaphors, movement/dance/music experiences, sand tray activities, art therapy , and structured play experiences in addition to free, unstructured play.

According to (Pehrsson, & Aguilera, 2007), Play therapy benefits is essential as children represent, explore their emotions and pains, and hence, the crucial use of play within therapeutic setting to reach to therapeutic results. Further, aids children to establish confidence and self-efficacy, which can be achieved through control of fears, skills and

roles acquirement. In addition, children discharge emotions through play, use brilliant thinking to resolve problems, learn about themselves and acquire lucidity regarding their lives, emotions and capabilities.

The benefit of play is not limited to providing children with enjoyable distraction and brief relief from painful procedures and stressful experiences that associated with any life-threatening illness. Rather, play is encouraging the ill-children to get rid of the real circumstances with all of its emotional stress and painful procedures into their own world of fantasy, where they are the masters of their environment (Boucher, Downing, & Shemilt, 2014). It was vividly stated by (Bratton & Jones, 2007) that play therapy afford children developmentally appropriate and emotionally safe ways to reveal their stressful experience.

Grissom, et al. (2015) concluded that play-based procedural preparation and support interventions provided by child mental health specialists are associated with diminished need for sedation during treatment, even for young children. Wageman (2014) in his study about practitioners' perspectives on play therapy concluded that play therapy has been agreed to be useful intervention in children who are exposed to trauma, suffering from posttraumatic stress disorder and mental health disorders. moreover, (Storm, 2009) in his study about the reduction of anxiety through play emphasized that play is one of the few ways distinguished by relative degree of freedom and therefore allows children to modify their wishes and drives and to express them in a special manner. In addition, children usually enroll in play activities to cope with stressful events and anxiety encountered in their lives. Further, play is considered a key contributor to managing stressful events and the surrounding environment in an attractive, positive, and enjoyable

manner that lead to the reestablishment of equilibrium and positive and rewarding experiences for children.

2.1.4.1 Theoretical approaches of play therapy:

1- Psychoanalytic models:

Modern psychoanalytic therapy

Modern psychoanalytic therapy with children emphasizes the collaborative and personalized cocreation of meaning through a creative engagement between patient and therapist. It is aware that there is no one “accurate” explanation of play or of any other behavior. Rather, it emphasizes co-construction of meaning within the therapeutic dyad. Psychoanalytic therapy concentrates on the interactions within an intimate therapeutic relationship and uses them as hints to develop a deeper, more affluent understanding of the child’s internal and relational world. By this approach, new opportunities for experiencing self and others and for new methods of performing are opened for the child, and the child’s innate abilities for growth are freed. (Schaefer, 2011).

(O'Connor, Schaefer & Braverman, 2016) states that Psychoanalytic and analytical play therapy as treatments for children are significant because play therapists are interacting in a multimodal approach that incorporates visual, tactile, auditory, and sensory modalities, and over time this can influence brain models , particularly these relate to emotions.

Jungian analytical play therapy

The fundamental purpose of Jungian analytical play therapy is for children to individuate, which is to say they must become of who they really are, distinct from others

(e.g., parents), yet learn about themselves in relation to others. This route is assisted by a series of discussions within the safety of a nonjudgmental therapeutic dyad in which children disclose who they are in relation to the rest of the world through symbolic play which serve to bring unconscious to the conscious level, being less controlled by irrational forces children are begin to mediate more rational behaviors aligned with the needs of a healthy ego. (Schaefer, 2011)

Adlerian play therapy

Adlerian play therapy is an dynamic practice in which the therapist uses toys, art materials, stories, puppets, and role-playing to establish an egalitarian relationship with the child, discover the child's lifestyle, aid the child gain insight into his or her lifestyle, teach the child new skills and attitudes, and provide a medium for the child to rehearse these skills and attitudes in the secure area of the playroom. Concurrently, the play therapist consults with parents, aiding them acquire insight into themselves and their children and acquire skill in constructive parenting strategies. (Schaefer, 2011), Adlerian play therapy integrates nondirective and directive play techniques to help children to acquire a deeper understanding of how they view themselves, others, and the world. Akay, & Bratton, (2017) and an evidence-based approach, developmentally responsive approach to counseling children and is compatible with hospital situations. Russell, Oh, & Dillman Taylor (2019).

Release play therapy

Release play therapy applied for treating children's problems by capitalizing on children's own methods of healing themselves. By this approach, children return to their previous state of comfort after working through the therapeutic process through play in a

short-term format in which play is their language, their way, and so play is the way to help them heal. (Schaefer, 2011) in addition can be identified as set of techniques for children who presented with particular symptoms after a stressful life event or trauma. (O'Connor, Schaefer & Braverman, 2016)

2- Humanistic models

Child-centered play therapy

(Schaefer, 2011) states that Child-centered play therapy is an active manner of connecting to children on their own terms in developmentally suitable means, harmonious, with their natural medium of communication. It is a process of enduring detection as the play therapist consistently represent understanding and acceptance, which creates a relationship of safety and is internalized by the child in ways that free the child to express and explore aspects of self that have typically not been shared with other adults. The focus on the person of the child is the basis and goal of this approach.

(O'Connor, Schaefer & Braverman, 2016) describe Child-centered play therapy is a method to play therapy that centers on the life of the child through a relationship between the child and therapist. Without use of techniques in the play therapy process. Rather than relying on techniques, the relationship between the therapist and the child aids establishment of the child's constructive attitudes and behaviors.

Filial Therapy

Distinctive and effective approach that blend play therapy with family therapy. Several child difficulties are addressed in the context of the parent-child relationship, which is reinforced in the Filial Therapy process. In Filial Therapy, therapists' coach and

supervise parents as they conduct special nondirective play sessions with their own children. As parents establish their ability and trust in holding the play sessions, they administer them more independently at home with ongoing therapist monitoring. Filial Therapy combines two critical features in creating lasting change for children: the emotional security and acceptance of the play sessions within the context of the most important relationships of their lives—those with their parents. (Schaefer, 2011)

Gestalt play therapy

Gestalt therapy is part of humanistic-experiential approach that take into consideration the person as a complex self-organizing system, the growth tendency of human functioning, and the human capacity for reflective consciousness Raffagnino, (2019).

Schaefer, (2011) states that Gestalt play therapy is a process-oriented way of therapy that is interested with the healthy, consolidated functioning of the total organism—the senses, body, emotions, and intellect. The therapist regards the distinctiveness and individual process of each child while at the same time providing activities and experiences to help the child renew and strengthen those aspects of the self that have been suppressed, restricted, and perhaps lost. Many expressive, creative, and projective techniques are used, such as graphic art forms, clay, sand tray scenes, music, storytelling, puppets, fantasy and imagery, sensory experiences, and body movement exercises.

The experiential play therapy

Schaefer, (2011) based on the concept that children confront their world in an experiential rather than a cognitive manner. The experiential play therapist assists the child's setting up of trust in the therapeutic relationship by accepting and respecting the

child's demonstration of himself and his life experiences. The child may express his pain through aberrant behavior which could be the child's only manner of demonstrating the pain he feels. Once trust is established, the child participates in fantasy play, where he metaphorically and symbolically express his internal trouble. Within fantasy, the child can approach the pain, control it, and overcome it.

3- Systemic models

Family play therapy

(Schaefer, 2011) Family play therapy is the overlap of two major psychotherapy theories: play therapy and family systems and can be regarded as an assimilative psychodynamic psychotherapy integration in which "a clear commitment to a single psychotherapeutic orientation is present, but techniques taken from other approaches are incorporated .

Stewart, Marrero, & Pellegrino (2018). Define family play therapy as an approach that purposely children involved in therapy in the context of their family system.

Group play therapy

According to Schaefer, (2011), Group play therapy is the identification of children's medium of communication (play), joined with the natural advantage of human connection with other children, under the assistance of a trained and caring adult. Group play therapy offers the chance for children, adolescents, and adults to connect with one another in mutual ways, which leads to a better ability to redirect behaviors into a more self-enhancing and interpersonally suitable way. Group members experience insight, which

lead to a better degree of self-control and correspondingly aids to lessening externalizing (acting out or aggressive) and internalizing (acting-in and regressive) behaviors.

Ecosystemic play therapy

Schaefer,(2011) assimilate elements of many psychological, social work, and systems theories. The aim of constructing an ecosystem theory of play therapy was to encourage play therapists to take a very broadly systemic approach in developing their case conceptualizations and treatment plans, ecosystemic play therapists are free to apply various techniques, both in and out of their sessions, to assist children live more satisfying and happier lives.

4- EMERGING MODELS

Theraplay - attachment enhancing play therapy

Schaefer,(2011) Theraplay based on attachment theory is a structured approach of play therapy that intend to improve parent–child attachments, self-esteem, and trust. It usually yields important alterations within a short period and is appropriate across the whole age range and to a variety of emotional and social problems.

SOLUTION-FOCUSED PLAY THERAPY

Schaefer,(2011) defined solution-focused play therapy as is an approach of play therapy established on the principles of “solution thought” and “solution talk.” The therapist considered that children know what they want and that together they can create a solution to the matters they bring to therapy.

Narrative play therapy

Is a branch of play therapy that uses the developmental scope of both play and narrative to help the child in understanding events that occurred in his or her life and how they have affected the child. The child chooses the toys and materials that he or she wishes to play with. The child's lived world and imagined world(s) come together in his or her play in play therapy (Schaefer, 2011).

Integrative play therapy

Schaefer,(2011) ,states that , Integrative play therapy is a relatively newly developing method to working with children and adolescents. It offers potential in its flexible use of incorporating theory and techniques in order to offer the client the best treatment for his or her presenting problems.

Prescriptive play therapy

Prescriptive play therapists draw from a number of therapeutic methods to have a variety of change agents at their disposal. They then customize their therapeutic interventions to the needs of the individual client by using four sources of information: underlying causes of the presenting problem, empirical evidence, clinical experience/expertise, and client preferences/context, (Schaefer, 2011).

Cognitive-behavioral play therapy (CBPT)

It stresses the child's participation in therapy and manage matters of control, mastery, and responsibility for altering one's own behavior. The therapist assists the child's participation in therapy by presenting developmentally suitable interventions. Several behavioral and cognitive interventions can be blended into CBPT.

CBPT provides structured, goal-directed activities while permitting the child to bring spontaneous material to the session. The balance of spontaneously generated and more structured activities is a delicate one, though both are critical to the success of CBPT. Without the spontaneous material, a rich source of clinical information would be lost. Similarly, if the structure and direction of CBPT were not present, it would be impossible to help the child develop more adaptive coping skills. (Schaefer, 2011)

Cognitive-behavioral play therapy (CBPT) is a developmentally suitable treatment that has been developed and used with young children (3–8 years old). CBPT is based mainly on cognitive-behavioral theories of emotional development and psychopathology. (Files-Hall, Schaefer & Reddy, 2016)

2.2 Literature Review

2.2.1 Psychosocial Interventions in Children

Psychosocial interventions are considered as significant approach for reduction of symptoms and improving functioning in children with psychological disorders, where a key intervention is targeted interventions such as cognitive behavioral therapy (Diab, 2018). It was concluded by Coughtrey et al. (2017) that psychosocial interventions found to have favorable effect on physical symptoms and wellbeing, including decrease in pain associated with medical procedures and distress symptoms in children suffering from cancer. The same researchers emphasize the importance and necessity of such interventions, which will lead to better psychological and physical outcome. In addition, cognitive behavioral therapy for anxiety and depression in these children showed significant improvement in outcomes. Of the different psychotherapeutic approaches, cognitive behavioral therapy found to have significant evidence support for its use in treatment of both depression and anxiety in children and adolescents (Compton, March, & Brent, 2004).

2.2.2 Play Therapy for Hospitalized Children

According to Connor (2007), children with chronic diseases encounter a variety of specific emotional problems, such as anxiety, fear, stress, trauma reactions, and feelings of loneliness and sadness. They usually experience sadness associated with missed social activities. They may be lacking the opportunity to engage in extracurricular and other play activities with friends as the consequence of attending frequent medical visits or following a complex medical course. These courses include many elements, such as dietary and activity limitations, medication program, frequent medical visits, and multiple admissions to the hospital and emergency room visits. Children with chronic diseases usually cope

with chronic pain through play therapy, which provides a space for them to release their stress and anxiety.

In the circumstances in which children face stress, pain and worry, as addressed by (Koukourikos, Tzehe, Pantelidou, & Tsaloglidou, 2015), play therapy can have therapeutic power for the sick children through promoting their physical and psychological development and health.

Play therapy aids in recognizing issues associated with children's experiences in hospital and brings about decrease in negative emotions, which are usually associated with admission to hospital. Play therapy has many features which -when applied with treatment- will assist significantly in improvement of child's functioning. As a result, healthcare professionals can apply play as a therapy as part of a care plan for hospitalized children. This will ultimately, function to help children, affected by life threatening conditions and can promote their daily functioning during hospital admission (Koukourikos et al., 2015).

Yati, Wahyuni, and Pratiwi (2017) concluded that storytelling in a play therapy can diminish anxiety in children during hospitalization and they suggest that this form of play could be used by nurses to decrease anxiety levels in hospitalized children. Further, (Li et al., 2016) revealed that anxiety during hospitalization hinders child's capability to accommodate with hospitalization and medical procedures and increase adverse reactions toward medical care. Therefore, they emphasize the importance inclusion of play therapy for hospitalized children as a part of management care plan and promotion of play, even when the child is ill, as therapy proved its effectiveness in reducing anxiety and negative feelings during hospitalization.

According to (Patel, Suresh, & Ravindra, 2014; Engenheiro, et al. 2016) play therapy with toys and inclusion of toys in care plan is considered to be an effective way for assistance of hospitalized children. Playing with toys can facilitate communication, acceptance of therapeutic procedures, thereby assisting children in reducing stress and anxiety.

2.2.3 Anxiety in Children with Cancer

Mansour and Thabet, (2006) in their study about the prevalence of psychiatric disorders among Palestinian children with cancer compared with case control group of children attending pediatric oncology department aged 6-12 years old in Gaza strip concluded that children with cancer are suffering more anxiety than those in the control group.

Nazari et al., (2017) in their comparative study about quality of life, anxiety and depression among children with cancer and healthy children in Iran, found that children suffering from cancer encounter emotional and behavioral changes more than healthy children; they have significantly lower quality of life and significantly higher levels of depression and anxiety as compared to healthy children. The researchers recommended that psychological treatments, including play therapy be to be used along with medical treatment.

In addition, (Myers, 2014) revealed that anxiety is a significant problem in children after diagnosis with Acute Lymphoblastic Leukemia and decline with time as compared to healthy children. In contrast, depression is also significant problem but tend to persist after one year of diagnosis.

The same finding was obtained by (Kunin-batson et al., 2017) in their longitudinal study about anxiety and depressive symptoms among children as they found significant levels of anxiety and depression more than expected for the general population, but anxiety symptoms decrease over time in contrast to depressive symptoms which stay elevated as compared to the general population. Further, anxiety is not restricted to children with cancer but may also need mental health concern as (McDonnell et al., 2018) concluded that anxiety is a relevant, but less studied in adolescent who survive children cancer.

2.2.4 Play Therapy in Children with Cancer

Pain due to cancer is complicated experience as it contains many factors and perceived both somatically and psychologically, where non-medical interventions applied to control psychological aspect of pain. Group play therapy is a particular intervention that is used in hospitals to control the pain as well as to give it mutually psychological meaning (Scarponi & Pession, 2016).

According to Yasmine et al., (2015) play means a lot to children and understanding such meanings should be part of their care, as they perceive play as a way to reduce tension and make their environment more enjoyable. In addition, play allows children to play some of the games they play at home, therefore, contributes to improvement in their quality of life. The different play activities during hospitalization including; television watching, games, toys, and drawing provide feelings of pleasure, distraction and opportunity for interaction with others. Thus, play is considered a key factor in the care plan as it assists children's wellbeing and reduces the stress of hospitalization.

Boucher et al., (2014) indicated that children with life limiting disease or conditions such as cancer who receive palliative care have a great need for time to be child, to

participate in childhood activities that appropriate for their developmental period. Children need to communicate and represent their fear or anger feelings. This can be achieved through play as it is a self-selected, self-guided activity that can provide the seriously ill child with sense of control, mastery, and freedom from restrictions imposed upon them by their disease. Integrative modalities such as therapeutic play, music, art, guided imagery, and others techniques can be applied to children with cancer who encounter pain and anxiety due to their illness and painful procedures that they are subjected to during hospitalization and may be effective for pain and anxiety of children undergoing cancer treatment (Thrane, 2013).

2.2.5 Cognitive Behavioral Therapy

Cognitive behavioral therapy is a psychotherapy module that was developed by Aaron T. Beck at the University of Pennsylvania in the early 1960s as a time-sensitive, structured, present-oriented psychotherapy directed toward solving current problems and teaching client's needed skills to modify dysfunctional thinking and behavior. It is a unique aspect as it is a framework of psychotherapy with a consolidated theory of personality and psychopathology supported by important empirical evidence (Beck, 1995).

Hofmann and Asnaani (2012) stated that cognitive behavioral therapy refers to a common psychotherapy modality with evidence base that has been used to different psychological problems. They also found that cognitive behavioral therapy is an effective approach for anxiety disorders. In addition, they emphasized that anxiety disorders in children can be treated effectively with cognitive behavioral therapy.

2.2.6 Cognitive Behavioral Therapy for Anxiety in Children

Bennett et al (2013) concluded that anxiety disorders are risky psychological disorders among adolescent and - if untreated - may lead to substance abuse and depression. Research found that cognitive behavioral therapy could be an effective technique for adolescent, especially for young children (Jones et al., 2019). It was also found that the developing children aged 8–11 years old are meta-cognitively aware and can relate thoughts, feelings and behaviors, indicating that cognitive behavioral therapy is an appropriate approach for this group of children. Also, O’Callaghan and Cunningham (2015) found that group-based cognitive behavioral therapy is an effective method for reducing symptoms of anxiety and depression among primary school children.

2.2.7 Cognitive Behavioral Play Therapy

Cognitive behavioral play therapy is defined as a *"a developmentally sensitive treatment for young children that relies on flexibility, decreased expectation for verbalizations by the child, and increased reliance on experiential approaches"* (Knell, 1998). The characteristics of cognitive behavioral play therapy could include involvement of child in therapy by using play, centered on children's thoughts, emotions, imaginations and environment, through teaching the child coping skills, structured, directive and goal-oriented, blend empirically tested skills and permit empirical evaluation of therapy (Cattanach, 2003).

Research conducted by Razak, Johari, Mahmud, Zubir, and Johan (2018) concluded that cognitive behavioral play therapy is type of play therapy methods that are effective in treating psychological issues among children. Therefore, the implementation of this technique is crucial and needed significantly, as it has positive results and benefits for the

children, mainly due to the ease and productivity of application of this technique by counsellors.

Atayi ,Marzie, Razini, and Hatami, (2018) stated that group cognitive behavioral play therapy could be an effective approach for increasing self-esteem and reducing social phobia among school-age children. In addition, cognitive-behavioral play therapy is designed specifically for preschool and early elementary school-age children and mainly focusses on involvement and participation of children in matters of control, mastery, and responsibility for changing one's own behavior (Kaduson & Schaefer, 2006).

2.2.8 Coping Cat program

The overall goal of Coping Cat is to reduce anxiety and the essential components of the Coping Cat program include; (first), psychoeducation, involving information for children and families about how anxiety can develop and be maintained, and how it can be treated. (Second), exposure tasks, which give the child the chance to be in the feared situation and have a mastery experience. (Third), somatic management, which teaches relaxation techniques. (Fourth), cognitive restructuring, which addresses FEAR: **F**eeling frightened, **E**xpecting bad things, **A**ttitudes and actions that will help, and **R**esults and rewards. (Finally), Problem solving to generate and evaluate specific actions for dealing with problems.

This program is typically conducted in community agencies, group homes, hospitals, residential care facilities, schools, and homework.

Several research studies support the use of “coping cat group program” in treatment of anxiety in children. For example, a study by (Starrenburg, Kuijpers, & Kleinjan, 2017) found that the implementation of coping cat group program in primary school children is

effective, freely accessible, and meets several cost-effectiveness criteria in reducing levels of anxiety among these children. Moreover, Lenz (2016) performed a meta-analysis study of the coping cat program and concluded that it provides the therapist with flexible structured intervention program for alleviating the symptoms of anxiety in children and adolescent. Lenz also found this program to be more effective than no treatment and - to some extent - more effective than other alternative treatments. In addition, Shahrivar (2016) found that coping cat group program is effective in reducing anxiety in children aged 8 to 10 years as compared to waiting list group.

2.2.9 Conclusion from previous studies:

The researcher concluded from the previous studies that cancer in children is important factor affecting mental health of children and their families due to the nature of the disease as a chronic and life threatening disease and associated invasive medical procedures. The affected children subjected frequently to pain, fear and stress, which may result in psychiatric disorders manifested in variety of complains which may differ from that of adult patients and usually recognized by family and medical staff as change in behavior and require psychosocial interventions.

Among the psychiatric disorders, the most common are anxiety and depression, which are prevalent in multiple studies concerned with those children, and require appropriate intervention different from that of adult. Anxiety in children in cancer as previous studies demonstrate is common and significant problem affecting their daily activities, their school performance and their quality of life.

Play is significant way of expression of emotion and medium for communicating with the world and of great help in aiding children to overcome stress and trauma. Previous

studies indicate that among psychosocial interventions, which may help those children, overcoming their fear and worries is play therapy, which is significant and effective approach and should be part of management plan for those children.

Among the different play therapy approaches, multiple studies indicate that cognitive behavioral therapy is crucial and needed significantly, as it has positive effect and benefit for those children, in addition this approach focus on children's thoughts, emotions, imaginations and environment, teaching the child coping skills, structured, directive and goal-oriented, and permit empirical evaluation of therapy.

Chapter Three

Methodology

3.1 Study Design

The design of this study is quasi-experimental study, which as stated by (Kopak, 2016) is applied generally to examine the effect of certain stimuli on social phenomena in a condition where it is impossible to control all possible variables.

Quasi-experimental research study designs, like experimental designs, test causal hypotheses. In both the program and policy is regarded as an ‘intervention’ in which a treatment include the elements of the program /policy being assessed – is evaluated for how well it attains its objectives, as determined by a pretest Quasi-experimental designs select a control group that is as similar as possible to the case group in terms of baseline (pre-intervention) characteristics. The control group gains what would have been the outcomes if the intervention had not been implemented. Hence, the intervention can be considered to have caused any difference in outcomes between the case and control groups (White & Sabarwal, 2014).

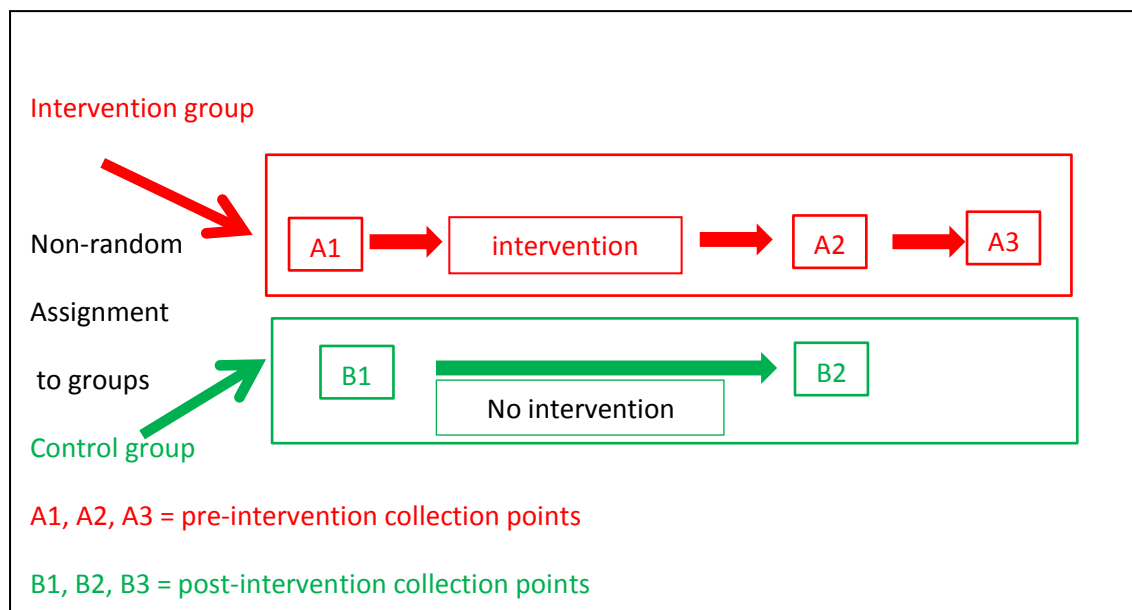


Figure (3.2) Quasi-experimental design

3.2 Study Setting

The study was conducted at Abd Alaziz Elrantesi Pediatric Hospital-Oncology Department in Gaza Strip named Dr. Musa and Suhaila Nasir Pediatric Cancer department. The intervention and control groups selected from outpatient departments of the hospital.

The department is the first and only pediatric oncology department for children in the Gaza Strip. Prior to the opening, every child in Gaza with cancer had to travel outside - often away from his or her family - for care. The new department has 16 rooms and 14 outpatient beds, as well as a playroom, laboratory, pharmacy, blood bank, 3 examination rooms, dental clinic. The medical team consist of two general physician, two pediatric oncologist, 28 department nurses, social worker and number of volunteers.

The playroom is fully equipped with toys and materials in addition to other materials provided by the researcher for the intervention program.

3.3 Study Period

The intervention program lasted for 2 months, starting in December 2019 and was completed by the end of January 2020.

3.4 Study population

Population of the study would be children diagnosed with cancer attending Abd Alaziz Elrantesi pediatric hospital-oncology department in Gaza Strip. The number of children diagnosed with cancer and had active files (on regular follow up) of the age group 9 – 12 years was 81(40 males and 41 females) children among them 41 children diagnosed with Acute lymphocytic leukemia (22 males and 21 females) and others with different types of cancer.

3.5 Study Sample

The sample is a convenient sample taken from Dr. Musa and Suhaila Nasir Pediatric Cancer department in Abd Alaziz Elrantesi pediatric hospital in Gaza Strip. 10 children were assigned for the intervention group and another 10 children for the control group, based on the inclusion and exclusion criteria that were set.

3.6 Sampling Process

A quasi experimental pre-test post-test design was adopted to conduct a study in Dr. Musa and Suhaila Nasir Pediatric Cancer department in Abd Alaziz Elrantesi pediatric hospital in Gaza Strip, after obtaining permission from the responsible authorities. Among the children diagnosed with cancer, ten children assigned for the intervention group and another ten children for the control group. Selection of the participant in the study was based on inclusion criteria , in addition, the researcher attended to the outpatient clinic for 3 months to interview children and their parents in order to apply the study scale because contact with the children and their parents by cellphone was refused by hospital authority

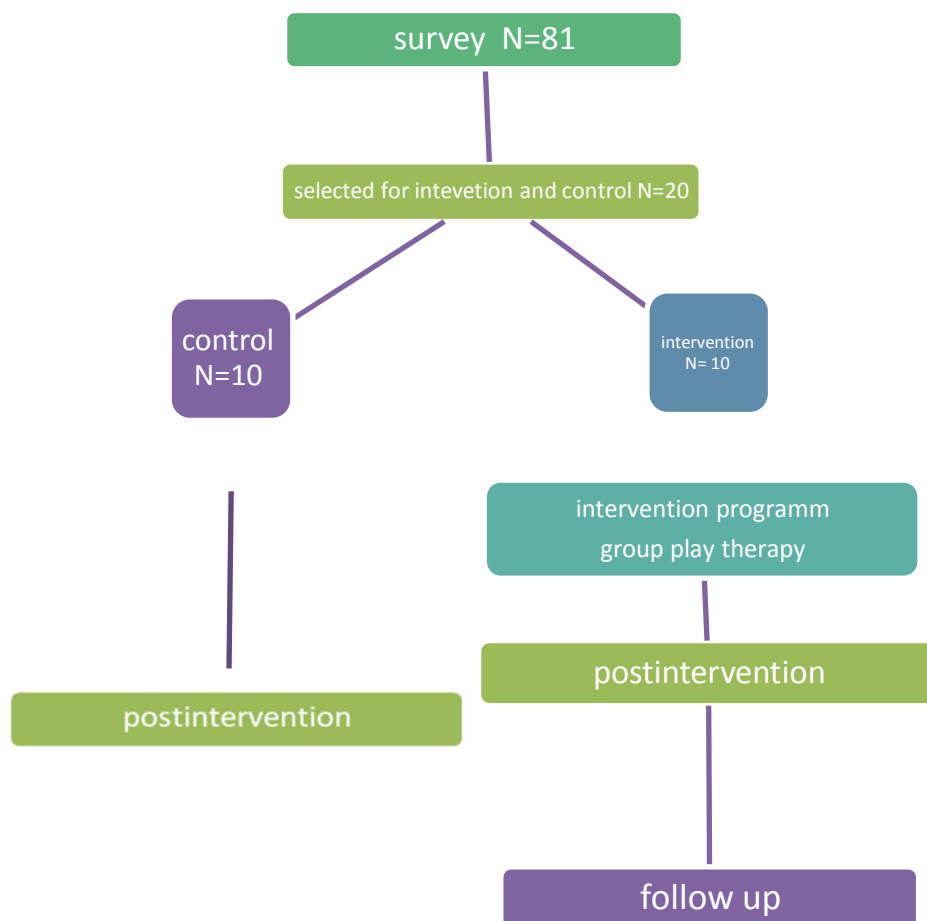


Figure (3.3): Sampling processes

3.7 Eligibility Criteria

Inclusion criteria

Intervention group

1. Children diagnosed with cancer aged 9 – 12 years living in Gaza strip and had been registered in the medical index.
2. Children diagnosed with cancer (acute lymphocytic leukemia) who show anxiety on the study scale on regular follow up in the outpatient department
3. Children diagnosed with cancer who are able and willing to participate in the study.

Control group

Children diagnosed with cancer aged 9 – 12 years living in Gaza strip and had been registered in medical index and who show anxiety on study scales. Nevertheless, will be waitlisted to participate in future studies, if the intervention program approved to be effective.

Exclusion criteria

1. Children diagnosed with cancer who are unwilling to participate in the study.
2. Children diagnosed with cancer with mental or physical disability that limit their ability to be part of the activities.
3. Children diagnosed with cancer younger than 6 years or older than 12 years.

3.8 Study Instruments

This study will utilize the following instruments:

1. Socio-demographic information that include age, sex, education level, family income, place of residency, type of cancer, type of treatment, duration of illness, family size, (Annex 2).
2. Revised Children's Manifest Anxiety Scale (RCMAS). (Annex 3)

The RCMAS (RCMAS; Reynolds & Richmond, 1985, 2000) is a 37-item self-report inventory used to assess the level and nature of anxiety in children, for clinical purposes (diagnosis and treatment evaluation), educational settings, and for research purposes. A response of "Yes" indicates that the item is descriptive of the subject's feelings or actions, whereas a response of "No" indicates that the item is generally not descriptive.

A Total Anxiety score is computed based on 28 items, which are divided into three anxiety subscales: physiological anxiety (10 items about somatic manifestations of anxiety such as sleep difficulties, nausea and fatigue), worry/oversensitivity (11 items measuring obsessive concerns about a variety of things, most of which are typically vague and ill-defined, as well as fears about being hurt or emotionally isolated), and social concerns/concentration (7 items measuring distracting thoughts and fears that have a social or interpersonal nature). The remaining nine items on the RCMAS constitute the Lie subscale. It is a relatively brief instrument, which has been subjected to extensive study to ensure that it is psychometrically sound.

A high score on the physiological anxiety scale suggests that the child has certain kinds of physiological responses that are typically experienced during anxiety. A high score on the worry/oversensitivity scale may suggest that the child internalizes much of the anxiety and may thus become overburdened with trying to relieve the anxiety. Finally, a high score on the Social concerns/concentration subscale suggests that the child may feel some anxiety that they are unable to live up to the expectations of other significant individuals in their lives (Reynolds & Richmond, 2000).

Lazor1 et al., (2017) evaluated 14 different multi-item and 13 single-item instruments that have been used to measure anxiety in pediatric oncology and they concluded that three multi-item and one single-item instruments were identified as being reliable and valid among the study population of pediatric cancer, of these were Revised Children's Manifest Anxiety Scale (RCMAS) and The State-Trait Anxiety Inventory (STAI). The RCMAS scale has been validated by Mansour (2007) where most items of the scale are found to have good levels of internal consistency where the correlation

coefficient ranged $R = (0.373 - 0.761)$ that was significant at 0.01 and the reliability of the scale was assessed by Cronbach alpha equation where the value of $\alpha = (0.905)$.

3.9 Modified Coping Cat Program

Coping Cat is (annex 4) a cognitive-behavioral treatment for children with anxiety. The program incorporates four components:

1. Recognizing and understanding emotional and physical reactions to anxiety.
2. Clarifying thoughts and feelings in anxious situations.
3. Developing plans for effective coping.
4. Evaluating performance and giving self-reinforcement.

For this intervention program, and in this study, 10 children were included in the intervention group, 50% of them are males and 50% are females. The program was implemented over 8 weeks period, twice weekly for 90-minutes each session (totaling 12 sessions). In addition, Coping Cat included a homework component: One STIC task (where STIC stands for "Show That I Can") is an assigned task per week.

The intervention program was modified to the Palestinian culture, evaluated, and endorsed by committee of experts (annex 5), who gave their expert opinions about the program sessions.

3.9.1 Implementation of the program

The researcher has done the following steps:

1. Communicating with the publishing company and purchasing the paper version of the program.

2. Modification of the program by incorporating proved play therapy techniques suitable for the aim of the study and the different purposes of each session into the program.
3. Evaluation and endorsement of the program by committee of experts, who gave their opinions about the program sessions and appropriate adjustments done.
4. Preparation of a form to collect demographic information about the sample members and filled it out from by the parents of the children.
5. Coordination with the Palestine Children's Relief Fund to use the playroom in the Department of Dr. Musa and Suhila Nasir pediatric cancer department to implement the program.
6. The researcher applied the pre-test to both the intervention and control groups.
7. Parents' written consent was obtained for participation of their children in the program.
8. Before implementation of the intervention program, the researcher met the parents of the children and provided them with details of the program and answered their questions and clarified the importance of the program since their children did not receive any psychological support or therapy during their illness.
9. The researcher conducted the sessions, two sessions per week. At the end of the sessions, the post-test was applied to the intervention group and the control. After a month, the follow up test was applied to intervention group.
10. At the end of the study, the researcher analyzed and discussed the results, then made recommendations and suggestions for further studies.
11. The intervention program was implemented by the researcher himself.

3.9.2 Ethical Consideration

The researcher obtained written informed consent (annex 1) from the child and his/her caregiver. An assurance given regarding confidentiality and safety before the intervention implementation. All APA ethical considerations were taken into account

The APA ethical standard was followed. To guarantee participants rights and privacy, informed written consent indicating the purpose of the study, confidentiality and other rights obtained from the caregiver of the child and from the child himself / herself (Annex 4). Parents were asked to sign a form consenting for their child to be part of the study. Symbolic presents given to all intervention and control-waiting list group.

An official letter of approval from Helsinki committee obtained (annex 5). Then, an approval letter gained from the Director of the Hospital.

3.10 Data Collection

Data collection was done by the researcher himself through using demographic variables questionnaire, applying pre-post intervention assessment using Revised Children's Manifest Anxiety Scale (RCMAS). A follow-up assessment of the same scales was conducted one month after the application of the intervention program. The assessment tools applied to the intervention and control group to allow comparison between the two groups. Data was collected by individual interview of the child and his/her parent in the same location (play therapy room) in all assessments processes.

3.11 Data Analysis

The researcher used statistical package of social science (SPSS) program (version, 25) for data entry and analysis. Statistical methods are :

- Pearson Correlation Coefficient: to measure the validity of the study instruments.
- Descriptive analysis: using frequency, percentage, standard deviation and mean to obtain degree of anxiety in study sample.
- Crosstabulation correlation: to assess homogeneity of the intervention and control group regarding to demographic data and level of anxiety.

Mann-Whitney test: to measure the differences between intervention and control group for the level of anxiety.

Wilcoxon test for paired samples: to measure difference between pre-intervention, post intervention and follow up measures of anxiety levels and to evaluate the effect of the intervention on the intervention group.

- ETA box to measure the size of the effect of the intervention program on the intervention group.

Chapter Four

Results and discussion

4.1 Introduction

This chapter presents the analysis and results obtained from the collected data. It includes descriptive analysis of the sample demographic characteristics, the relative frequency of items of anxiety scale (RCMAS), as well as common fears and worries faced by children with cancer suffering from anxiety disorder. Furthermore, it tests the research hypothesis in order to achieve the objectives of the study and answer its questions.

4.2 Descriptive Analysis

A total of 20 children diagnosed with cancer were selected according to the inclusion exclusion criterion as mentioned in the previous chapter. Subsection 4.2.1 presents the descriptive analysis of demographic sample characteristics according to the group. Subsection 4.2.2 presents the frequency distribution of the anxiety scale (RCMAS) per item. Subsection 4.2.3 illustrates the distribution of fear index.

4.2.1 Descriptive Analysis of the Demographic Sample Characteristics

Children were randomly distributed into two equal groups, namely control (wait-listing) and intervention groups.

To ensure the homogeneity of the two groups, Table 4.1 presents the relative frequency distribution of the two groups according to their categorical demographic characteristics, associated with the fisher exact test for homogeneity.

Results in Table 4.1 reveal the homogeneity of demographical characteristics between control and intervention groups, where the p-values of homogeneity tests (either Chi-squared or Fisher's exact tests) are greater than 0.05.

Groups are equally distributed with respect to gender. The majority (75%) of children are enrolled in the fourth and fifth grade in the elementary school. Furthermore, the majority (80%) of children's families are consisted of more than 5 members. Approximately 90% of children belong to families with poor socio-economic conditions. Of the total number of children, 90% have been diagnosed for more than a year. Such data indicate that children with poor economic status and large family size are more prone to have anxiety compared with other children.

Table 4.1: Relative frequency distribution of sample according to demographic variables

| Variable | | Intervention (<i>n</i> =10) | | Control (<i>n</i> =10) | | Homogeneity test | |
|---------------------------------|----------------|------------------------------|------|-------------------------|------|------------------|----------------|
| | | <i>n</i> | (%) | <i>n</i> | (%) | <i>Value</i> | <i>p-value</i> |
| Gender | <i>Male</i> | 5 | 50% | 5 | 50% | 0.0# | 1.00 |
| | <i>Female</i> | 5 | 50% | 5 | 50% | | |
| Grade | <i>Third</i> | 2 | 20% | 1 | 10% | 2.828 | 0.558 |
| | <i>Fourth</i> | 4 | 40% | 2 | 20% | | |
| | <i>Fifth</i> | 4 | 40% | 5 | 50% | | |
| | <i>Sixth</i> | 0 | 0% | 2 | 20% | | |
| No. of family members | <i>3 – 5</i> | 2 | 20% | 2 | 20% | 1.172 | 0.836 |
| | <i>5 – 7</i> | 2 | 20% | 4 | 40% | | |
| | <i>>7</i> | 6 | 60% | 4 | 40% | | |
| Socio-Economic Status | <i>Good</i> | 1 | 10% | 1 | 10% | 0.541 | 1.00 |
| | <i>Average</i> | 6 | 60% | 5 | 50% | | |
| | <i>Poor</i> | 3 | 30% | 4 | 40% | | |
| Disease Period per month | <i><3</i> | 0 | 0.0% | 1 | 10% | 5.052 | 0.141 |
| | <i>3-6</i> | 0 | 0.0% | 0 | 0.0% | | |
| | <i>6-12</i> | 1 | 10% | 0 | 0.0% | | |
| | <i>12-24</i> | 0 | 0.0% | 3 | 30% | | |
| | <i>>24</i> | 9 | 90% | 6 | 60% | | |

Chi square test.

Table 4.2 presents the summary statistics and the Mann-Whitney test for the difference between the distributions of children's age in control and intervention groups, since the age is not normally distributed as shown in Table 4.2. The results show there is

non-significant statistical difference between the distribution of age for control and intervention groups, which means that the two groups are homogeneous.

Table 4.2: summary statistics and the Mann-Whitney test for age of control and intervention groups

| Group | N | mean | Standard deviation | Median | IQR | Mann- Whitney test | |
|---------------------|----|-------|--------------------|--------|------|--------------------|----------|
| | | | | | | Test | p-values |
| <i>Intervention</i> | 10 | 10.30 | 0.823 | 10.00 | 1.00 | 48.5 | 0.898 |
| <i>Control</i> | 10 | 10.40 | 0.966 | 10 | 1.25 | | |

The results obtained in this section reveal the homogeneity of the control and intervention groups.

4.2.2 Descriptive Analysis of the Anxiety Scale (RCMAS)

The revised anxiety scale (RCMAS) consists of 37 items and divided into three main domains, namely Physiological domain, Worry/Oversensitivity domain and Concentration and Anxiety domain. The relative frequency distribution of responses is given in Table 5.3. The results show that the sample responses are distributed equally in the Physiological Factor, which indicates moderate physiological signs of anxiety (e.g. sweaty hands, stomachaches).

The majority (52.27%) of children feel overwhelmed, withdraw and internalize their experiences of anxiety, while about one-third of the children (34.29%) are likely to feel that he or she is unable to meet the expectations of other important people, inadequate and unable to concentrate.

4.3 The relative frequency distribution of responses for the anxiety scale (RCMAS)

| Domain | Item | | yes | | No | |
|------------------------------|------------------------------------|----------------------------------------------------------|------------|----|------------|----|
| | | | <i>n</i> | % | <i>n</i> | % |
| <i>Physiological</i> | 1 | I have trouble making up my mind | 14 | 70 | 6 | 30 |
| | 5 | Often, I have trouble getting my breath. | 8 | 40 | 12 | 60 |
| | 9 | I get mad easily | 10 | 50 | 10 | 50 |
| | 13 | It is hard for me to get to sleep at night. | 16 | 80 | 4 | 20 |
| | 17 | Often, I feel sick in the stomach | 6 | 30 | 14 | 70 |
| | 19 | My hands feel sweaty | 9 | 55 | 11 | 45 |
| | 21 | I am tired a lot. | 4 | 20 | 16 | 80 |
| | 25 | I have bad dreams | 11 | 65 | 9 | 35 |
| | 29 | I wake up scared some of the time | 12 | 60 | 8 | 40 |
| | 33 | I wriggle in my seat a lot. | 10 | 50 | 10 | 50 |
| | <i>Physiological Factor</i> | | 50% | | 50% | |
| <i>Worry/Oversensitivity</i> | 2 | I get nervous when things do not go the right way for me | 13 | 65 | 7 | 35 |
| | 6 | I worry a lot of the time. | 5 | 25 | 15 | 75 |
| | 7 | I am afraid of a lot of things. | 9 | 55 | 11 | 45 |
| | 10 | I worry about what my parents will say to me | 8 | 40 | 12 | 60 |
| | 14 | I worry about what other people think about me | 4 | 20 | 16 | 80 |
| | 18 | My feelings get hurt easily | 11 | 55 | 9 | 45 |
| | 22 | I worry about what is going to happen. | 13 | 65 | 7 | 35 |
| | 26 | My feelings get hurt easily when I am fussed at. | 11 | 65 | 9 | 35 |
| | 30 | I worry when I go to bed at night | 11 | 55 | 9 | 45 |
| | 34 | I am nervous. | 15 | 75 | 5 | 25 |
| | 37 | I often worry about something bad happening to me | 15 | 75 | 5 | 25 |

| | | | | | | |
|------------------------------|-------------------------------------|-------------------------------------------------------|---------------|----|---------------|----|
| | Worry/Oversensitivity Factor | | 52.27% | | 47.73% | |
| Concentration Anxiety | 3 | Others seem to do things easier than I can. | 13 | 65 | 7 | 35 |
| | 11 | I feel that others do not like the way I do things | 6 | 30 | 14 | 70 |
| | 15 | I feel alone even when there are people with me | 5 | 25 | 15 | 75 |
| | 23 | Other children are happier than I am | 11 | 55 | 9 | 45 |
| | 27 | I feel someone will tell me I do things the wrong way | 5 | 25 | 15 | 75 |
| | 31 | It is hard for me to keep my mind on my schoolwork | 5 | 25 | 15 | 75 |
| | 35 | A lot of people are against me | 3 | 15 | 17 | 85 |
| | Concentration Anxiety Factor | | 34.29% | | 65.71% | |

4.3.1 Descriptive Analysis of the fear index

The fear index (anxiety provoking situations) consists of 26 situations with a likert scale of four grades (severe, moderate, mild, no fear). The relative frequency distribution of responses is given in Table 4.4. A binary index has been derived by combining severe and moderate amounts in a "high" class while mild and no fear are combined in a "low" class. The rank of situation based on the amount of fear reveals that the "sound of missile / air strike" has the first rank, followed by "being away from home", while the following situations are considered the lowest fear amount "riding an elevator", " Going to a store alone" and "ordering your meal in a restaurant"

Children with cancer as their healthy peers are facing various situations in their daily life which could elicit anxiety and fear, table (4.4) highlights those situations and showed that the situations which could cause severe anxiety in children includes; Sound of missile / air strike (in 90 % of children). " Wa ALLAH , I become terrified and died of fear" (11 years old female child) commented on the most anxiety provoking situations, while other children said that "I become anxious and can't sleep", " I stay beside my

mother all the time". Being away from home (in 70% of children), " I get terrified if I left home to hospital " (10 years old male child) commented; while a (12 years old female child) said "I do not like to be away from my parents and family, I feel anxious". Further, Riding an elevator (in 50% of children), If the electricity goes out and the elevator stopped, I will shout and cry"; Going to doctor/dentist (in 50% of children), "I do not like the smell and instruments of the dentist, it causes me pain", (10 years old male child said.)

While situations which leads to moderate anxiety in children are; Failing a test (in 60% of children), "I have to obtain excellent grades and become a doctor so I have to study hard and failing is a big problem", (12 years old female child) explain her response to that situation; Riding an elevator (in 40% of children). In addition, mild anxiety could be as results of situations such as Getting lost (70 % of children), this situation is a common fear for those children, but it elicits mild anxiety because children say, " I have the number of my parents phone and I can call them" , "I used to go outside home and I know the places well"; while others commented " I do not go far places alone"; Getting yelled at by the teacher (60% of children), afraid of dogs or cats (in 50% of children).

Situations which most of children face without fear are; Going to a store alone (in 80% of children), Meeting a new friend (in 70% of children); Being in a car (60% of children), as such situations are carried out by these children in every day and are considered as routine of their daily activities, hence, cause no fear or worry to them.

Table 4.4 The relative frequency distribution of responses for the fear index

| | Situation | Amount of fear | | | | Fear Index | | Rank |
|----|------------------------------------|-----------------------|------------------|-------------|----------------|-------------------|------------|-------------|
| | | <i>Severe</i> | <i>mode rate</i> | <i>Mild</i> | <i>No fear</i> | <i>High</i> | <i>Low</i> | |
| 1 | Being away from home | 70 | 20 | 10 | 0 | 90 | 10 | 2 |
| 2 | Failing a test | 10 | 60 | 30 | 0 | 70 | 30 | 5 |
| 3 | Getting trouble with your parents | 30 | 0 | 30 | 40 | 30 | 70 | 8 |
| 4 | Being in a care | 0 | 0 | 40 | 60 | 0 | 100 | 24 |
| 5 | Riding an elevator | 40 | 40 | 20 | 0 | 80 | 20 | 3 |
| 6 | Taking a test | 10 | 20 | 50 | 20 | 30 | 70 | 8 |
| 7 | Going to a store alone | 0 | 0 | 20 | 80 | 0 | 100 | 24 |
| 8 | Ordering your meal in a restaurant | 0 | 0 | 10 | 90 | 0 | 100 | 24 |
| 9 | Meeting a new friend | 10 | 0 | 20 | 70 | 10 | 90 | 21 |
| 10 | Meeting one of your parent friend | 10 | 0 | 30 | 60 | 10 | 90 | 21 |
| 11 | Getting yelled by the teacher | 20 | 10 | 60 | 10 | 30 | 70 | 8 |
| 12 | Going to school | 20 | 10 | 20 | 50 | 30 | 70 | 8 |
| 13 | Getting an answer wrong | 20 | 10 | 40 | 30 | 30 | 70 | 8 |
| 14 | Giving a speech | 20 | 0 | 30 | 50 | 20 | 80 | 19 |
| 15 | Getting lost | 20 | 10 | 70 | 0 | 30 | 70 | 8 |
| 16 | Going to doctor/dentist | 50 | 30 | 10 | 10 | 80 | 20 | 3 |
| 17 | Getting a shot | 30 | 30 | 40 | 0 | 60 | 40 | 6 |
| 18 | Seeing blood | 30 | 20 | 50 | 0 | 50 | 50 | 7 |
| 19 | Dogs or cats | 10 | 20 | 50 | 20 | 30 | 70 | 8 |
| 20 | Snakes | 10 | 20 | 50 | 20 | 30 | 70 | 8 |
| 21 | Being in dark | 30 | 0 | 40 | 30 | 30 | 70 | 8 |
| 22 | Being alone in part of your house | 30 | 0 | 10 | 60 | 30 | 70 | 8 |
| 23 | Looking foolish or silly | 20 | 10 | 40 | 30 | 30 | 70 | 8 |
| 24 | Being sent to principle | 10 | 0 | 60 | 30 | 10 | 90 | 21 |
| 25 | Sleeping in bed alone | 10 | 10 | 30 | 50 | 20 | 80 | 19 |
| 26 | Sound of missile / air strike | 90 | 10 | 0 | 0 | 100 | 0 | 1 |

The following section will answer the questions of the study as listed in Chapter one

4.4 Inferential Analysis of the Demographic Sample Characteristics

This section will use the appropriate inferential statistical tests to answer the questions of the study. Due to the small size of the considered groups, thus, the non-parametric statistical tests are going to be used to answer the questions in the following subsections.

4.4.1 Differences between intervention and control group level of anxiety.

- Are there statistically significant differences between pre-intervention and post-intervention level of anxiety in intervention group of children with cancer?

As a primary test of homogeneity between the level of anxiety of intervention and control groups, and the Mann-Whitney test for the difference between the means of pre level of anxiety was conducted as summarized and given in Table 4.5. The p-value of Mann-Whitney test is 0.853, which reveals there is non-significant statistical difference between the distribution of pre level of anxiety for control and intervention groups, and indicates their homogeneity.

The non-significant statistical difference between the distribution of pre level of anxiety for control and intervention groups shows that the two groups are very similar in their characteristics, which will indicate that any future differences after the intervention will be attributed to the implemented program.

Table 4.5: summary statistics and the Mann-Whitney test for pre level of anxiety of control and intervention groups

| Group | N | mean | Standard deviation | Median | IQR | Mann- Whitney test | |
|---------------------|----|-------|--------------------|--------|-----|--------------------|----------|
| | | | | | | Test | p-values |
| <i>Intervention</i> | 10 | 20.60 | 1.27 | 20.5 | 1.5 | 52.05 | 0.853 |
| <i>Control</i> | 10 | 20.70 | 1.77 | 20.0 | 1.5 | | |

The results obtained in this section reveal the homogeneity of the control and intervention groups.

4.4.2 Differences between pre-intervention and post-intervention level of anxiety in children with cancer

- **Are there statistically significant differences between pre-intervention and post-intervention level of anxiety in intervention group of children with cancer?**

The study of impact of the intervention is examined via the Wilcoxon sign test to evaluate the difference between the means of pre and post levels of anxiety among children in the intervention group. Results in Table 4.6 show that there is a significant difference between the distribution of pre and post levels of anxiety, where the mean is reduced from 20.60 scores in the pre level of anxiety to 12.50 scores in the post level of anxiety, by 8.1 scores of reduction. To evaluate the magnitude of mean difference, we obtained the effect size by using the Cohen's $d=10.97$, which indicated a very large effect due to the intervention. These results indicated the effectiveness of the intervention program in reducing anxiety among children with cancer, which is based on an integration of play therapy and cognitive behavioral therapy. Furthermore, the intervention program used a variety of techniques suitable for children's developmental level including; relaxation techniques, storytelling, role play, modeling, exposure and positive reinforcement, where the researcher noted the difference in their thoughts and behavior in addition to atmosphere

of trust, care, enjoyment in the sessions that were reflected in their motivation and ongoing attendance and performing assigned home tasks.

Table 4.6: Wilcoxon sign test for pre and post level of anxiety for intervention group

| Group | N | mean | Standard deviation | Median | IQR | Wilcoxon sign test | |
|-------------|----|-------|--------------------|--------|-----|--------------------|----------|
| | | | | | | Test | p-values |
| <i>Pre</i> | 10 | 20.60 | 1.27 | 20.5 | 1.5 | 0.00 | 0.004* |
| <i>Post</i> | 10 | 12.50 | 1.27 | 12.5 | 3.0 | | |

. * Significant at 0.05 level of significance.

4.4.3 Differences between pre-intervention and post-intervention level of anxiety in children with cancer according to gender

- **Are there statistically significant differences between pre-intervention and post-intervention level of anxiety in children with cancer according to gender?**

The differences between pre and post levels of anxiety among the children with cancer in the intervention group are obtained. We used the Mann-Whitney test for the difference between the distribution of male and female change of level of anxiety among the intervention group. The results of test are given in Table 4.7. The p-value of Mann-Whitney test is 0.690 reveals that there is non-significant statistical difference at 0.05 level of significance between the distributions of change in the level of anxiety for intervention group, according to gender. The researcher attributes that to the nature of the disease, which affect both males and females in the same manner, without difference in the severity and psychological sequels according to gender. In other words, males and females suffer the same symptoms of anxiety.

Table 4.7: Mann- Whitney test for change in level of anxiety among intervention group according to gender

| Gender | N | mean | Standard deviation | Median | IQR | Mann- Whitney test | |
|---------------|---|------|--------------------|--------|------|--------------------|----------|
| | | | | | | Test | p-values |
| <i>Male</i> | 5 | 8.00 | 0.707 | 8.00 | 1.00 | 14.50 | 0.690 |
| <i>Female</i> | 5 | 8.20 | 0.837 | 8.00 | 1.50 | | |

4.4.4 Differences between pre-intervention and post-intervention level of anxiety in children with cancer according to socioeconomic status

- **Are there statistically significant differences between pre-intervention and post-intervention level of anxiety in children with cancer according to socioeconomic status?**

We used the Kruskal Wallis test for the difference between the distributions of socioeconomic status change of level of anxiety among the intervention group. The results of test are given in Table 4.8. The p-value of Kruskal Wallis test is 0.446, which reveals that there is non-significant statistical difference at (0.05) level of significance between the distributions of change in the level of anxiety for intervention group, according to socioeconomic status. The researcher attributes that to the financial help provided to these children by different agencies and the continuous medical care provided to those children.

Table 4.8: Kruskal Wallis test for change in level of anxiety among intervention group according to socioeconomic status

| socioeconomic status | N | mean | Standard deviation | Median | IQR | Kruskal Wallis test | |
|----------------------|---|------|--------------------|--------|------|---------------------|----------|
| | | | | | | Test | p-values |
| <i>Good</i> | 1 | 8.00 | - | 8.00 | 0.00 | 1.614 | 0.446 |
| <i>Fair</i> | 5 | 8.40 | 0.710 | 8.00 | 1.00 | | |
| <i>Poor</i> | 4 | 7.75 | 0.823 | 7.50 | 1.75 | | |

4.4.5 Differences between pre-intervention and post-intervention level of anxiety in children with cancer according to family size

- Are there statistically significant differences between pre-intervention and post-intervention level of anxiety in children with cancer according to family size?

We used the Kruskal-Wallis test for the difference between the distributions of different family size change of level of anxiety among the intervention group. The results of test are given in Table 4.9. The p-value of Kruskal Wallis test is (0.691), which reveals that there is non-significant statistical difference at (0.05) level of significance between the distributions of change in the level of anxiety for intervention group, according to family size. That could be due to continuous family support and care as the presence of a child suffering from life threatening disease in the family makes him under the focus of attention and care from all family members and the extended family and relatives.

Table 4.9: Kruskal-Wallis test for change in level of anxiety among intervention group according to family size

| Family size | N | mean | Standard deviation | Median | IQR | Kruskal Wallis test | |
|--------------------|---|------|--------------------|--------|------|---------------------|----------|
| | | | | | | Test | p-values |
| 3-5 | 2 | 8.50 | 0.707 | 8.50 | 0.50 | 0.739 | 0.691 |
| 5-7 | 4 | 8.00 | 0.000 | 8.00 | 0.00 | | |
| <i>More than 7</i> | 4 | 8.00 | 1.15 | 8.00 | 1.00 | | |

4.4.6 Differences between pre-intervention and post-intervention level of anxiety in children with cancer according to period of illness.

- Are there statistically significant differences between pre-intervention and post-intervention level of anxiety in children with cancer according to period of illness?

We used the Kruskal-Wallis test for the difference between the distributions of different period of illness change of level of anxiety among the intervention group. The results of test are given in Table 4.10. The p-value of Kruskal Wallis test is (0.940) which reveals that there is non-significant statistical difference at (0.05) level of significance between the distributions of change in the level of anxiety for intervention group, according to period of illness. This could be attributed to the nature of the disease as due to its chronicity, it makes children more familiar with the medical procedures of management plan, which is different than acute cases.

Table 4.10: Kruskal Wallis test for change in level of anxiety among intervention group according to the period of illness

| Period of illness | N | mean | Standard deviation | Median | IQR | Kruskal Wallis test | |
|----------------------------|---|------|--------------------|--------|------|---------------------|----------|
| | | | | | | Test | p-values |
| <i>3 months</i> | 1 | 8.00 | - | 8.00 | 0.00 | 0.123 | 0.940 |
| <i>12 – 24 months</i> | 3 | 8.00 | 0.725 | 8.00 | 1.00 | | |
| <i>More than 24 months</i> | 6 | 8.17 | 1.15 | 8.00 | 1.25 | | |

4.4.7 Association between age and the difference in level of anxiety among children with cancer in the intervention group.

The differences between pre and post levels of anxiety among the children with cancer in the intervention group are obtained, and its correlation with children's age is obtained via Spearman's correlation coefficient, where the age is not normally distributed as given

in Table 4.11. The Spearman's correlation coefficient (-0.253) with p-value (0.481), reveals non-significant correlation at (0.05) level of significant between the age of children and the difference between pre and post levels of anxiety in the intervention group.

This could be due to the similar age characteristics of the children as children are in the early childhood period of development.

4.4.8 Differences between pre-intervention and follow up level of anxiety in children with cancer

Are there statistically significant differences between pre-intervention and follow up level of anxiety in intervention group of children with cancer?

The Wilcoxon sign test was used to evaluate the difference between the distribution of pre and follow-up levels of anxiety among children in the intervention group. Results in Table 4.12 show that there is a significant difference between the distribution of pre and follow up levels of anxiety at (0.05) level of significance, where the mean is reduced from 20.60 scores in the pre level of anxiety to 12.50 scores in the follow up level of anxiety, by 8.1 reduction scores. To evaluate the magnitude of mean difference, we obtained the effect size by using the Cohen's $d=6.787$, which indicates a very large effect size of the intervention.

This key result could be attributed to the significant role of the program in reducing anxiety level and its sustainability, even after one month of the termination of the program. In other words, the program of intervention is effective in the long-term with children suffering from cancer and have high levels of anxiety.

**Table 4.12: Wilcoxon sign test for pre and follow level of anxiety
for intervention group**

| Group | N | mean | Standard deviation | Median | IQR | Wilcoxon sign test | |
|------------------|----|-------|--------------------|--------|-----|--------------------|----------|
| | | | | | | Test | p-values |
| <i>Pre</i> | 10 | 20.60 | 1.27 | 20.5 | 1.5 | 0.00 | 0.005* |
| <i>Follow up</i> | 10 | 12.50 | 1.58 | 12.5 | 3.0 | | |

.* Significant at 0.05 level of significance.

4.4.9 Differences between post-intervention and follow up level of anxiety in children with cancer

- **Are there statistically significant differences between post-intervention and follow up level of anxiety in intervention group of children with cancer?**

The Wilcoxon sign test to evaluate the difference between the means of post and follow up levels of anxiety among children in the intervention group. Results in Table (4.13) show that there is non-significant difference between the distribution of post and follow up levels of anxiety at 0.05 level of significance, where the mean of post and follow up levels of anxiety is fixed.

The non-significant difference between the mean of post and follow up levels of anxiety could indicate that the intervention program have stable and persistent effect as the anxiety level does not increase over time of the suffering. This means that children's anxiety will continue to be reduced for an extended period of time, even after termination of the program. This result is important as it means that the program is able to control any deterioration that could happen in the anxiety level for children with cancer.

**Table 4.13: Paired sample t-test for post and follow up level of anxiety
of intervention group**

| Group | N | mean | Standard deviation | Median | IQR | Wilcoxon sign test | |
|------------------|----|-------|--------------------|--------|-----|--------------------|----------|
| | | | | | | Test | p-values |
| <i>Post</i> | 10 | 12.50 | 1.27 | 12.5 | 3.0 | 10.5 | 1.00 |
| <i>Follow up</i> | 10 | 12.50 | 1.58 | 12.5 | 3.0 | | |

4.3.2 Differences between pre-control and post-control level of anxiety in children with cancer

- Are there statistically significant differences between pre-intervention and post-intervention level of anxiety in control group of children with cancer?

The study of impact of the intervention is examined via the Wilcoxon sign test to evaluate the difference between the distribution of pre and post levels of anxiety among children in the control group. Results in Table (4.14) show that there is non-significant difference between the distribution of pre and post levels of anxiety, where the mean is reduced from 20.70 scores in the pre level of anxiety to 20.00 scores in the post level of anxiety, by 0.7 scores of reduction. Such result is significant indicating the need of these children to an intervention program aimed to reduce their anxiety, which could affect their medical status and compliance to management plane. As the intervention program implemented by the researcher proved to be effective, therefore it could be also implemented to the control group when it is safe to do so due to the current restrictions of social gatherings because of COVID-19 virus pandemic.

**Table 4.14: Wilcoxon sign test for pre and post level of anxiety
for control group**

| Group | N | mean | Standard deviation | Median | IQR | Wilcoxon sign test | |
|-------------|----|-------|--------------------|--------|------|--------------------|----------|
| | | | | | | Test | p-values |
| <i>Pre</i> | 10 | 20.70 | 1.77 | 20.0 | 1.5 | 6.00 | 0.161 |
| <i>Post</i> | 10 | 20.01 | 1.76 | 20.0 | 1.25 | | |

Chapter Five

Conclusions and recommendations

5.1 Conclusion

Anxiety among children with cancer is a significant psychological consequence of their suffering, which necessitates the need for intervention programs that are suitable for their developmental level. The intervention programs help children in confronting their fears, dealing with their anxious thoughts, and rewarding their performance, which will result in reducing their anxiety levels. The intervention program that was used with our target children involved various techniques that supported children through play and aimed at recognition and understanding of their emotional and physical reactions to anxiety, clarifying thoughts and feelings about anxious situations, developing plans for effective coping, and evaluating performance and giving self-reinforcement for their achievements. This program was effective in reducing children's anxiety in the short-term and maintained this level of reduction in the long run. Based on the results, there are main points to be highlighted that are significant after the implementation of the intervention program. These key points are:

- Children with poor socio-economic status who come from large families size are more prone to have anxiety than other children.
- There is non-significant statistical difference between the means of change in the level of anxiety for intervention group, according to gender, family size, period of illness and socioeconomic status.
- There is a significant difference between the mean of pre and post levels of anxiety, and the effect size indicates a very large effect of the intervention program.

- There is a significant difference between the mean of pre and follow up levels of anxiety.
- There is non-significant difference between the mean of pre and post levels of anxiety in the control group.

5.2 Recommendations:

1. Educating medical staff on the psychological status of children with cancer and its effects in both children and their families.
2. Orientation of professionals about designing intervention programs that take into consideration the play therapy program in the management plans for children with cancer.
3. Provide training for medical staff on play therapy program and different techniques aimed at reducing anxiety among children with cancer. Such training can equip professionals with new techniques and protocols of management that facilitate the recovery of their clients, based on evidence based interventions.
4. Generalization of the results to other children with anxiety and piloting the success of the program with other children with various mental health disorders should be made a priority.
5. The production of a written manual in Arabic about group play therapy that can facilitate the implementation of the intervention, with minimal guidance.

5.3 Suggestions for future research:

Based on the success of the program, the researcher suggests future research studies as follows:

- 1- Effectiveness of play therapy program on reducing anxiety among adolescence with cancer.

- 2- Effectiveness of play therapy program on reducing anxiety among children with other chronic and life-threatening diseases.
- 3- Effectiveness of conducting play therapy programs for intervention with children with other conditions such as depression, and posttraumatic stress disorder.

5.4 Limitation of the Study

1. The sample is a convenient sample for both intervention and control groups.
2. The use of the Revised Children's Manifest Anxiety Scale is self-report scale does not take into consideration the perspectives of caregivers or medical staff.
3. Access to all children with cancer was difficult because according to the policy of the hospital, the researcher is not allowed to get access to the medical index, which include their telephone numbers and addresses, and because of that the researcher obligated to attend to the follow up clinic twice weekly in the previous months preceding the implementation of the intervention program in order to ensure a good collection of the sample .
4. Expectation of some parents that we will get financial help because of their poor socioeconomic status.

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Annexes

Annex 1: Caregiver's consent

بسم الله الرحمن الرحيم

عزيزي ولي أمر الطفل...

السلام عليكم..

أقوم أنا الباحث د. خالد يوسف ميلاد بعمل دراسة حول تأثير العلاج الجمعي باللعب لتخفيض أعراض القلق لدى الأطفال المصابين بالسرطان في قطاع غزة وذلك استكمالاً لانييل درجة الماجستير في العلاج النفسي بجامعة القدس أبوديس.

سأقدم لك معلومات وأدعوك إلى قبول اشتراك طفلك هذا البحث، قد تكون هناك بعض الكلمات التي لا تفهمها. من فضلك اطلب مني التوقف عندما نتصفح المعلومات وسأستغرق بعض الوقت لشرح ذلك. إذا كانت لديك أسئلة في وقت لاحق، فيمكنك أن تسألهم عني.

الغرض من البحث:

دراسة مدى فعالية علاج جمعي باللعب على تخفيض أعراض القلق لدى المصابين بالسرطان في قطاع غزة للفئة العمرية من 9 إلى 12 عام. علماً بأنه قد تمت الموافقة على إجراء هذا البحث من قبل الجهات المختصة بوزارة الصحة – غزة.

نوع التدخل البحثي:

سيتم إجراء 12 جلسة علاجية باللعب للأطفال بمعدل جلستين أسبوعياً في مستشفى الرنتيسي للأطفال، كل جلسة ستستغرق حوالي 90 دقيقة وستستمر الجلسات على مدى شهرين.

اختيار المشاركين:

سيتم اختيار مجموعة من الأطفال (10 أطفال) من الفئة العمرية 9 إلى 12 عام والذين يرغبون في المشاركة في البرنامج.

المشاركة الطوعية:

مشاركة طفلك في هذا البحث طوعية تمامًا. إنه اختياريك للمشاركة أم لا. سواء اخترت المشاركة أم لا، ستستمر جميع الخدمات التي تتلقاها في هذا المستشفى ولن يتغير شيء. يمكنك تغيير رأيك لاحقًا والتوقف عن المشاركة حتى لو كنت قد وافقت مسبقًا.

السرية:

سيتم الحفاظ على سرية المعلومات التي نجمعها من هذا البحث. المعلومات الخاصة بطفلك التي سيتم جمعها خلال البحث سيتم إزالتها ولن يتمكن أحد من رؤيتها. أي معلومات عنه سيكون لها رقم بدلاً من اسمه. لن تتم مشاركة المعلومات مع أي شخص ولن تستخدم إلا لأغراض البحث العلمي.

التواصل:

إذا كان لديك أي أسئلة، يمكنك طرحها الآن أو لاحقًا، حتى بعد بدء الدراسة. إذا كنت ترغب في طرح الأسئلة لاحقًا، فيمكنك الاتصال بأي مما يلي:

الاسم: د. خالد يوسف ميلاد

العنوان: خان يونس، مركز خان يونس للصحة النفسية المجتمعية، شارع الزيتون، خان يونس.

رقم الهاتف: 0595612410

البريد الإلكتروني: meladky@yahoo.com

الموافقة:

قد قرأت المعلومات السابقة، أو تمت قراءتها لي. لقد أُتيحت لي الفرصة لطرح أسئلة حول هذا

الموضوع وأي أسئلة قمت بطرحها قد تم الرد عليها. أوافق طوعاً على مشاركة طفلي هذا البحث.

الاسم:

التوقيع:

التاريخ:

Annex 2: Socio-demographic questionnaire

بسم الله الرحمن الرحيم

عزيزي ولي أمر الطفل

السلام عليكم

يقوم الباحث بأجراء بحث علمي حول فعالية العلاج باللعب لتخفيف اعراض القلق لدى الاطفال المصابين بالسرطان في قطاع غزة من عمر 9 الى 12 عام ، لذا نرجو منك الاجابة على هذا الاستبيان مع العلم أن جميع البيانات المدونة سوف تكون سرية ولن تستخدم إلا للأغراض البحث العلمي فقط.

ملاحظة :

الرجاء وضع علامة ✓ في المكان المخصص لذلك :

العمر : 9 □ ، 10 □ ، 11 □ ، 12 □

الجنس: ذكر □ أنثى □

العنوان: غزة □ الوسطى □ خانيونس □ رفح □

مستوى الدراسة: اول □ ثاني □ ثالث □

رابع □ خامس □ سادس □

عدد أفراد الاسرة: 3 □ 5-3 □ 7-5 □ أكثر من 7 □

الوضع الاقتصادي: ممتاز □ متوسط □ ضعيف □

مدة المرض: 3 شهور □ 6-3 شهور □ 12-6 شهر □

سنة الى سنتان □ أكثر من سنتين □

التشخيص

نوع العلاج: كيميائي □ ذري □ جراحي □

نتيجة العلاج : تحسن □ لم يتحسن □

الحالة الصحية العامة: جيدة □ غير جيدة □

Annex 3: Revised Children's Manifest Anxiety Scale (RCMAS)

مقياس القلق - RCMAS

الاسم _____ ولد/ بنت العمر _____

عزيزي/تي:

أمامك مجموعه من الأسئلة نرجو الإجابة عليها بنعم أو لا وشكراً

| الرقم | | نعم | لا |
|-------|------------------------------------------------------------------|-----|----|
| 1. | أشعر بأنني غير قادر على اتخاذ قرار | | |
| 2. | أشعر بالقلق عندما لا تسير الأمور كما أريد | | |
| 3. | الآخرين يعملوا الحاجات بسهولة أكثر مني | | |
| 4. | أنا أحب كل واحد يعرفه | | |
| 5. | بعض الاحيان أعاني من ضيق في التنفس | | |
| 6. | أنا قلقان معظم الوقت | | |
| 7. | أنا بأخاف من حاجات كثيرة | | |
| 8. | أنا دائماً لطيف مع الناس | | |
| 9. | من السهولة أعضابي | | |
| 10. | أشعر بالقلق لما سيقوله لي والدي | | |
| 11. | بأحس بأن الآخرين لا يحبون الطريقة التي أفعل بها الأشياء اليومية. | | |
| 12. | أنا دائماً أتصرف كويس | | |
| 13. | أنا بأجد صعوبة في الذهاب للنوم في الليل | | |
| 14. | أنا بأقلق على الذي يفتكروه الناس علي | | |
| 15. | أنا دائماً أشعر بأنني وحيد عندما أكون مع الناس | | |
| 16. | أنا دائماً كويس | | |
| 17. | أشعر عادة بوجع في المعدة | | |

| | | | |
|-----|---------------------------------------------------------------|--|--|
| 18. | من السهل جرح مشاعري و إيلامي | | |
| 19. | أيدي بتعرق دائما | | |
| 20. | أنا دائما كويس | | |
| 21. | أنا دائما تعبان | | |
| 22. | أنا قلقان على بدوه يحصل في المستقبل | | |
| 23. | الأطفال الآخرين مبسوطين أكثر مني | | |
| 24. | أنا دائما أقول الصدق | | |
| 25. | أنا بأحلم أحلام مش كويسه | | |
| 26. | من السهولة جرح مشاعري عندما أكون قلقان | | |
| 27. | أنا بأشعر بان أحد ما سوف يخبرني بأنني أعمل الأشياء وبشكل غلط. | | |
| 28. | أنا لا أزعل أبدا | | |
| 29. | بأصحي من النوم مرعوب بعض الأحيان | | |
| 30. | أنا بأقلق عندما أذهب إلى فراشي للنوم | | |
| 31. | بأشعر بالقلق لما يعتقده الآخرين عني | | |
| 32. | عمري ما قلت حاجات مكننش لازم أقولها | | |
| 33. | بأتململ في مقعدي باستمرار | | |
| 34. | أنا قلقان وعصبي | | |
| 35. | بأحس بأن ناس كثير ضدي | | |
| 36. | أنا لا أكذب أبدا | | |
| 37. | أنا دائما قلقان على أشياء سيئة ممكن تحدث لي | | |

Annex 4: Group Play Therapy Program (Modified Coping Cat Program)

Aim of the program:

The program is a cognitive-behavioral play therapy for children with anxiety.

Components of the program:

The program incorporates 4 components:

- 4 Recognizing and understanding emotional and physical reactions to anxiety.
- 5 Clarifying thoughts and feelings in anxious situations.
- 6 Developing plans for effective coping.
- 7 Evaluating performance and giving self-reinforcement

Methods and techniques

1. Psychoeducation, involving information for children and families about how anxiety can develop and be maintained, and how it can be treated
2. Exposure tasks, which give the child the chance to be in the feared situation and have a mastery experience.
3. Somatic management, which teaches relaxation techniques Cognitive restructuring, which addresses FEAR: **F**eeling frightened **E**xpecting bad things, **A**ttitudes and actions that will help, and **R**esults and rewards.
4. Problem solving to generate and evaluate specific actions for dealing with problems.
5. The previous methods utilize games and different play therapy techniques in order to achieve the desired goals of each session.

Target group: Children aged 9 – 12 years

Duration: 60 days

Number of sessions: 12 sessions

Session Duration: 90minutes

Place of implementation:

Play therapy room at Dr. Musa and Suhaila Nasir Pediatric Cancer department in Abd ElAziz El Rantisi children hospital.

Assessment method:

Revised Children's Manifest Anxiety Scale, pre,post and follow up.

Implementing Entity: khaled Melad

1. Cognitive behavioral therapy for anxious children: researcher manual for group treatment (coping cat program), edited by Ellen Flannery-Schroeder and Philip C. Kendall.PhD,ABPP, , child and adolescent anxiety disorder clinic, Temple university.
2. Fifteen effective play therapy techniques, edited by Tara M Hall, Heidi Gerard Kaduson and Charles E. Chaefer.
3. 101more favorite play therapy techniques, edited by Heidi Gerard Kaduson and Charles E. Chaefer.
4. Doing play therapy edited by Terry Kottman and Kristin K. Meany-Waken.
5. Play therapy techniques edited by Charles E. Chaefer and Donna M. Cangelosi.

Program details:

| Session 1 | | | | |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| The purpose of the session | | To outline basic information about the program. To build rapport between the group and the researcher as well as among the group members. | | |
| Task | Implementation of the task | Materials | Goal of the task | Duration |
| Task 1 introductory name game | The researcher asked the children to make themselves at home, explore the room, and encouraged the children to get to know their group mates. The researcher begin by introducing himself /herself followed by introductions given by the group members. The introductions facilitated by the use of name tags as well as an introductory name game. | None | Build rapport among group members and between group and researcher reducing the nervousness of the children and encourages participation of all group members | 20 min |
| Task2 Similarity game | The researcher emphasized the similarities among group members through the use of the Similarity game in which children break up into pairs and record all of the ways in which they are similar (e.g., same favorite food). Researcher displayed tolerance and respect for individual differences to set the tone for an openness to the opinions/experiences | None | To build group cohesion and to help the children feel similar to the others in the group and to demonstrate the potential for different point of view. | 20 min |
| Task3 I Remember game | Members ask questions of each other and attempt to remember the answers. Easy to-answer questions such as "How old are you?" "How many brothers and sisters do you have?" "Do you have any pets are asked. | None | Exchange information between group member, encourage the children's participation and verbalization during the sessions, discussion of confidentiality and the exceptions to it. The importance of not disclosing information about group members outside of the group. | 20 min |

| | | | | |
|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------------------------------------------------------------|-------|
| Task4 Group name | The researcher helped the children to devise a name and a symbol to represent their group, discussed what the children can expect. The children are informed that the first session is primarily a time to get to know each other and a time for fun and games | None | Representation of the group | 5 min |
| Task5 Assign the Show-That-I-Can (STIC) task | the children are given notebooks and asked to write in it a brief example of a time when they felt really great, are asked to try to think and focus on what made them comfortable and what they felt and thought at the time. The researcher provided an example of a time when he felt great and described it in terms of what was felt and thought. | Notebook Modelling | To encourage thought about the concepts and principles discussed in session | 15 |

| Session 2 | | | | |
|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|----------|
| The purpose of the session | | To review the goals of treatment. To help the children identify different types of feelings and distinguish anxious, worried feelings from other types of feelings. To encourage children to use bodily clues (e.g., facial expression, body position) to identify different feelings | | |
| task | Implementation of the task | materials | Goal of the task | duration |
| Task1 Rapport and cohesion building, and review of STIC tasks | The session begins with a review of children's names and some discussion of what is recalled of the "I Remember game played during the first session. The researcher facilitates and encourages verbal interaction among group members. Circles the room going over the STIC tasks individually with each child. | None | facilitation and encouragement of verbal interaction among group members | 30 min |
| Task2: The Feeling Word Game | The researcher sits at the same level as the child and introduces the activity to the child by saying, "We are going to play a game called the Feeling Word Game. First, I want you to tell me the names of some feelings that a boy or girl who is [age of the child] years old has." The researcher wrote each of the child is feeling words on a separate piece of paper. Once all of the feelings are written on individual pieces of paper, the researcher lines them up in front of the child and says, "Here are all of the feeling words. I have in my hand a tin of feelings' [poker chips]. I am going to tell a story first, and then I will put down the feelings on these words." | Eight 4 6-in. pieces of paper, a marker, and a tin filled with poker chips. | Reduction of children defenses and encouragement of them to talk about their feelings. | 20 min |
| Task3 role-play | Discuss the idea that people's bodies do different things in response to different feelings, and those different facial expressions and postures are clues to their feelings .Comprise, with the help of | Poster board | Introduction of the concept that different feelings have different physical expressions with role-play | 20 min |

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| | the group members, a list of different emotions (eg. surprised, worried, depressed, angry, and bored). The task enhanced by a large poster board on which each child writes one or more emotions. The researcher encouraged the children to name as many different emotions as they can. | | | |
| Task4 Assign the Show-That-I-Can (STIC) task | Children are asked write in their journals twice before the next meeting, including the most anxious experience during that time and a non-anxious experience | Notebook | To encourage thought about the concepts and principles discussed in session. | 10 min |

| Session 3 | | | | |
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| The purpose of the session | | To review distinguishing anxious, worried feelings from other types of feelings to have the children learn more about somatic responses to anxiety and to identify his/her own somatic responses to anxiety | | |
| Task | Implementation of the task | Materials | Goal of the task | Duration |
| Task1 review of STIC tasks | The researcher reviewed the children's TIC tasks individually with each child while the other group members complete a feelings worksheet (in which the children match a listing of bodily reactions, e.g. crying to a listing of feelings. Crying and. sad) | None | to introduce the session's topic, to Encourage each child to share his/her experiences with the researcher and focus the discussion on the somatic feelings that were experienced during these episodes | 30 min |
| Task 2 Story telling | Introducing the idea that there are a number of somatic feelings that are associated with anxiety including butterflies in the stomach, flushing of the face, trembling, etc., by telling a story (Mr. Fear story) about several children who are all caught in an anxiety provoking situation and how each one feels during the experience. The researcher also disclosed several of his somatic responses to anxiety with a story about a time that he was in an anxiety-eliciting situation serving as a coping model). | Mr. fear story | Discussion of specific somatic reactions to anxiety experiences with the researcher and focus the discussion on the somatic feelings that were experienced during these episodes. | 30 min |
| Task 3 TV interview game | The children split up into pairs to prepare a short skit in which they demonstrate specific somatic responses in an anxiety-eliciting situation using puppets to act in the situation. After each performance, group members not involved in the skit are asked to discuss which physical responses they noticed being displayed. | Puppets Poster board | Practice via coping modeling and role play | 30 min |

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| | <p>In addition, the researcher made poster with first step in coping Have a group member place a strip saying feeling Frightened?" after the 'P' on a large poster board with the letters "FEAR" already written down the left side. Explained that this is the first step in the four-step coping plan, and the remaining steps will be covered later.</p> <p>Materials: different puppets, poster.</p> | | | |
| Task4: Assign the Show-That-I-Can (STIC) task | <p>The children's TIC task is to pay attention to their bodies reactions to anxiety during one day and evening and to record what they felt when they were anxious .</p> | Notebook | To encourage thought about the concepts and principles discussed in session | 10 min |

| Session 4 | | | | |
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| The purpose of the session | | To normalize the experience of anxiety. To review the goals of the treatment and discuss expectations for outcome. To begin to construct a hierarchy of anxiety eliciting situations for both the group as a whole and for individual members. | | |
| task | Implementation of the task | materials | Goal of the task | duration |
| Task1 review of STIC tasks | The researcher continues to review the children's STIC tasks individually. During the review, the remaining group members comprise a list of situations that would make anybody nervous | None | focus on the somatic experiences and the children's ratings of the degree of anxiety they experienced | 20 min |
| Task2 Worry can game | The researcher cuts a strip of paper large enough to completely cover the can. The researcher then asked the child to draw or write "scary things" on one side of the paper strip and to color it with markers. Next, the strip is glued to the can, and the lid is put on the can. A slot large enough for a slip of paper to fit through is cut in the top of the can. The child is instructed to write down his or her worries on separate pieces of paper and then to place the strips of paper into the can. The child should then share some worries with the researcher or with other children if the activity is conducted in a group. | reclosable can, colored paper, markers, glue, and scissors | for helping children to identify and then discuss their worries with an adult and/or other children, to reassure the child that all people have fears and anxieties (including adults who are looked up to as brave or labeled heroes) and that the purpose of this program is to help them learn to recognize these and cope with them better | 30 min |
| Task 3 The Power Animal game | : The researcher showed the child pictures of a large variety of animals and asks the child to choose one that appeal to him or her. The researcher then asks the child to construct the chosen animal in clay or to make a mask with the animal face on it. The researcher follows the child's lead. The researcher asked the child to imagine | pictures of a large variety of animals, clay, and drawing materials | : improving the child's positive sense of self and increasing his or her coping skills, internalizing a Positive Symbol of Strength, improving the child's positive sense of self and increasing his or her coping skills | 30 min |

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| | <p>what the animal might do in certain situations and how it might solve a specific problem. By regularly consulting with the animal, the researcher helped the child move deeper into an internalization of the strengths and attributes the child projects onto the animal.</p> | | | |
| <p>Task4 Assign the Show-That-I-Can (STIC) task</p> | <p>The children are instructed to draw a picture of a person in an anxiety-eliciting situation. The figure they draw may be themselves, a friend, an imaginary person, etc. The researcher asks the children to portray in the picture several of the somatic responses to anxiety one might have. The children are also asked to use the rating scale prepared in session 3 to record the level of the figure's bodily reactions and the level of experienced anxiety</p> | <p>Notebook</p> | <p>To encourage thought about the concepts and principles discussed in session</p> | <p>10 min</p> |

| Session 5 | | | | |
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| The purpose of the session | | To begin to create a hierarchy of anxiety eliciting situations for each group member. To introduce relaxation training and its use in controlling tension associated with anxiety | | |
| Task | Implementation of the task | Materials | Goal of the task | Duration |
| Task1 review of STIC tasks | The researcher continues to review the children's STIC tasks individually. During the review, the remaining group members comprise a list of situations that would make anybody nervous; review of the STIC task takes place individually with each child. Initiate a discussion with the child about the anxious experiences he/she described in his/her journal | None | Discussion with the child about the anxious experiences he/she described in his/her journal. To discuss these anxious experiences thoroughly, but particularly focus on the somatic experiences that were experienced. | 30 min |
| Task2 ragdoll and robot game | Ask the group members to think of a time or situation in which they are really calm and happy. Ask them to imagine themselves in the scene and to the focus on how their bodies feel. Discuss with the group the difference between how their bodies feel when they are tense and when they are relaxed, the researcher then models the walk of a ragdoll, which involves walking as if one's muscles are completely relaxed. Group members are encouraged to do the same. A short game follows in which the researcher or an assigned group member calls out switch to indicate to the group that it is time to switch from the ragdoll walk to the robot walk and vice versa. | none | the researcher Introduce the idea that many of the somatic feelings associated with anxiety involve muscle tension: Suggested that when a person becomes anxious, some parts of his/her body become tense or tight and that the somatic responses are a result of that tension, explained that when people are tense, they often feel stiff and uncomfortable due to tight muscles. Discuss how the body expends excessive energy (i.e., work) when the body is tense. Explained that this extra work will cause the body to become tired more easily | 20 min |

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| Task3 Bubble game | <p>The researcher turned down the lights in the room and ask the children to find a comfortable position. Then tell the children that you will be doing an exercise to help them learn to relax and ask the children to close their eyes. The first relaxation training skill to be introduced is deep breathing. The children are asked to take a deep breath and try to make their stomachs expand, then took it out slowly focusing on how their bodies feel as the air comes out. This procedure is repeated three times The researcher begins by filling the room with bubbles; most children will immediately begin to pop them as they fall. After a few minutes, the children are asked to blow only one big bubble.</p> <p>The researcher teaches the children to take deep breaths from the stomach and slowly exhale. Next, the researcher explains to the children that when they become angry or anxious, the brain wants more air, but the lungs are working too hard being upset to provide it. However, if they breathe deeply, their brain will tell their heart to slow and the lungs will work better. The researcher then tells the children that if they take bubble breaths when they start to become angry, nervous, or tense, they can often prevent angry behaviors from happening.</p> | bubbles (either commercial or homemade) | Introduction of relaxation procedures in reducing anger, anxiety, or tension in children | 30 min |
| Task4 Assign the Show-That-I-Can | The researcher explains the need for relaxation practice describing the ability to relax as a skill to be learned, | Notebook | to practice the relaxation procedures | 10 min |

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| (STIC) task | not something, that can be done automatically. The group members are asked to practice the relaxation procedures at least three times during the upcoming week. The goal is to practice at least three times and record their experiences in their notebooks. In addition, the children are asked to write about two anxiety-provoking situations and to record any thoughts and somatic cues they can identify. | | | |
| Session 6 | | | | |
| The purpose of the session | | To introduce the function of personal thoughts and their impact on responses in anxiety-provoking situations, to help each child begin to recognize his/her self-talk (expectations, automatic questions, and attributions) in anxious situations. | | |
| Task | Implementation of the task | Materials | Goal of the task | Duration |
| Task1 review of STIC tasks/ Discussion | Discuss with the group their experiences during the week with practicing relaxing. , introduction of the concept of thought bubbles (self-talk) and how they affect the anxious experience | None | Discussion on anxious and non-anxious somatic feelings. Listen for any suggestion from the children of thoughts, expectations, or attributions associated with these experiences and call them to the attention of the group | 20 min |
| Task2 thought bubbles game | The researcher Suggest to the group that along with the specific physical responses that accompany anxiety are thoughts that occur along with them. Recognizing these thoughts is the second step in the four-step plan. The "E" on the FEAR poster. A number of cartoons are passed around to the group members in order to introduce the concept of self-talk | carton papers | Introduce the concept of thought bubbles (self-talk) and how they affect the anxious experience. | 40 min |

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| Task3 make me laugh game | One child is selected from the group and is instructed that he/she must keel from laughing while the group members attempt to elicit laughter. | None | improve cohesion between group members | 20 min |
| Task4 Assign the Show-That-I-Can (STIC) task | The children are asked to write, or record in some way, their two most anxious experiences during each of two days over the upcoming week. They are instructed to pay particular attention to their thoughts as well as their somatic responses during each experience. Also, they are reminded to continue practicing their relaxation | Notebook | to practice the relaxation procedures | 10 min |

| Session 7 | | | | |
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| The purpose of the session | | To review the concept of anxious self-talk and reinforce the modification of anxious self-talk into coping self-talk. To introduce the concept of developing and using strategies that will help the children better manage their anxieties. | | |
| Task | Implementation of the task | Materials | Goal of the task | Duration |
| Task1 review of STIC tasks | The researcher reviews the STIC tasks individually with each child. The discussion focuses on how the child knew he/she was anxious and what his/her anxious self-talk was. | None | focuses on how the child knew he/she was anxious and what his/her anxious self-talk was. | 30 min |
| Develop a plan for coping with anxiety | The researcher then sets up a concrete, simple problem-solving situation, and the group is encouraged to suggest alternatives and decide what to do. To facilitate this process, the alternatives may be listed on a large poster board or chalkboard. The researcher emphasized the number of alternatives to suggest to the children that in any anxiety-eliciting situation, they have several options (i.e., behavior choices) available to them. The group then collectively decides upon the best alternative(s) to pursue. Throughout this exercise, the researcher also explains to the group that this skill requires practice and that they should not expect to be good at it right away. | posterboard | Introduce the idea of actively coping with the body feelings and self-talk that happen at anxious times | 30 min |
| Task3 story telling/Foolish Rabbit's Big Mistake story | The researcher reads the beginning of a Foolish Rabbit's Big Mistake story (Martin & Young, 1985) with the children, but only enough to set the scene for the anxious situation, promising to finish reading the story later in the | Rabbit's Big Mistake story | Using strategies that will help the children better manage their anxieties. | 30 min |

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| | session. The researcher becomes the character in the story and the group becomes those who guide the character through the anxious situation. The researcher, remaining in character, ask questions that help the group to correctly use the four-step coping plan, then return to the book and finish the story to see how the situation is resolved by the author. | | | |
| Task4 group coping technique | The researcher asks the children to choose at least one square of paper and encouraged to think of worry they have and then to think of positive outcome they would like to see happen or prayer they would like to express the then to gather along piece of string and attach the flags to it with safety pins or glue, when the paper flags are hung and dry, the group strung it in the room. | 6*6 inches square papers, paints, twine, safety pins or glue | expression of children hopes and prayers at times of stress | 20 min |
| Task5 Assign the Show-That-I-Can (STIC) task | The researcher asks the children to try to use their new skills to begin to cope with anxious situations as they occur and to record their experiences with two of these situations. For each situation, they are asked to provide the details about three potential actions and two coping attitudes. Notify the children that they will be asked to present one of their STIC task experiences in front of the group in the next session. | None | practicing of coping skills in a non-stressful situation | 10 min |

| Session 8 | | | | |
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| The purpose of the session | | To review relaxation training, to introduce the concept of evaluating or rating one's performance and rewarding oneself based upon your performance. Briefly review the other steps in the plan for coping with anxiety. | | |
| Task | Implementation of the task | Materials | Goal of the task | Duration |
| Task1 review of STIC tasks | The researcher initiate a discussion about the children's anxious experiences during the intervening days. Asked each child to describe one of his/her recorded experiences with developing a plan of action when faced with an anxious situation, emphasized even partial attempts at coping and Have group members suggest other alternative actions or altitudes that may have been overlooked | None | focuses on how the child knew he/she was anxious and what his/her anxious self-talk was | 30 min |
| Task2 Review relaxation training | The researcher asked the children to do a relaxation exercise for 10 minutes, discussed with the group their experiences with using relaxation as a first response when becoming anxious, and expand on the idea of a quick relaxation exercise such as a few deep breaths. | none | Review relaxation training | 20 min |
| Task3 Open discussion | Explain to the group that this process of self-rating and reward is the final step in the plan for coping with anxiety. Have the group members write ratings and rewards' after the "R" on the FEAR poster The researcher begins the discussion by describing a reward as something that is given when you're pleased with the work that was done. | None | Introduce the concept of self-rating and self-reward | 20 min |
| Task4 Assign the Show-That- I-Can (STIC) task | The researcher asked the group members to record two anxious situations that were experienced and to take special note of their experiences with self-rating and reward. | Notebook | Practicing of self reward | 20 min |

| Session 9 | | | | |
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| The purpose of the session | | To practice the four-step coping plan under low anxiety provoking conditions, both imaginal and in vivo. | | |
| Task | Implementation of the task | Materials | Goal of the task | Duration |
| Task1 review of STIC tasks | The researcher encourage each group member to present his/her anxious experience and use of the FEAR steps. Focus particularly on each child's experiences with recalling the acronym FEAR. Address any difficulties that the children report in using the four steps, suggest to the group that, with practice, the four steps will be almost automatic and not require as much concentration as they do in the beginning. Group members rewarded for their participation with simple gifts. | Simple gifts | Presentation of what has been learned | 20 min |
| Task2 practicing | The researcher prepared low anxiety-provoking situations that several group members have identified as problematic. The researcher describes an anxiety-eliciting scene and pretends that he/she is in the situation and models thinking through the situation out loud - using the four-step plan and the FEAR acronym to help recall the steps. Then, the researcher asks the group to think through a slightly different, but similar, scenario encouraging each member to contribute to the four-step plan to be devised. The researcher prompts use of the four steps as needed. The group members shared that being in elevator, sleeping alone, requesting a meal from restaurant, meeting new person, are the common situation that may | none | To practice the four-step coping plan under low anxiety provoking conditions, both imaginal and in vivo | 30 min |

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| | <p>elicit low anxiety.</p> <p>The group members agreed to practice meeting a new medical staff.</p> | | | |
| <p>Task3</p> <p>Assign the Show-That-I-Can (STIC) task</p> | <p>Ask the group members to record one anxious experience similar to those practiced during the session including each step of the plan using the acronym to remind himself about the four steps. The group members are also asked to draw and bring to the next session a picture of a favorite cartoon character or imaginary figure who can help children cope when they are feeling anxious</p> | Note book | practicing of coping plan | 20 min |

| Session 10 | | | | |
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| The purpose of the session | | To practice applying the skills for coping and in vivo situations that produce low to moderate levels of anxiety in each group member. | | |
| Task | Implementation of the task | Materials | Goal of the task | Duration |
| Task1 review of STIC tasks | The researcher asked each group member present one of his/her anxious experiences and use of the four-step coping plan. Initiate a group discussion about their ability to cope using the FEAR steps. Each child asked to share his/her picture of the cartoon character who helps children cope with anxiety. | None | Presentation of what has been learned | 20 min |
| Task2 practicing | Using imaginal exposure The researcher describes a situation that causes moderate levels of anxiety in the group members (being in elevator) using objects associated with such a situation. The researcher then creates a scenario and presents a coping model by verbalizing his thinking during the use of the four-step coping plan. The researcher again sets up objects in such a way as to create a scene and asks the group members to role-play the situations with each group member responsible for an integral part of the task. The researcher went with the group to elevator in which they are likely to feel moderately anxious. To present a coping model, the researcher remarks on aspects of the situation that might be generating anxiety in the group members. The researcher describes possible thoughts and encourages the group | none | shifting to practicing what has been learned Practice coping skills in situations that cause moderate levels of anxiety in the group members | 30 min |

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| | <p>members to comment on the situation and provide suggestions to help the researcher cope better. The group members asked to describe their feelings, somatic reactions, and anxious self-talk, and discuss how to make their self-talk more adaptive. Evaluation of coping strategies, including several minutes to do a relaxation training exercise in the actual situation. After coping with the situation, the group members helped to evaluate their own performances and to determine an appropriate reward for themselves.</p> | | | |
| <p>Task3 Assign the Show-That-I-Can (STIC) task</p> | <p>Ask each child to record two anxious experiences, including each step of the plan using the acronym to remind himself herself about the four steps. Each child is also asked to make up a story about how the cartoon character drawn for session 10 helps the children cope when they are feeling anxious about a situation that is relevant to the child's fears. Encourage the children to use humor and be playful when composing their stories.</p> | <p>Note book</p> | <p>practicing of coping plan</p> | <p>20 min</p> |

| Session 11 | | | | |
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| The purpose of the session | | To practice applying the skills for coping with anxiety in in vivo situations that produce high levels of anxiety in the group members. | | |
| Task | Implementation of the task | Materials | Goal of the task | Duration |
| Task1 review of STIC tasks | each child asked to share one of the anxious experiences that he/she recorded and to share the story about the cartoon character that each child created in previous session, each member discussed how successful their character was at coping with his/her own fears and worries | None | Presentation of what has been learned | 20 min |
| Task2 practicing | <p>The researcher arranged to visit the dental clinic in which they are likely to experience high levels of anxiety.</p> <p>To do a relaxation training exercise in the situation. The researcher then presents a coping model by remarking on the aspects of the situation that are likely to be troublesome for each child, personalizing parts of the plan to address each member's unique concerns and difficulties. The group members encouraged to provide help to the researcher during this process.</p> <p>Each group member is then encouraged to discuss their own somatic responses and thoughts, and together with the group, make modifications in that self-talk.</p> <p>The group then develops actual strategies for coping with the situation and carries out these strategies. The researcher ensures that each group member is involved. After completing the</p> | none | Continue practice of the four-step plan in in vivo situations that raise a high level of anxiety in the group members | 40 min |

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| | management strategies, the group members helped to evaluate their performances and determine an appropriate reward. | | | |
| Task3 Assign the Show-That-I-Can (STIC) task | Group members asked to make posters to hang on their bedroom walls. Suggested that they use pictures from magazines or drawings or designs in conjunction with their group name, the FEAR acronym, and a 'no fear" symbol, and provide them with the necessary supplies. The group members informed that next session is going to be last session in their wonderful and unique effort to fight their fears and worries. | Pictures and drawings | practicing of coping plan | 20 min |

| Session 12 | | | | |
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| The purpose of the session | | To complete the post-treatment assessment, to review and summarize the treatment program, to make plans with the parents to help each child maintain and generalize his/her newly acquired skills, and to bring closure to the therapeutic relationships. | | |
| Task | Implementation of the task | Materials | Goal of the task | Duration |
| Task1 Social event | <p>The researcher hold a group social event (party). During the event, the researcher encourage discussion of the relationships formed during the treatment and encourage the continuation of them.</p> <p>Thank the group members for all of their hard work</p> <p>During the event the researcher, describe the child's overall progress with the parents reviewing the child's strengths as well as weaknesses.</p> <p>Review for the parents the "FEAR acronym and the four-step plan and encouraged the child to help describe it to the parents.</p> <p>Encouraged them to allow the child to use the coping plan when he is becoming anxious.</p> <p>The parents asked for any additional questions they would like to ask.</p> <p>Sharing of a short "good-bye ritual with the group members including presentation of a token commemorating completion of the treatment program.</p> <p>Group members encouraged continuing to practice using the new skills and confidence conveyed in his/her ability to apply the new skills successfully. Group members told that the researcher will call in four weeks to talk about how he/she is doing.</p> | party items, Clowns Squad | To bring closure to the therapy program | 90 min |

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| | The child is given the researcher's phone number and is invited to call if he/she feels the need for "booster help during the four -week interval before the researcher's call. | | | |
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Annex 5: Committee of experts

| No. | Name | Degree | Place of work |
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| 1. | Dr. Naim El Abadalla | Doctorate of psychology | El Aqsa university |
| 2. | Dr. Yasera Abu Hadroos | Doctorate of psychology | El Aqsa university |
| 3. | Mr. Ibrahim Hammad | Master of community mental health, diploma in cognitive behavioral therapy | Unrwa |
| 4. | Mr. Mahmoud Asfour | Master of community mental health, diploma in cognitive behavioral therapy | Ministry of Health |
| 5. | Dr. Omar sokkar | Master of community mental health. | Ministry of Health |

Annex 6: Approval from Helsinki Research committee



المجلس الفلسطيني للبحث الصحي
Palestinian Health Research Council

تعزيز النظام الصحي الفلسطيني من خلال مؤسسة استخدام المعلومات البحثية في صنع القرار
Developing the Palestinian health system through institutionalizing the use of information in decision making

Helsinki Committee
For Ethical Approval

Date: 2019/10/7
Name: Khaled Yousef Melad

Number: PHRC/HC/640/19

الاسم:

We would like to inform you that the committee had discussed the proposal of your study about:

نفيدكم علماً بأن اللجنة قد ناقشت مقترح دراستكم حول:

Effect of Group Play Therapy on Reducing Anxiety Among Palestinian Children with Cancer

The committee has decided to approve the above mentioned research. Approval number PHRC/HC/640/19 in its meeting on 2019/10/7

وقد قررت الموافقة على البحث المذكور عاليه بالرقم والتاريخ المذكوران عاليه

Signature

Member
7/10/2019

Chairman

Member
Dr. Yehia Abed

Genral Conditions:-

1. Valid for 2 years from the date of approval.
2. It is necessary to notify the committee of any change in the approved study protocol.
3. The committee appreciates receiving a copy of your final research when completed.

Specific Conditions:-

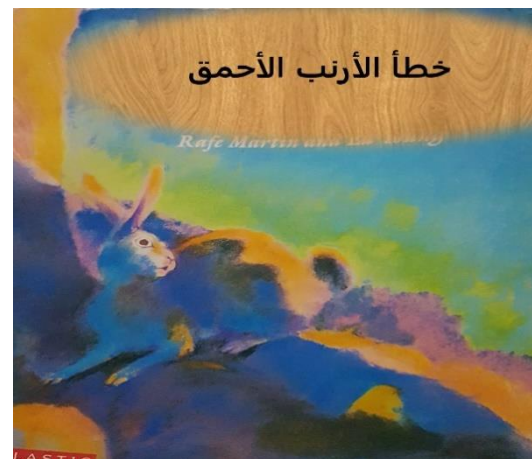


E-Mail: pal.phrc@gmail.com

Gaza - Palestine
غزة - فلسطين
شارع النصر - مفترق العيون

Annex 7: Pictures from the intervention program







العنوان: فعالية علاج جمعي باللعب في تخفيض القلق لدى الأطفال الفلسطينيين المصابين بالسرطان

إعداد: خالد يوسف ميلاد

إشراف الدكتور: مروان دياب

ملخص:

هدفت هذه الدراسة إلى بحث تأثير برنامج العلاج الجمعي باللعب في الحد من القلق لدى الأطفال الفلسطينيين المصابين بالسرطان.

وفقاً للغرض من الدراسة، نفذ الباحث برنامج العلاج الجمعي باللعب القائم على النظرية السلوكية المعرفية (برنامج Coping Cat) على مجموعة من 10 أطفال تتراوح أعمارهم ما بين 9 - 12 سنة في قطاع غزة، يعانون من القلق، والذي يعتبر أحد النتائج النفسية المترتبة على مرض السرطان. واختيرت العينة بالطريقة القصدية حيث تم اختيار 20 طفلاً تم تشخيصهم بالسرطان والقلق وتم تقسيمهم عشوائياً إلى مجموعة تدخل ومجموعة ضابطة (10 أطفال في كل مجموعة). وتلقت مجموعة التدخل 12 جلسة علاج لعب جماعي مرتين في الأسبوع وتمت متابعتها بعد شهر واحد.

كان التحليل المستخدم لقياس الفاعلية من خلال العينات المزدوجة اختباراً لتقييم الفرق بين متوسط مستويات القلق القبلي والبعدي بين الأطفال في مجموعة التدخل، مما دل على وجود فرق كبير بين المتوسط القبلي والبعدي لمستويات القلق، حيث انخفض المتوسط من 20.60 درجة في مستوى القلق القبلي إلى 12.50 درجة في مستوى القلق البعدي، مع حجم التأثير باستخدام $d = 10.97$ Cohen's d ، مما يشير إلى تأثير كبير جداً للتدخل. علاوة على ذلك، هناك فرق ذو دلالة إحصائية عند مستوى 0.05 بين متوسط مستويات القلق القبلي والتبعي لدى الأطفال، حيث تم تقليل المتوسط من 20.60 درجة في مستوى القلق القبلي إلى 12.50 درجة في مستوى القلق التبعي، و يشير حجم التأثير باستخدام $d = 6.787$ Cohen's d ، إلى تأثير كبير جداً للتدخل.