# Creative Art Therapy as an Adjuvant Treatment for Improving Mental Health Status among Jordanian Patients with Cerebrovascular Accidents.

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# Dedication

To my mother's soul,

This is me. I return to you today with joy that you lack, a perfection of joy.

I return, and every letter in this humble act is a winged praise, a cry that ascends to heaven, a hymn imbued with longing, and a thousand wishes to be with you.

I leave all this work in your hands. To avoid spoiling the alphabetical contract, accept it sincerely for the sake of your tender heart.

Dear husband:

A thousand apologies for a defect that may affect my craftsman.

A longing that cannot be described in words.

Grace is not limited by language or eloquence. You have surrounded me with a virtue that only someone like you can do.

Thank you very much for your great work.

# Acknowledgment

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I would like to extend my sincere thanks to everyone who helped and contributed to the production of this work; it is not enough to mention their names. Special thanks to my dear husband who encouraged me, influenced my success, and brought happiness and strength into my life.

# Anthology of Publications and Presentations

## ***Peer-Reviewed Papers Accepted***

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## ***Conference Papers***

Al-wledat, K., & Al-amer, R. (2–4 Feb. 2022) Art therapy as an adjuvant treatment for improving stress among Jordanian patients with stroke. Turkey: Bitlis Eren University.

Al-amer, R., Al-wledat, K., & Darwish, M. (2–4 Feb. 2022) The levels of psychological reactions among nurses providing hands-on care for COVID-19 patients. Turkey: Bitlis Eren University.

## ***Under-Review Papers***

Al-amer, R., & Al-wledat, K. (26 April 2020) Creative Art Therapy for improving depression, anxiety, and stress in patients with stroke: a quasi-interventional study. Topic in Stroke Rehabilitation. ID 224377323.

# Authentication

To the best of my knowledge and belief, the work presented in this thesis is original, except as acknowledged in the text. I hereby declare that I have not submitted this material, in either whole or part, for a degree at any institution.

(Signature)
Khadeja Aed AL-wledat

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**Creative Art Therapy as an Adjuvant Treatment for Improving Mental Health Status among Jordanian Patients with Cerebrovascular Accidents.**

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# ABSTRACT

**Background**

Cerebrovascular accidents/ Stroke are debilitating diseases that has a significant association with neuropsychiatric disorders including depression, anxiety and stress. Post-stroke psychological difficulties, including depression, anxiety, and stress, are significant health issues among Jordanians who suffer from stroke and require an urgent national response and immediate intervention.

**Purpose**

This study aimed to evaluate the effect of creative art therapy on the levels of depression, anxiety, and stress among patients with stroke in Jordan.

**Methods**

The study participants were patients with stroke aged 44–70 years who attended hospitals affiliated with the Jordanian Ministry of Health. A group of pretest–posttest designs were used over two weeks using the purposive sampling technique.

**Result**

The current study sample included 85 patients with stroke, with a mean age of 54.42 (standard deviation = ±6.1) years. Also 67.6% of the study participants were females, 40.0% were males, 60.0%. More than 70% of the study participants reported different levels of depression, of which 17.6%, 28.2%, and 68% reported extremely severe, severe, and moderate levels of anxiety, respectively. Approximately 90% reported severe-to-moderate levels of stress.

There was a significantly positive relationship between depression and age ($r = 0.448^{**}$; $p < 0.001$); anxiety and age, sex, and family income before intervention ($r = -0.638^{**}$, $p < 0.01$; $r = 0.219^{**}$, $p < 0.01$; and $r = 0.217^{*}$, $p < 0.05$, respectively); and stress and age and sex ($r = 0.587^{**}$, $p < 0.01$ and $r = 0.399^{**}$, $p < 0.01$, respectively).

The results revealed a significant difference between the levels of depression, anxiety, and stress among the study participants before and after the creative art therapy sessions and intervention for depression, anxiety, and stress ($t = 37.98$, $p < 0.001$; $t = 20.59$, $p < 0.001$; and $t = 35.52$, $p < 0.001$, respectively). Creative art therapy resulted in a statistically significant improvement in depression, anxiety, and stress levels.

**Conclusion**

These results confirm that creative art therapy can be a complementary therapy to increase well-being; reduce the levels of depression, anxiety, and stress; and help patients with stroke express their feelings and emotions.

# Chapter I

## Introduction

### Background

Chronic diseases are inevitably common and are currently considered the leading cause of death and disability worldwide (Rizzuto et al., 2017). Chronic diseases, such as cancer, cardiovascular diseases, diabetes, chronic obstructive pulmonary diseases, and cerebrovascular diseases, are defined as "a health condition that lasts three months or more and is characterized by repeated cycles of improvement and exacerbation" (World Health Organization, 2015). Cerebrovascular diseases are considered debilitating chronic health conditions that increase the morbidity and mortality rates among adults worldwide (Eum & Yim, 2015). The present study focuses on patients with cerebrovascular accidents (CVAs) or stroke, which are the main categories of cerebrovascular diseases. Throughout this study, CVA or stroke will be used interchangeably.

Peate (2018) in page 131 defined CVA or stroke as a "neurovascular condition that occurs as a direct result of impaired blood flow to the brain, either because of vessel occlusion or hemorrhaging due to a ruptured vessel". The nature and extent of neurological impairment suffered by patients with stroke depend on the amount and location of oxygen starvation experienced by the brain tissue and the severity of cerebral bleeding (Gormley-Fleming & Peate, 2018).

The impact of stroke is evident worldwide. Studies have confirmed that CVA or stroke is the second leading cause of morbidity and the third leading cause of mortality among adults and the

most common cause of disability globally (the Global Burden of Diseases, Injuries and Risk Factors Study [GBD], 2010).

The incidence of stroke increases with age; after the age of 55, a twofold increase is observed in the risk of stroke. For example, an incidence of stroke of 30–120 cases/100,000 annually was reported among individuals aged 35–44 years, and those aged 65–74 years had an incidence of 670–970 cases/100.000 annually (Extrapolated to 2016 using NHANES 2013–2016 data).

In 2010, a study reported that 17 million people suffered from stroke globally every year, of which approximately 7 million lost their lives and 5 million became permanently disabled (Feigin et al., 2021). The World Health Organization (WHO) declared that more than 15 million people worldwide suffer from stroke each year, of which 30% develop permanent impairments (Kaadan & Larson, 2017), placing a considerable burden on the patients, families, communities, and healthcare system.

Furthermore, in 2013, a dramatic increase of 113 million was observed in the number of total disability-adjusted life years (DALYs) lost because of stroke (Feigin et al., 2015). In 2019, 122 million stroke cases were observed, and stroke remained the second leading cause of death and disability (Memon et al., 2019). Total DALY was reported as 89·(5%) (Feigin et al., 2021).

The incidence of stroke is expected to increase because of the demographic shift in terms of the number and proportion of individuals aged >65 years. Although stroke is an age-related condition, it could affect people of any age. For example, earlier studies demonstrated that the incidence of stroke in US adults aged 20–44 years increased from 17/100,000 in 1993 to 28/100,000 in 2015 (Yahya et al., 2020). The onset of this disease among a cohort aged 20–64 years increased by 25% between 1990 and 2010 (Feigin et al., 2014).

Stroke is a debilitating disease that results in mental health disorders. Studies have reported that post-stroke incidences of depression and stress in China and Germany were 55% and 31.1%, respectively, and that of anxiety was 25% and 20.4% (Schöttke et al., 2020a; Yang et al., 2021). In the Middle East countries (i.e., Jordan, Kuwait, Saudi Arabia, and Egypt), studies have reported that approximately one-third of post-stroke survivors (33%) experienced mental health difficulties such as depression, and more than two-third of them (67%) had post-traumatic stress disorder, which would further reduce their quality of life (Kaadan & Larson, 2017). Furthermore, in Lebanon, stroke resulted in clinically silent diseases, such as depression, anxiety, and fatigue, with prevalence rates of 76.1%, 51.1%, and 94%, respectively (Khazaal et al., 2021b). In Jordan, 76% and 45.6% of patients with stroke had suffered from clinically significant levels of depression and anxiety, respectively (Shahnaz Ayasrah et al., 2021).

Hence, post-stroke psychological difficulties, including depression, anxiety, and stress, are significant health issues among Jordanians who suffer from stroke and require an urgent national response and immediate intervention.

## Depression

A health threat, such as a stroke, is a turning point in individuals' health because it could result in a wide range of emotions, including anger, grief, loss, and despair. However, when such feelings cause high levels of stress, individuals may be at risk of developing depression and anxiety (Brunsdale, 2021). Earlier studies have stated that depression is the most common neuropsychiatric disorder reported in patients with stroke (Alghwiri & diseases, 2016; Khazaal et al., 2021b). In 2020, a study conducted in Jordan reported that 74.5% of patients with stroke suffered from depression, 52.9% from anxiety, and 68% from stress, resulting in a huge burden that negatively impacts patients' quality of life (Almhdawi, Alazrai, et al., 2021). Anxiety and

stress could be antecedents to several psychological difficulties (Rafsten et al., 2018). Patients with stroke who suffer from depression have a worse prognosis than those who do not (Khazaal et al., 2021b). Studies have shown that mood changes during the course of stroke and the onset of depression are frequently associated with disease progression (Kaadan & Larson, 2017).

Depressive symptoms are common in patients with stroke, but they vary over time. According to a study published in Lebanon (2021), participants suffered from several psychological difficulties, such as neuropathic pain (24.8%) and cognitive impairment (69.2%), and most of them suffered from anxiety 3 months after the stroke. Notably, more than two-third of the participants reported having depression (Khazaal et al., 2021b). Anxiety, depression, and stress negatively impact patients' quality of life (Bujang et al., 2015).

Studies in Jordan have reported that the incidence of post-stroke depression is 76%–76.1%, with most patients having acute depression (Ayasrah et al., 2018; Khazaal et al., 2021a). A recent study in Jordan reported that 15%–24% of patients with stroke had depression on admission (Al Qawasmeh, Aldabbour, Abuabada, Abdelrahman, Elamassie, Khweileh, Zahran, & El-Salem, 2022). Stroke-related depression is common and is significantly associated with poor quality of life and suboptimal recovery, resulting in high levels of fatigue, major cognitive impairment, or both (Rosenich et al., 2020). A study in 2015 reported that 37%–44% of patients with acute stroke experienced depression, and the frequencies of major and minor depression were 27% and 16%, respectively (Lewin-Richter et al., 2015). The levels of depression were associated with high levels of fatigue, executive function, and processing speed impairment (MacIntosh et al., 2017). Considering that patients with stroke need to adjust their lifestyles to the illness and treatment, the affective profile of patients with depression would not allow for this modification. Therefore, negative health outcomes can occur.

## Anxiety

Studies have reported that patients with neurological conditions often suffer from psychological difficulties and fail to manage their anxiety and stress compared with their counterparts who have other chronic diseases (Stein et al., 2018). Anxiety is a common mental health problem in this cohort (Ojagbemi et al., 2017). Interestingly, mild-to-moderate anxiety levels could be advantageous and prompt positive health behaviors (Dwekat et al., 2021) . In contrast, moderate-to-severe anxiety levels may result in adverse health outcomes and augmented morbidity and mortality rates (Zemed et al., 2021).

The Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5) has reported several types of anxiety, including generalized anxiety disorder (GAD), panic disorder, specific phobias, agoraphobia, social anxiety disorder, separation anxiety disorder, acute stress disorder, anxiety-related health conditions, substance-induced anxiety disorder, and anxiety disorder not otherwise specified (Edition, 2013). However, this study focused on GAD.

According to the American Psychiatric Association, GAD  is defined as anticipatory fear of future danger or adverse event, accompanied by emotions of dysphoria or physical tension symptoms (Perrotta, 2019). Anxiety is a common and predominant mental health condition among patients with  stroke, characterized by excessive and persistent anxiety and worry. For example, a meta-analysis of 44 studies among patients with stroke reported that 20% had clinical anxiety one month after the onset of the disease (Burton. C et al., 2013). Further, another meta-analysis of 50 studies reported that 29% of patients with stroke experienced severe depression throughout the clinical course of the disease (Ayerbe. L et al., 2013).

Anxiety is a common psychological difficulty among Arab patients with stroke. For example, clinically significant anxiety levels were observed in 51.3%, 73.2%, and 64% of cohorts in Lebanon, Morocco, and Jordan respectively (Khazaal et al., 2021b).

GAD is associated with exacerbations of the clinical course of the disease, poor medication adherence, low quality of life, self-destructive behavior, and adverse health outcomes (Zhou et al., 2017).The loss of physical ability also results in mental health difficulties, including depression, anxiety, and stress (Ali et al., 2014).

## Stress

Studies around the world have shown a significant association between stress and exacerbation of the clinical course of stroke (Dos Santos et al., 2018; Godwin et al., 2013). The global prevalence rate of post-stroke stress (PSS) was 31% (Almhdawi et al., 2020). The American Psychological Association (Selye, 2013) described stress as a pattern of specific and nonspecific responses to stimuli that disturb an individual's equilibrium and exceed their ability to cope. Stress is the reaction of the body and mind to threats, irrespective of whether they are real or perceived. It is a common aspect of different emotions, such as anxiety, frustration, anger, worry, fear, sadness, and despair (Sharma et al., 2017). In other words, stress is the body and mind's response to dangers, whether actual or imagined, and it is a common feature of several emotions, such as anxiety, frustration, anger, worry, fear, sadness, and despair (Perrotta, 2019).

## Creative Art Therapy

Creative art therapy is a novel therapy that uses an innovative process to help individuals explore their feelings and emotions and practice self-expression. It provides patients with new methods to gain personal insights and develop their coping skills (Ali et al., 2014). Such therapy is highly effective in elevating the psychological burdens of several chronic diseases, such as cancer,

multiple sclerosis, and stroke (Kulari, 2017; Michaels, 2010). The insights gained through these experiences encourage behavior modification and character development (Kulari, 2017; MacIntosh et al., 2017). Although every creative art therapy approach is unique, all approaches have a global purpose, which involves stimulating various sensations and promoting self-exploration, self-expression, and imagination (Reynolds, 2012; Shella, 2018). This therapy effectively improves the mental well-being of patients with chronic diseases, such as multiple sclerosis, cancers, kidney diseases, and strokes (Kulari, 2017).

Mindful creative art therapy focuses on improving individuals' artistic or musical skills *persei* and their nonverbal and symbolic interactions and expressions, which could help patients convey their untold and intricate ideas, reactions, emotions, and feelings. Furthermore, creative art therapy helps link the body to the mind and the self to others (Michaels, 2010). Stroke is considered an attack on the mind's capacity to coordinate the body–mind connection whose "shockwaves can leave a lasting and profound impact on how people move, see, speak, feel, or understand their world" (Michaels, 2010, p 65). Thus, art therapy could help patients recount their experiences through their body language, utterances, visuals, language, and symbols (Reynolds, 2012).Additionally, it can facilitate healing through the creative process and improve the patient's psychological status and quality of life, including physical, emotional, social, economic, and other multidimensional elements (Reynolds, 2012).

Furthermore, art therapy helps patients with chronic diseases minimize despair, anxiety, and stress by allowing them to express their internal conflicts, feelings, and psychological status and promoting mental health (Shella, 2018). A thorough assessment of creative activities has revealed that art therapy can induce relaxation, provide a means for self-expression, lower blood

pressure, boost the immune system, and reduce stress (Kongkasuwan et al., 2016b; Leckey, 2011).

## Problem Statement

Mental health is an essential facet among patients with stroke (Terrill et al., 2018). Neglecting this aspect of human health could significantly reduce the quality of life among this cohort and increase the morbidity and mortality rates (Prlić & Kadojić, 2012; Zemed et al., 2021). In the Jordanian community, mental health difficulties are considered to bring shame and disgrace; hence, it is treated as a taboo, and people only talk about it to close family members. Thus, the Arab culture limits the understanding and early identification of patients with stroke suffering from mental health difficulties.

Several studies in Jordan have evaluated psychological difficulties among patients with stroke. These studies reported that psychological difficulties, including depression, anxiety, and stress, are highly prevalent among Jordanian patients with stroke (Al Qawasmeh, Aldabbour, Abuabada, Abdelrahman, Elamassie, Khweileh, Zahran, El-Salem, et al., 2022; Alghwiri & diseases, 2016; Almhdawi, Jaber, et al., 2021; Shahnaz. Ayasrah et al., 2021; Ayasrah et al., 2018). Although these studies provided important empirical data, to the best of our knowledge, no study in Jordan has examined any intervention related to the mental health status of patients with stroke.

This pioneering study addresses this gap in the literature and examines a tailored psychotherapy approach “using creative art therapy program” to manage the mental health status of patients with stroke. This study illuminated a critical intervention that would help address the mental health status of patients with stroke in such a restrictive culture. Thus, this study could help introduce creative art therapy in the management health plan of patients with stroke. Further, it

could assist patients in being active partners in their health plan and reduce their levels of psychological difficulties.

Data collected in the current study could promote holistic nursing care for patients with comorbid stroke and psychological difficulties. The results of this study could be integrated with the patient's physical health plan and assess healthcare providers to craft a platform that utilizes patients' resources and helps them play an active role in managing their health conditions.

## The Rationale for Addressing Depression, Anxiety, and Stress among Patients with Stroke in Jordan

The incidence of stroke is increasing in developing countries, including Jordan (Qawasmeh et al., 2020). Besides, the concomitant rates of depression, anxiety, and stress among Jordanian patients with stroke are high (Almhdawi, Alazrai, et al., 2021; Shahnaz. Ayasrah et al., 2021). Stroke and psychological reactions, including depression, anxiety, and stress, are associated with high rates of physical and psychological morbidities (Sounga et al., 2020).

Studies in Jordan provided empirical data regarding the prevalence rate of mental health difficulties among patients with stroke and recommended tailored interventions (Al Qawasmeh, Aldabbour, Abuabada, Abdelrahman, Elamassie, Khweileh, Zahran, El-Salem, et al., 2022; Ayasrah et al., 2018). However, no study has assessed a tailored intervention for managing the psychological status of patients with stroke. The lack of data on an individualized treatment plan in Arab populations may be attributable to the Arab culture, which practices prejudices toward psychological difficulties. Additionally, the nature of Arab culture restricts health-seeking behavior concerning mental illness to avoid shame and disgrace (Dardas et al., 2015; Sewilam et al., 2015).

Moreover, Arab patients tend to ignore psychological symptoms and link them to physical causes to deny mental health complexities (Donnelly. T et al., 2019).

Although most studies have reported that creative art therapy is highly effective in reducing the levels of psychological reaction in patients with stroke (Alharbi, 2021; Mare et al., 2019; Shella, 2018), there is limited information on managing mental health difficulties among patients in the Arab communities.

Existing intervention studies addressing the impact of creative art therapy on the mental health status of patients with stroke have focused on patients in western communities (Eum & Yim, 2015; Kongkasuwan et al., 2016b). Generalizing their results to the Arab population may be biased. Therefore, a tailored intervention is needed to enhance personal health intervention plans among patients in the Arab community.

Among the Arab population in general and the Jordanian population in specific, no previous intervention study addressed the impact of creative art therapy on the mental health status of patients with depression, anxiety, and stress. This study addresses this gap by establishing a creative art therapy program for patients with stroke and coexisting psychological difficulties.

## Study Aim

This study aimed to examine the effect of creative art therapy on psychological reactions, depression, anxiety, and stress among patients with stroke in Jordan.

## Hypothesis

This study assessed whether creative art therapy sessions reduced the levels of study-related psychological reactions. To complete the intervention for the DSM-5 criteria for diagnosing depression, the study intervention was held over 2 weeks because it is recommended that

depressive symptoms must be present for at least 2 weeks (14 days) (American Psychiatric Association & Association, 2013). Based on the definitions of DSM-5, this study was guided by the following hypotheses:

- Hypothesis 1: there is an average change in the depression levels among patients with stroke before and after the intervention,
    - $H_1$: $\mu d \neq 0$
- Hypothesis 2: there is an average change in the anxiety levels among patients with stroke before and after the intervention,
    - $H_1$: $\mu d \neq 0$
- Hypothesis 3: there is an average change in the stress levels among patients with stroke before and after the intervention,
    - $H_1$: $\mu d \neq 0$

## Research Question

This study answered the following research question:

What are the effects of creative art therapy on psychological reactions, depression, anxiety, and stress among patients with stroke?

## Definition of the Variables

### Conceptual Definitions of the Study-Related Variables

Stroke is a neurological condition caused by an acute focal injury of the central nervous system due to a vascular insult, such as cerebral infarction, intracerebral hemorrhage, or subarachnoid hemorrhage (SAH) (Khazaal et al., 2021b; Schöttke et al., 2020a).

This study considers depression, stress, and anxiety as psychological reactions.

Depression is an emotional state that arises in individuals when they have feelings of low self-worth, low self-esteem, and withdrawal, which leads to a reduced ability to enjoy life and increases the risk of suicide (Ching-Teng et al., 2019).

GAD is defined as vague feelings and restlessness leading to fatigability, difficulty concentrating, tension, and sleep disturbances according to the DSM-5 criteria (Munir et al., 2017). Some symptoms associated with anxiety in patients with CVA include agitation, sweating, sensitivity to negative comments, and social withdrawal (Nuckols & Nuckols, 2013).

Stress is defined by the American Psychological Association (Selye, 2013) as a pattern of specific and nonspecific responses to stimuli that disturb an individual's equilibrium and exceed their ability to cope. Lazarus (1990) defined stress as an interpretation of an event as a signal of harm, loss, or threat.

Creative art therapy is a creative expressive process in which physiological sensations, emotions, and cognition are involved in facilitating verbal and nonverbal symbolization, utterance, exploration of conscious or unconscious conflicts, and meaning-making through internal and external dialog and communication between oneself and others (Ching-Teng et al., 2019), (Michaels, 2010).

## Operational Definitions

Stroke was assessed according to the patients' medical records.

Depression, anxiety, and stress were assessed using the Lovibond's Depression Anxiety and Stress Scale (DASS) (1995), which evaluates the levels of psychological difficulties, including depression, anxiety, and stress. It consists of 21 items divided into three subscales (depression, anxiety, and stress), each comprising 7 items. These subscales are Likert scales with a response format ranging from 0 (did not apply) to 3 (very much), which is valid and reliable, with Cronbach's α of 0.81, 0.89, and 0.78 for the depression, anxiety, and stress subscales, respectively (Coker et al., 2018). In this study, the Cronbach's α values were 0.80, 0.81, and 0.79 for the depression, anxiety, and stress subscales, respectively.

The Arabic Mini-Mental State Examination (AMMSE) is used to assess patients' cognitive abilities, which is one of the inclusion criteria in this study. El-Hayeck developed this scale in 2019, which comprises 11 items. The developer described the scale cutoff points as follows: 0–17 = severe cognitive impairment, 18–23 = mild cognitive impairment, 24–30 = no cognitive impairment (El-Hayeck et al., 2019).

## Summary

Stroke is a widely prevalent long-term health disability globally. The concomitant rates of psychological difficulties, such as depression, anxiety, and stress, are highly prevalent among this cohort. Studies have found that creative art therapy intervention may help reduce the levels of psychological reactions in this cohort. However, data on the benefits of using creative art therapy among Arab patients with stroke are limited, and most studies among patients with stroke were conducted on non-Arab participants. Therefore, this study explores the impact of using creative art therapy in reducing the levels of depression, anxiety, and stress in this cohort.

# Chapter II

## Literature Review

This chapter reviews the previous literature that is relevant to the study-related variables. It is classified into two parts: a) search strategy and b) previous evidence related to study variables, including creative art therapy and mental health complexities among patients with stroke.

### 2.1. Search Strategy

The key terms used while searching the literature were cerebrovascular illnesses, stroke, depression, mood disorder, anxiety, stress, mental health, epidemiology, prevalence, art therapy, creative art therapy, mindful art therapy, music, bodily movements, Arab, and "Aab and adults." Databases, such as EBSCO, CINAHL, PubMed, and Science Direct, were searched.

This chapter discussed all evidence-based studies published within the past decade in English (2012–2022), focusing on the effect of creative art therapy on psychological reactions, including depression, anxiety, and stress. However, the researcher has used few studies published before 2012, which are related to measurement methods, conceptual definitions, and significant epidemiological studies.

Some articles were excluded during the review because they did not focus on psychological reactions and the benefits of art therapy among patients with stroke and/or were not written in English. However, dated references were used to cover some missing data that were not found within the stated time limits.

### 2.2.1. Previous Evidence

This part was divided into sections as follows:

1. Levels of depression among patients with stroke
2. Levels of anxiety and stress among patients with stroke
3. Art therapy and sociodemographic variables of patients with stroke, including age, sex, marital status, family income, and educational levels
4. Creative therapy as a therapeutic approach and its impact on the study-related psychological variables

## 2.2.2. Levels of Depression, Anxiety, and Stress among Patients with Stroke

Stroke is one of the leading causes of physical and psychological disability among adults globally, with an incidence of approximately 144–187/100,000 people per year (Almhdawi, Alazrai, et al., 2021). WHO stated that 15 million people worldwide are diagnosed with stroke every year, of which approximately 30% develop long-term disability (Kaadan & Larson, 2017). This could be due to the disabling nature of the disease, which makes the affected individuals dependent on their physical and emotional domains (Bujang et al., 2015). The sudden onset of this disease leaves the individuals unprepared, and coping with such a health threat requires enormous efforts from the patients, caregivers, and health system (Menon et al., 2017).

### Depression

Stroke is a devastating disease that often results in mental health disorders. Ayerbe et al. (2013) reviewed 50 studies and reported that the pooled rate of depression after stroke was 15%–57%. Moreover, the study explained this variation in the prevalence of depression after the diagnosis of stroke (Ayerbe et al., 2013). Post-stroke depression (PSD) is one of the most common psychological repercussions of stroke, which negatively impacts daily life activities and health

behaviors. Further, PSD has a significant association with post-stroke quality of life because more than two-third (67%) of patients with PSD have restricted their social activities according to a previous study (Kaadan & Larson, 2017). The prevalence of PSD, post-stroke anxiety (PSA), and PSS has been reported to be 22%–40%, 9.4%–36.7%, and 31% worldwide (Almhdawi, Alazrai, et al., 2021).

Creative art therapy is one of the psychotherapeutic approaches for managing PSD (Ching-Teng et al., 2019). Kim and Kang (2013) conducted an intervention study among 28 patients with stroke to assess the effect of color on their quality of life. They provided evidence supporting the use of color as a therapeutic approach for improving the quality of life among patients with stroke (Kim & Kang, 2013).

Several studies have demonstrated the necessity and benefits of adopting art therapy after stroke to help patients recover from their mental health difficulties (Le Danseur et al., 2019; Mare et al., 2019; Shella, 2018). A review study in 2019 examined the impact of creative art therapy methods on depression and anxiety in patients with stroke (Mare et al., 2019) by assessing various creative art therapy approaches, including reading and visual art forms. Mare et al. reported that creative art therapy helped in reducing depressive and anxiety symptoms. Notably, this study suggested that creative art therapy could be used as a nursing intervention to reduce PSD and anxiety levels among patients in acute health settings (Mare et al., 2019).

A randomized controlled study in Thailand recruited 118 participants from three randomly selected hospitals. It examined the efficacy of creative art therapy combined with traditional physical therapy and compared it with physical therapy in terms of enhancing cognitive capacity, physical health, psychological status, and quality of life in patients with stroke. The study indicated that compared with physical treatment alone, creative art therapy combined with

traditional physical therapy could considerably reduce depressive symptoms, enhance physical functioning, and improve the quality of life (Kongkasuwan et al., 2016b).

Additionally, a randomized controlled trial was conducted in 2017 at the University of Texas to assess the impact of using creative art therapy on 44 participants. This study used music and body movements as a rehabilitation procedure for patients with stroke, and the intervention was based on listening to music during physical rehabilitation sessions. The results s of this study support the previous literature; this study reported that listening to music during rehabilitation sessions significantly reduced anxiety levels among the participants (Le Danseur et al., 2019).

## Anxiety

The incidence of anxiety after stroke is well recognized in the literature (Henning Schöttke & Giabbiconi, 2015). According to a recent meta-analysis of 44 published studies involving 5760 patients, one-fifth of patients with stroke experienced anxiety within 1 month of the onset of stroke (Burton et al., 2013). Anxiety disorders could negatively impact the rehabilitation process and health outcomes. Thus, it is critical to detect and treat such complexities within appropriate time to achieve successful recovery (Ali et al., 2014).

Further studies in the acute setting showed that creative art therapy positively impacts health-related quality of life. For example, a pilot study involving 30 patients investigated the overall impact of art therapy on reducing the feelings of isolation and anxiety among patients with stroke (Ali et al., 2014). The study reported that creative art therapy helps patients with stroke express their feelings and explore their emotions, which encourages them to feel less anxious and isolated. Thus, this study was regarded as an evidence-based practice. However, this was hampered by the short trial period and small number of patients in the study (Ali et al., 2014;

Ching-Teng et al., 2019). Moreover, a recent randomized controlled trial confirmed that listening to music for an hour significantly reduced anxiety symptoms (Le Danseur et al., 2019). Another study conducted in 2017 among 195 hospitalized patients, of whom 166 were females, confirmed that using art therapy sessions for 30–90 min improved the participant's mood and reduced their anxiety levels (Shella, 2018). The authors advocated the use of art therapy along with other types of treatment for better health outcomes. However, they recommended replicating the study with a larger sample size to improve generalizability and obtain high-quality results (Shella, 2018).

### Stress

Stress is an emotional pressure resulting from a specific relationship between an individual and their environment in which a person cites a particular event as exceeding their abilities to cope, resulting in physical and psychological difficulties (Cohen et al., 2016). In terms of psychological complexities, stress triggers anxiety and depression. Not all stress levels are harmful, especially when people can adapt to the stress. However, when stress levels exceed the ability of an individual to cope, it results in negative consequences, such as fatigue, anxiety, and depression.

There are growing concerns regarding the increasing rate of PSS. For example, one-third of patients with stroke experience clinical stress (Bruggimann et al., 2006). According to a study among Jordanian patients, approximately two-third of patients with stroke experienced stress (Almhdawi, Alazrai, et al., 2021). Notably, PSS is significantly linked to higher levels of depression, anxiety, and functional disability (Dos Santos et al., 2018; Godwin et al., 2013). A recent study among 153 Jordanians reported that 68% of patients with stroke experienced stress (Almhdawi, Alazrai, et al., 2021) because stroke is a medical emergency that occurs suddenly,

causing the patient to have a severe psychological reaction due to a sense of helplessness and weakness, which increases their stress levels (Rouillard et al., 2012).

Interestingly, a study among 20 patients with stroke found that listening to music to relax, feel calm, and sleep better, especially in the first few days after an injury, improves psychological outcomes. The results s of this study claimed that music improved the participants' mood and reduced stress (Forsblom et al., 2009).

## Sociodemographic Variables

As mentioned earlier, depression, anxiety, and stress are the most common mental health difficulties among patients with stroke. However, studies reported some variations in their impact according to age, sex, and educational levels (Ojagbemi et al., 2017; Pratiwi et al., 2017; Rutovic et al., 2021). For example, females and patients with low educational levels were significantly associated with PSD (Ayasrah et al., 2018; Ojagbemi et al., 2017; Rutovic et al., 2021). Females are more vulnerable to depression when diagnosed with stroke (Almhdawi, Alazrai, et al., 2021). Furthermore, studies have reported that the depression–gender gap might continue throughout the lifespan (Almhdawi, Alazrai, et al., 2021). Additionally, patients with low educational levels would be deprived of accessing healthcare services and thus cannot deal with the complexities of stroke and its psychological comorbidities. Moreover, educational levels can represent a low socioeconomic status, leaving them with fewer options in terms of treatment plans.

Evidence-based research suggests that younger patients with stroke experience higher levels of psychological difficulties than older patients with stroke probably because younger people are generally concerned regarding their employment status and parenting challenges, which add more pressure and expose them to higher stress levels. Low et al. (2003) reported that one-third

of the unmet demands of 135 participants aged 18–65 years reported difficulties in their economic conditions and needed instrumental and emotional family support. This is because the need for family support is higher among people aged 18–45 years than those aged 46–65 years. However, this assertion could be a controversial issue because the category of younger people covers a wide range of ages. Studies did not report a uniform definition "of what a young aged patient would comprise" (McCarthy et al., 2016).

Although younger patients with stroke are more likely to develop psychological difficulties, a systematic review study did not support the previous claim and could not find a consistent association between age and depression (Ayerbe et al., 2013; Kouwenhoven et al., 2011). Therefore, studies should investigate the link between age and post-stroke psychological complexities, such as depression, anxiety, and stress. Further post-stroke psychological reactions, including stress, frequently occur among single people or those without partners (Beauchamp et al., 2020) because individuals who suffer from stroke depend on their family members for instrumental and emotional support.

### Creative Art Therapy and Psychological Difficulties

The recovery model is not sufficiently developed to help patients with stroke return to their optimal health conditions (Alharbi, 2021; Kulari, 2017). However, holistic healthcare is characterized by managing all aspects of individual health (e.g., mental, social, and spiritual) and not merely the physical domains. This treatment is based on the WHO definition of holistic care, which stated that "holistic care is the totality within a wide ecological spectrum and emphasizing the view that ill health or disease is brought about by an imbalance or disequilibrium of man in his total ecological system and not only by the causative agent and pathogenic evolution" ((Organization, 1978), p 13).

Identifying and treating post-stress mental health complexities is important because these complexities increase the rates of psychological morbidity and physical mortality among this cohort (Townsend. M & Morgan. K, 2017). Further, these complexities increase the risk of suicide and recurrent stroke and the rate of dementia (Byars & Jorge, 2015; Kouwenhoven et al., 2011).

Studies have demonstrated that pharmacological interventions, such as administering antidepressants along with psychotherapy, are highly effective in managing post-stress psychological complexities (Byars & Jorge, 2015; Ramasubbu, 2011). Thus, psychological care is critical among patients with stroke and should receive similar attention as physical care. Studies have indicated that several psychotherapeutic approaches, such as creative art therapy interventions, effectively improve depressive symptoms. The British Association of Art Therapists defined art therapy as a type of psychotherapy underpinned by the art media to enhance self-expression and communication skills (Deshmukh et al., 2018). Creative art therapy can be introduced in a structural or unstructural form. The structural forms are based on predetermined themes and materials of the course (Ramsey et al., 2018). In contrast, unstructural forms do not include any predetermined ideas. Adults experiencing depressive symptoms and mood disorders adhere to psychotherapy sessions because they are allowed to be active and express themselves and their thoughts rather than being passive and receiving only pharmacological treatment (Nan & Ho, 2017).

Creative art therapy is an approach underpinned by the idea that creative expressions could cultivate and enhance mental health and well-being (Van Lith, 2016). It is a type of psychotherapy used to treat mental health complexities and can be represented while performing several activities, such as meditation, acting, role-play, dance and music therapy, body

movements, drama therapy, expressive therapy, and storytelling (Kongkasuwan et al., 2016b). It can also be tailored to meet the individual needs of a patient; for example, it could be a communication method or a tool for emotional release (Schall et al., 2018). Creative art therapy can also be used as a means to enhance self-concept, self-esteem, and memory (Seifert et al., 2017).

After suffering from stroke, patients experience mental health disturbances and motor loss; therefore, creative art therapy is an important facet of psychotherapy that might help with these sequelae (Kongkasuwan et al., 2016). Therapists work as consultants, managers, and supervisors in treatment teams (Kulari, 2017). Through art therapy, patients with stroke can explore their feelings, create a bond with their therapists, and spontaneously interact with others. Thus, this form of therapy should be approached from the viewpoint of intact abilities when combined with physical treatment (Eum & Yim, 2015).

Creative art therapy focuses on nonverbal and symbolic interpersonal communication as well as expressing and conveying complicated and intricate ideas and emotions (Schouten, de Niet, Knipscheer, Kleber, & Hutschemaekers, 2015). Therefore, it helps patients explore and express their emotions and feelings using their body cues, language, and symbols that would address and reflect their own experiences (De Feudis et al., 2021). Such a process of creating art adds to the healing process, leading to improved quality of life and self-esteem (Ching-Teng et al., 2019; Shafir et al., 2020). Furthermore, studies have reported that creative art therapy aids in the treatment of psychological difficulties as it works on the patients' motivations and their affective profiles by involving them as active players in their treatment (De Feudis et al., 2021; Frances. Reynolds, 2012; Shella, 2018). For example, music and dance therapy combine sensory stimulation, symbolic gestures, rhythms, and colors through verbal and nonverbal

communication, which may help patients explore their feelings and accordingly alleviate the psychological burden of this disease (Eum & Yim, 2015). Art therapy is used for creative self-expression and nonverbal and non-threatening communication of problems, worries, or interests in a human care profession (Ching-Teng et al., 2019).

The impact of creative art therapy on the mental health status of patients shows that such therapy reduces depressive and anxiety symptoms among patients with stroke because it allows them to express their internal conflicts and emotions through artworks, which facilitate the healing process (Eum & Yim, 2015).

Additionally, a systematic review study on the activities of creative art therapy demonstrated that these activities play healing and protective roles in promoting the mental health and well-being of patients (Leckey, 2011). Overall, creative art therapy is currently prescribed as a therapeutic approach for various mental health difficulties, including mental illness and psychological reactions (Caddy et al., 2012), as well as for patients with stroke (Ali et al., 2014; Eum & Yim, 2015; Kouwenhoven et al., 2011; Morris et al., 2014).

## Summary

Several studies have documented the high concomitant rate of stroke in patients with various mental health difficulties, including depression, anxiety, and stress. Stroke is a highly disabling disease that renders individuals dependent, increasing negative health outcomes in the physical and psychological aspects. Accordingly, it has been viewed as one of the most disabling chronic diseases worldwide. Studies have demonstrated that depression, anxiety, and stress are frequent and common psychological reactions throughout the clinical course of stroke. Pharmacological interventions alone are insufficient to achieve optimal recovery in this cohort. Thus, using

psychotherapy as a complementary method could improve health outcomes. Creative art therapy is a type of psychotherapy that can effectively manage PSD, PSA, and PSS.

# Chapter III

## Methodology

This study aimed to assess the effectiveness of four creative art therapy sessions provided to patients with stroke on depression, anxiety, and stress levels. The intervention sessions focused on increasing the acceptance and acknowledgment of the present experience; connecting the body and mind; increasing awareness at the cellular levels, acceptance, self-regulation, and resilience; and enhancing personal growth.

Patients with stroke encounter daily challenges related to their physical and mental health (Nakling et al., 2017). However, psychotherapy interventions such as creative art therapy could help them reach their inner self and reflect on the feelings related to their health conditions. Thus, the psychotherapy approach might enhance the psychological status and well-being of this cohort.

Studies have shown that PSD, PSA, and PSS are common and can negatively impact the recovery and clinical course of the disease (Loubinoux et al., 2012). In other words, depression results in adverse health outcomes (Benjamin et al., 2018) because it negatively affects the cognitive, working memory, long-term memory, problem-solving skills, and overall mental well-being of patients with stroke (Nakling et al., 2017). Moreover, depression reduces the health benefits of rehabilitation sessions (Schöttke et al., 2020b). Depression, anxiety, and stress often co-occur, considering that anxiety is a psychological reaction to stress (Almhdawi, Alazrai, et al., 2021). The aforementioned psychological difficulties impose negative consequences during the clinical course of stroke (De Feudis et al., 2021), indicating a critical need for a value-added treatment that could enable the healthcare providers to address such intricate psychological reactions among patients, enhancing their recovery. Pharmacotherapy is the main intervention

that deals with the psychological implications of stroke. However, it is insufficient to deal with such psychological difficulties when used alone. Creative art therapy is a recommended complementary therapy that could enhance the coping skills of patients while dealing with this health threat. In this patient-oriented approach, patients are the active participants in their own treatment plan, and studies have reported that this approach has great potential in managing PSD, PSA, and PSS.

## Purpose and Hypothesis

This study assessed whether creative art therapy sessions reduced the levels of study-related psychological reactions. The researcher chose a 2-week study period according to the DSM-5 criteria for diagnosing depression, anxiety, and stress episodes (American Psychiatric Association & Association, 2013). Based on the DSM-5 definitions, this study was based on the following hypotheses: 1) psychological reactions, including depression, anxiety, and stress, are highly prevalent among patients with stroke and 2) Jordanian patients have lower levels of depression, anxiety, and stress after attending two creative art therapy sessions. The art therapy sessions included four sessions of music accompanied by body movements. Pretest on levels of depression, anxiety, and stress and posttest for the same variables among the same participants after the intervention were held.

The current study was guided by the following hypotheses. .

Hypothesis 1: there is an average change in depression levels among patients with stroke before and after the intervention

- $H_1$: $\mu d \neq 0$

- Hypothesis 2: there is an average change in anxiety levels among patients with stroke before and after the intervention
    - $H_1$: $\mu d \neq 0$
- Hypothesis 3: there is an average change in stress levels among patients with stroke before and after the intervention
    - $H_1$: $\mu d \neq 0$

## Design, Setting, and Sample

### Research Design

The current study used a quasi-experimental one-group pretest–posttest design. The study participants completed DASS that measures depression, anxiety, and stress as a pretest. Participants then received sessions on creative art therapy interventions (the independent variable) that lasted for 1.5 h for 2 weeks (two sessions/week) as a posttest.

### Rationale for Using a Quasi-Experiment Design

This study focused on assessing the influence of creative art therapy on reducing the levels of depression, anxiety, and stress among patients with stroke. Besides, this study's research question lends itself to an experimental design. However, the researcher conducted a non-randomized experimental study for several reasons. First, mental health difficulties are not subject to random design (White & Sabarwal, 2014). Additionally, the researcher were aware that patients with stroke are vulnerable groups (Gaynor et al., 2018) and that randomization could be challenging to apply. Furthermore, the researcher considered ethical and practical reasons and the nature of the clinical course of stroke. Therefore, quasi-experimental techniques,

which do not require random assignment, are more frequently used to assess medical treatments in the vulnerable cohort.

The research design used in this study is a quasi-experimental one-group pretest–posttest design. A diagrammatic representation of the design is briefly illustrated as follows:

O1→X→O2

O1: pretest on levels of depression, anxiety, stress, and fatigue.

X: patient-led art therapy program, more details are depicted in table 2:

## Setting

Tertiary hospitals affiliated with the Jordanian Ministry of Health were the research sites in this study. In Amman, patients from all over Jordan visit three tertiary hospitals. A main tertiary hospital and central hospital were chosen as the study sites in this study: Al-Bashir and Madaba hospitals.

The Ministry of Health provides health services to patients with stroke, including pharmacological interventions and physiotherapy for rehabilitation. In the hospital, the physiotherapy department is located on the ground floor, and it is well-equipped with several medical devices used to rehabilitate patients with chronic diseases, such as fractures, fibromyalgia, chronic pain, and stroke.

The researcher was offered a room where the creative art therapy session was held, which was adjacent to the rehabilitation centers, as space was needed to move from time to time. This room was large and comfortable and accommodated eight to ten participants. There was a space inside the room where the participants could store their belongings.

## Sample and Sampling methods

This study used the purposive sampling technique. The sample size was calculated using the G* Power (3.0.10) program, with an effect size of 0.5, power of 0.80, and significance level of 0.05. The sample size was 64, and 20 % of the participants were added to the sample to overcome the problems of missing and incomplete information, withdrawal, and attrition. Eighty-nine patients with stroke volunteered to participate in this study.

### *Inclusion Criteria*

The study included patients with stroke who attended hospitals affiliated with the Jordanian Ministry of Health; were diagnosed with stroke at least 3 months before the study; were not cognitively impaired (as evidenced by their clinical record and the Mini-Mental State Examination score of 24–30); could read and write in Arabic; were willing to participate; had no terminal illnesses (as indicated by their medical records); and had not been previously exposed to creative art therapy sessions to manage the difficulties associated with the mental health status.

### *Exclusion Criteria*

The study excluded patients who were diagnosed with stroke more than 3 months before the study, who scored <24 on the AMMSE scale, or those who suffered from stroke 3 months before the study to ensure that the results would not be affected by significant cognitive decline (El-Hayeck et al., 2019).

### *Operational Definitions*

Stroke was confirmed by reviewing the participants' medical records after obtaining permission from the participants and their healthcare providers at the participating hospitals.

The term “sex” was used in the study instead of “gender.” This standardization was based on the accepted definition of sex as “the relatively unchanging biology of being male or female” (Phillips, 2005).

Duration “in months” was defined as a maximum of 3 months after the diagnosis until the time of completing the survey/interview.

Educational levels refer to the school years completed in graded public, private, or parochial schools and colleges, universities, or professional schools: a) secondary or less implies that the participant has completed 12 years of education and b) tertiary education indicates the participant completed a university degree.

The total family income of less than 500 Jordanian Dinars (JDs) per month indicates low family income (Al-Amer, 2015).

## Instruments

This study used a structured self-reported survey to collect data, including a demographic questionnaire, DASS, and the AMMSE scale. The following paragraph provides a brief description of the survey’s questionnaires.

## Demographic Data

This questionnaire was developed by the primary researcher based on the studies on patients with stroke, which includes the following six items: age, gender, educational levels, marital status, duration of disease, and household income per month (Appendix A).

### The Depression, Anxiety, and Stress Scale

The DASS scale was used to assess the psychological status of the participants, including depression, anxiety, and stress (Lovibond et al., 1995). The scale evaluates the levels of psychological difficulties and comprises 21 items divided into three subscales—depression, anxiety, and stress—each composed of 7 items. These subscales are Likert scales with a response format ranging from 0 (did not apply) to 3 (very much). DASS is valid and reliable, with Cronbach's α values of 0.81, 0.89, and 0.78 for the depression, anxiety, and stress subscales, respectively (Coker et al., 2018). This study used the Arabic version of the DASS-21, which consists of 21 items and is used among various populations (A. M. Ali et al., 2022; Oei et al., 2013). This scale was used among a wide range of Arab participants and showed good validity and reliability (R. Al-Amer et al., 2022; R. M. Al-Amer et al., 2022; A. Ali et al., 2022) .This version has good psychometric properties in which the internal consistency using Cronbach's α values were 0.80, 0.81, and 0.79 for the depression, anxiety, and stress subscales, respectively. (Appendix B).

### AMMSE

AMMSE is a 30-item, valid, and reliable tool for assessing individual's cognitive status (Al-Rajeh et al., 1999). It has a score range of 0–30, with scores <18 denoting severe cognitive impairment, 18–23 indicating mild cognitive impairment, and 24–30 reflecting no cognitive impairment. Participants who scored <24 were excluded from this study to ensure that the results would not be affected by significant cognitive decline (Tombaugh & McIntyre, 1992) (Appendix C).

***Table 1.*** ***Summary of the standardized scales/tools***

| [102][102][102][102][102][102] Construct measures | ❖ Scale/tool | ❖ Developer/year |
|---|---|---|
| Depression, anxiety, and stress | Depression, anxiety, and stress scales (DASS) | Lovibond et al., (1995) |
| Mental health status | Arabic Mini-Mental State Examination (AMMSE) | El-Hayeck et al., (2019) |

## Ethical Clearance

The study sought ethical clearance from the IRB Research Committee at Isra University (SREC/21/11/016), and permission to conduct the research at the participating hospitals was obtained from the hospital leadership teams at the Governmental hospitals, including Al-Bashir Governmental Hospital and Madaba Hospital in Jordan.

After the researcher was granted permission to conduct the current study, appointments were scheduled with the leadership teams at the participating hospitals to provide a detailed explanation and description of the study purpose, request to help with data collection, and discuss access to the participants' medical records.

The nursing manager's team referred the main researcher to the head nurses, who also received a detailed explanation of the study and were requested to help with data collection. Subsequently, a poster was placed on the wall of the clinic with the first researcher's contact information and was

noticed by patients with stroke. The poster explained the nature of the study in detail and the participants' right to withdraw from the study at any time.

The researcher maintained confidentiality as follows: i) direct identifiers were replaced by a number in data analysis and ii) each participant's data were collected and stored in a coded folder (password) that could only be accessed by the main researcher and supervisors. The potential risks for participation in this study were minimal.

## Pilot Study

Two standardized scales were used in this study: the Arabic versions of DASS and the AMMSE scale. After ethical clearance was obtained, a pilot study was conducted on November 13–27, 2021 on 10 Jordanian patients who suffered from stroke and fulfilled the inclusion criteria to establish the time frame and feasibility of the study. The principal researcher attached a cover sheet along with the survey and asked the participants to write their feedback on the survey. The pilot study was conducted among individuals who met the inclusion criteria and were at the same hospitals, and minor modifications were made. To avoid data contamination, the final report of the current study excluded the pilot study data.

## Data Collection Procedure

After obtaining ethical clearance, the first researcher contacted hospitals affiliated with the Ministry of Health; the teams from Al-Bashir and Madaba hospitals agreed to participate in the present study. Afterward, the first researcher contacted the nursing manager, explained the purpose of the study, and asked her help with data collection; they in turn referred the researcher to the head nurse of the outpatient department, who also received a detailed explanation about the study and was asked to help with data collection. After that, the principal researcher was allowed to place a poster with the contact information of the first researcher on the wall of the outpatient clinic visited by patients

with CVA/stroke. Individuals interested in the present study were screened for eligibility, and informed consent was obtained from the participants after providing a comprehensive and detailed explanation of the study's purpose. Participants were also informed regarding the right to withdraw from the study at any time before data dissemination without any penalties or need for explanation. They also received an explanation about maintaining confidentiality required during group participation. Participants were assured that the researcher would maintain information confidentiality using verbal explanations and written text, which was attached as a cover letter along with the survey (Appendix D). Additionally, the principal asked them to provide their phone numbers so that they can contact them and fix the time of the intervention sessions.

Next, the researcher progressively collected data. In other words, when the main researcher had 8–10 participants willing to participate, the researcher started the study-related interventions and continued recruiting other participants. The participants were then categorized into groups (each comprising 8–10 participants), and the sessions were conducted progressively. Each group underwent four 1.5-h group creative art therapy sessions (2 sessions in 2 weeks).

## Intervention Procedure

After the study participants were recruited, the participants-led intervention module was introduced (Table 1) and data collection was performed. The first researcher, a clinical nurse with good experience in working with patients with chronic diseases, conducted the sessions. All sessions were developed after consultation with the co-supervisor (Dr. Rami Hadad) and a specialist in creative art therapy (Dr. Joyce Raie), both specializing in applying creative art therapy in a clinical setting.

After the participants were categorized into groups (each comprising 8–10 participants), the sessions were progressively conducted and the intervention module was introduced to the study participants. The intervention occurred at a location adjacent to the rehabilitation departments of the participating hospitals. Table 1 illustrates the guiding principles of using creative art therapy designed by the principal researcher and a specialist in creative art therapy using previous studies.

The author, a clinical nurse with experience in working with patients with chronic diseases, conducted all the sessions. The intervention occurred at the rehabilitation departments of the participating hospitals. Table 2 illustrates the guiding principles of creative art therapy designed after consultation with the co-supervisor Rami Hadada and the expert Joyce Raie, both specializing in applying creative art therapy in clinical settings.

At the beginning of each session, ice-breaking and body-scan exercises were performed so that primary researchers could establish a rapport with patients. Then, the participants received an explanation of the creative art therapy activity, including its components, benefits, actions, and procedures. The interventions are detailed in Table 2. Post-intervention was completed after the participants had completed four sessions in 2 consecutive weeks.

***Table 2.*** ***Creative art therapy interventions***

| | | | |
|---|---|---|---|
| Number | Themes | Rational | Creative art therapy activities |
| A start for all sessions | Body scan | Mindful impression | Think/create an object that represents some aspect of yourself |

| | | | |
|---|---|---|---|
| **First week** | | | |
| Day 1, session 1 | Attitudinal foundations to engage the participants | Acceptance and acknowledgment of experience in the present moment | Music with improvisation (music is played, and participants were asked to improvise with the music using both verbal and nonverbal gestures; free improvisation)<br><br>Playful exploration of dough/colorful materials; participants were asked to create any shape present in their mind |
| Day 2, session 2 | Seated yoga and<br><br>breathing | Connect the body and mind via a simple breathing practice with music | Pre- and post-breathing (nondirective yoga, with shared reflection) for mind–body relationship |
| | Sensory awareness | To understand how various senses transition from one state to another and to increase awareness at cellular levels to contact the innate intelligence of the body.<br>The art therapy mandala circle is also a representation of "wholeness" | Body movement (position of body parts); body–mind centering; mandala drawing treatment with inner/outer mandala (inside: internal thoughts, feelings, and emotions; outside: external factors)<br>The art therapy mandala mirrors the self and can help highlight one's personality traits (parts of self or sub-personalities) in the field of view or "awareness" |
| **Second week** | | | |
| Day 1, session 1 | Physiology of stress | Relaxation and stress reduction to enhance physical and emotional well-being | Drawing sessions on the physical source of stress (draw the best day, best event, worse experience, and worse moment)<br><br>With music playing in the background, think of the best |

| | | | |
|---|---|---|---|
| | | | moment, worse moment, and how would you like to feel with free movements |
| | Self-compassion | Understand yourself, accept that you are not perfect, and understand that there is potential for learning and growth in every mistake you make | Draw a real approach by which you take care of yourself and use the colors that calm you<br><br>Sing verses that show how you take care of yourself; use the color that calms you. |
| Day 2, session 2 | Gratitude | Enhance self-regulation and resilience, promote self-motivation, and increase neural network functional connectivity and brain–heart coupling | Mention the names of two people or things you are grateful for, using the most convenient body movement with music<br>Now you have two people or two things that you are grateful for, please draw them |
| | Place of healing and safety | To help explore personal growth, consciousness, and transformation | Healing/the Bonny Method of Guided Imagery and Music; classical music and imagery place where you feel safe |
| Adopted from (Masterson et al., 2008; Newland et al., 2020; Schouten, de Niet, Knipscheer, Kleber, Hutschemaekers, et al., 2015), (Jang et al., 2018), (Kabat-Zinn & Hanh, 2009), and (Kline, 2016). | | | |

## Statistical Analysis

The SPSS version 25 software was used to analyze the study-related data. The researcher first checked for any deviant cases, outliers, or incomplete data. Afterward, an initial analysis was conducted to explore the null hypothesis; normality and linearity of the collected data were assumed. Furthermore, the Shapiro–Wilk test was conducted and a *p*-value of <0.5 was considered significant. Data normality was inspected visually *via*

histograms, normal Q-Q plots (Appendix E), and box postcentral tendency analysis of the study-related variables. Means and standard deviations (SDs) were obtained for continuous data, and the frequency, proportion, and percentages were obtained for categorical variables. The paired *t*-test was used to assess the difference in depression, anxiety, and stress levels before and after the intervention. The level of significance was set at $p \leq 0.05$.

## Summary

This study used a group pretest–posttest design to collect data from 85 Jordanian patients with stroke. The study included participants who had stroke at least 3 months before the study. This study used the purposive sampling technique and a quasi-interventional design. It assessed the influence of creative art therapy on the levels of psychological reactions, including depression, anxiety, and stress, among patients with stroke. Therefore, this study adopted a quasi-intervention design because it is the most ethical and practical approach among this cohort. The study used a structured survey to collect the data, including a sociodemographic data sheet, DASS and the AMMSE scale.

# Chapter IV

## Results

This study used a one-group pretest–posttest design, which is an example of the quasi-experimental research design, to assess whether creative art therapy sessions enhance the psychological status of Jordanian patients with stroke who had depression, anxiety, and stress. A one-sample pretest–posttest design was used due to the feasibility of recruiting enough participants and for ethical reasons in which the researcher offered creative art therapy sessions to all those who showed interest in participating in this study. In this design, the dependent variables were (depression, anxiety, and stress) and were measured using DASS of the same participants before and after the intervention (each session of creative art therapy lasted for 1.5 h; two sessions per week for 2 weeks).

### 4.1. Participants' Demographic Characteristics

The current study sample included 85 Jordanian patients with stroke who volunteered to participate in four creative art therapy sessions for 2 weeks; each session lasted for 1.5 h. The principal researcher categorized the participants into groups; each group comprising 8–10 participants. The study was conducted between early November 2021 and late January 2022. At first, the study included 89 participants, but it lost four participants over the study period (three females, one male). When contacted, two of the dropouts did not provide any reason and said that they did not want to continue, and the remaining two did not answer the researcher's calls. Thus, the final sample size was 85 participants; they completed the pretest (DASS) anonymously. The posttest was administered to those who fully participated in this study and completed all four creative art therapy sessions (two sessions per week for 2 weeks) because at the beginning of this study, the researcher had indicated that the completion of all sessions is a

valuable criterion for eligibility. Moreover, the participants were not matched, which also added to the nature of the design of this study. The first researcher developed a demographic questionnaire based on the existing literature, and it was administered along with the pretest (DASS).

## 4.2. Results

An initial data analysis was conducted to explore the null hypotheses; normality and linearity of the collected data were assumed. Furthermore, the researcher conducted the Shapiro–Wilk test and a *p*-value of <0.5 was considered significant. Data normality was inspected visually *via* histograms, normal Q-Q plots, and box plots of the study-related variables.

**Sociodemographic Characteristics of the study Sample**

This study succeeded in recruiting 89 participants; the principal researcher divided the participants in ten groups, each composed of 8 to 10 participants. The study took place over a period between early November 2021 to late January 2022, during which time; it lost four participants (three females, one male). When contacted, two of dropouts said they did not want to continue without giving a reason, and the remaining two did not answer our calls. Hence, the final sample size included 85 participants; 60% were females and 40% were males. The participants had a mean age of 59.42 ± 6.1 years (44–70 years), and 76.5% were married. In terms of the level of education among parents, 76.2% had completed secondary education or less, whereas 23.8% had completed tertiary education. Furthermore, 31.8% reported having less than a month's probability of being diagnosed with stroke. Finally, 80% participants reported having a family income of less than 500 JDs, and only 20% reported a family income of 500–1000 JDs (more details are summarized in Table 3).

***Table 3.*** ***Sociodemographic characteristics of the population (n = 85)***

| **Variable** | |
|---|---|
| Age, mean (**SD**) (years) (range: 44–70) | 59,42 (6.1) |
| Sex | |
| Male, *n* (%) | 34 (40) |
| Female, *n* (%) | 51 (60) |
| Educational level | |
| Secondary or less, *n* (%) | 48 (76.2) |
| Tertiary, *n* (%) | 15 (23.8) |
| Marital status | |
| Single, *n* (%) | 9 (10.6) |
| Married, *n* (%) | 65 (76.5) |
| Divorced, *n* (%) | 3 (3.5) |
| Widowed, *n* (%) | 8 (9.4) |
| Duration of disease | |
| ≤1 month, *n* (%) | 27 (31.8) |
| 1–3 months, *n* (%) | 58 (68.2) |
| Family income (JDs) | |
| <500, *n* (%) | 68 (80) |
| 500–1000, *n* (%) | 17 (20) |

SD, standard deviation; JD, Jordanian Dinars

### 4.3. Research Question

**What is the prevalence of psychological reactions among the study participants before the intervention?**

Table 4 shows that 29.4%, 68.2%, and 2.4% of the participants had mild, moderate, and severe levels of depression, respectively. No participant reported extremely severe levels of depression. However, 17.6%, 28.2%, and 50.6% of the participants reported extremely severe, severe, and moderate levels of anxiety. Severe and moderate levels of stress symptoms were reported by 58.8% and 35.3% of the participants, respectively, and the rest of the population reported moderate levels of stress symptoms. Further details are provided in Table 4.

***Table 4.*** ***The level of psychological reactions among the study participants before the intervention (n = 85)***

| Variable | *n* (%) |
|---|---|
| Depression, mean (SD) (range: 10–23) | 15.24 (2.81) |
| No depression (0–9), *n* (%) | 0 (0.00) |
| Mild depression (10–13), *n* (%) | 25 (29.4) |
| Moderate depression (14–20), *n* (%) | 58 (68.2) |
| Severe depression (20–27), *n* (%) | 2 (2.4) |
| Extremely severe ≥ (28), *n* (%) | 0 |
| Anxiety, mean (SD) (range: 8–23) | 15.03 (3.76) |
| No anxiety (0–7), *n* (%) | 0 (0.00) |

| | |
|---|---|
| Mild anxiety (8–9), *n* (%) | 3 (3.5) |
| Moderate anxiety (10–14), *n* (%) | 43 (50.6) |
| Severe anxiety (15–19), *n* (%) | 24 (28.2) |
| Extremely severe (≥20), *n* (%) | 15 (17.6) |
| Stress, mean (SD) (range: 14–28) | 19.31 (2.81) |
| No stress (0–14), *n* (%) | 0 (0) |
| Mild stress (15–18), *n* (%) | 1 (1.2) |
| Moderate stress (19–25), *n* (%) | 30 (35.3) |
| Severe stress (26–33), *n* (%) | 50 (58.8) |
| Extremely severe (≥34), *n* (%) | 4 (4.7) |
| ***n*: number; %: percentage; M: mean; SD: standard deviation** | |

### What is the relationship between selected demographic factors and levels of depression and anxiety among Jordanian patients with stroke?

Correlation was used to examine the relationship between psychological reactions and selected demographic data, as shown in Table 5. Before the intervention, the results showed a significantly positive relationship between depression and age ($r = 0.448^{**}$, $p < 0.001$); between anxiety and age, gender, and family income ($r = -0.638^{**}$, $p < 0.01$; $r = 0.219^{**}$, $p < 0.01$; and $r = 0.217^{*}$, $p < 0.05$, respectively); and between stress and age and gender ($r = 0.587^{**}$, $p < 0.01$ and $r = 0.399^{**}$, $p < 0.01$, respectively). Further details are provided in Table 5.

***Table 3.*** ***Correlation between depression, anxiety, and stress and the sociodemographic variables of the study population (n = 85)***

| Variable | Depression | Anxiety | Stress |
|---|---|---|---|
| | ***R*** | ***r*** | ***R*** |
| **Gender** | 0.014 | 0.219** | 0.399** |
| **Age** | 0.448** | 0.638** | 0.587** |
| **Duration of disease** | −0.143 | −0.080 | −0.086 |
| **Family income** | −0.55 | 0.217* | −0.130 |
| **Level of education** | −0.177 | −0.085 | −0.089 |
| **Marital status** | 0.177 | 0.003 | 0.074 |

**Correlation is significant at the level of 0.01 (two-tailed)

*Correlation is significant at the level of 0.05 (two-tailed)

### What are the psychological reaction levels among the study participants before and after interventions?

Table 6 shows the means and SDs for the subscales of DASS before the intervention. The mean depression score was 14.18, indicating that most participants had a moderate level of depression. However, the depression levels significantly reduced after the intervention. According to DASS, the anxiety levels significantly reduced from severe to mild. Moreover, the mean anxiety score was 17.68, indicating severe anxiety levels according to DASS. Further, the mean stress score was 24.40, which indicated severe stress levels.

***Table 4.*** ***The levels of depression, anxiety, and stress before and after the intervention (n = 85)***

| Item | Before intervention, mean (SD) | After intervention/2 weeks, mean (SD) |
|---|---|---|
| **Depression** | 14.18 (3.27) | 10.87 (2.43) |
| **Anxiety** | 17.68 (3.02) | 8.28 (2.19) |
| **Stress** | 24.4 (2.88) | 17.25 (2.59) |

## Is there a significant difference between the psychological status of the participants before and after the intervention?

A paired *t*-test was conducted to compare the levels of psychological reactions, including depression, anxiety, and stress before and after the creative art therapy sessions.

Using the paired *t*-test, the study results indicated a significant difference in the psychological status of the participants before and after the intervention at 2 weeks of depression ($t = 37.98$, $p < 0.001$), anxiety ($t = 20.59$, $p < 0.001$), and stress ($r = 35.52$, $p < 0.001$) (Table 6). There was a statistically significant reduction in the levels of depression, anxiety, and stress. Statistically significant improvement was noted in stress because of creative art therapy. Therefore, according to the paired *t*-test, the researcher can infer the following conclusions in relation to the study-related hypotheses.

Hypothesis 1 is confirmed: depression levels reduced after intervention by an average of 5.75 units. The 95% confidence interval for μd is 5.20–5.90.

Hypothesis 2 is confirmed: anxiety levels reduced after intervention by an average of 6.34 units. The 95% confidence interval for μd is 6.05–7.46.

Hypothesis 3 is confirmed: stress levels reduced after intervention by an average of 6.57 units. The 95% confidence interval for μd is 5.99–6.86.

***Table 5.*** ***Paired t-test indicates the significant difference between the psychological status of the participants before and after the intervention (n = 85)***

| Item | Before intervention, mean (SD) | After intervention/2 weeks, mean (SD) | 90% Confidence interval | Test statistics | |
|---|---|---|---|---|---|
| | | | | *t*-test | *p*-value |
| **Depression** | 15.24 (2.81) | 9.49 (2.48) | 5.20–5.90 | 37.98 | <0.001 |
| **Anxiety** | 15.03 (3.76) | 8.69 (2.97) | 6.05–7.46 | 20.59 | <0.001 |
| **Stress** | 19.31 (2.81) | 12.74 (3.6) | 5.99–6.86 | 35.52 | <0.001 |

## Summary

This study assessed and evaluated the impact of creative art therapy on depression, anxiety, and stress in Jordanian patients with stroke. The current study hypothesized that four creative art therapy sessions over 2 weeks (two sessions a week) can lower the depression, anxiety, and stress levels in patients with stroke.

Psychological difficulties were prevalent among the current study participants. Two-third of the participants had moderate depressive symptoms, half of the participants had moderate anxiety and stress symptoms, and one-third of the participants had severe anxiety. Further, two-third of the participants had severe stress. Moreover, the results of this current study indicated a

relationship between depression and stress and age as well as between gender and anxiety and stress.

These results suggest that creative art therapy can be used as a complementary therapy for patients with stroke to improve their well-being, reduce depression and anxiety levels, and protect them against isolation and stress. The extent of the effect of using non-pharmacological secondary treatments for improving the mood of these patients confirmed the results.

# Chapter V

## Discussion and Conclusion

This chapter discusses the main result that emerged from the data of this study. Furthermore, it addresses the study results within the context of the existing literature in relation to using creative art therapy among Jordanian patients with stroke. It also discourses using creative art therapy to reduce depression, anxiety, and stress among Jordanian patients with stroke. Additionally, this chapter illustrates how the results of this study could be used to promote the mental health status among patients with stroke. Furthermore, it addresses the implications, strengths, and limitations of the study, followed by a general conclusion.

## Sample Characteristics

All 85 participants diagnosed with stroke and recruited in this study were Jordanians, of whom 60% were females and 40% were males. This aligns with a recent study among the same population in which no difference was observed in the proportion of patients with stroke between males and females with stroke (Ayasrah et al., 2018). The participants in this study were comparatively young, and the mean ages of males and females were 59 and 42 years, respectively, with a SD of 6.1 years. The current study's results also align with those of a previous study on the Global Burden of Disease (GBD) 2010. This study claimed that young adults aged between 20 and 64 years represent more than one-third of stroke cases on a global scale (Feigin et al., 2015; Krishnamurthi et al., 2015). Additionally, the results of this study are consistent with those of an earlier study conducted in Jordan, which reported the mean age of patients with stroke as 56.62 years (SD = 14.2) (Ayasrah et al., 2018). Most people in developing countries suffer from poverty. These nations are characterized by fragile health systems lacking adequate health programs tailored to prevent stroke and control such a chronic disease (Sapkota

et al., 2021). The current study results are similar to those of previous studies, as more than two-third of the study participants lived in families with low monthly income and low educational levels. This could be reflected as low socioeconomic status that deprivileged them from accessing health services and adhering to their management plan.

### Main results of this Study

The main results of the current study are as follows: a) depression, anxiety, and stress are highly prevalent among patients with stroke in Jordan; b) creative art therapy sessions are effective in reducing depression, anxiety, and stress levels among patients with stroke; c) depression, anxiety and stress are associated with age, gender, and family income.

This study recruited 85 Jordanian patients with stroke. The study results revealed that depression, anxiety, and stress are highly prevalent among patients with stroke. Several epidemiological studies agree with the current study results (Almhdawi, Alazrai, et al., 2021; Ayasrah et al., 2018).

Additionally, the results of this study showed that creative art therapy significantly reduced the levels of aforementioned psychological reactions among Jordanian patients with stroke. Similar results were reported in different studies worldwide (Alharbi, 2021; Frances. Reynolds, 2012; Kongkasuwan et al., 2016b; Mare et al., 2019).

### Depression, Anxiety, and Stress

The results of this study indicate that depression is highly prevalent among patients with stroke in Jordan. More than 30% and 68.2% of the study participants reported mild and moderate depression, respectively. These results suggested that these patients had unsatisfactory mental health conditions, indicating a critical need for a national public health response. This study

results agree with several studies conducted in Jordan (Al Qawasmeh, Aldabbour, Abuabada, Abdelrahman, Elamassie, Khweileh, Zahran, El-Salem, et al., 2022; Almhdawi, Alazrai, et al., 2021), Lebanon (Khazaal et al., 2021b), and Morocco (Kaadan & Larson, 2017). This study provided more precise data regarding the severity of depression, anxiety, and stress among patients with stroke in Jordan, considering that it is the first study to report on the psychological reaction levels in Jordan.

However, studies in the developed countries reported lower depression levels than those in Jordan. For example, the depression level in Germany was reported to be between 31.1% (Henning Schöttke & Giabbiconi, 2015) and 32% (Schöttke et al., 2020a). Further, a study among 2853 patients with stroke in Australia found that 47% of the study respondents experienced depression and anxiety (Thayabaranathan et al., 2018).

The potential reason for the high depression, anxiety, and stress levels among Jordanian patients with stroke could be as follows: stroke results in motor and cognitive dysfunction and language impairment, leading to several emotional difficulties. In other words, in cases of motor and cognitive dysfunction, patients with stroke highly depend on their caregivers. Accordingly, those patients would suffer from a turmoil of negative emotions, such as feeling incapacitated to perform daily routine tasks, which could result in feelings of helplessness, depression, anxiety, and stress.

Furthermore, the current study found that patients with stroke experience high anxiety levels; in other words, 50.6%, 28.2%, and 17.6% of participants reported moderate, severe, and extremely severe levels of anxiety, respectively. Notably, the high concomitant levels of anxiety and depression among patients with stroke highlight a grim situation and call for urgent support to improve the mental health well-being of patients with stroke. Enhancing the mental health well-

being of these patients would reduce the burden on the health system and caregivers. The results of this study agree with those of previous studies Jordan, which reported a high levels of the psychological reactions including depression, anxiety and stress among patients with stroke (Al Qawasmeh, Aldabbour, Abuabada, Abdelrahman, Elamassie, Khweileh, Zahran, El-Salem, et al., 2022; Almhdawi, Alazrai, et al., 2021; Ayasrah et al., 2018) and in other developing countries, such as Lebanon 51.3% (Khazaal et al., 2021b). However, studies reported lower anxiety levels in the developed countries, such as Germany (20.4%) (Schöttke & Giabbiconi, 2015) and the UK (20%) within 1 month of the onset of stroke (Ali et al., 2014).

Moreover, moderate, severe, and extremely severe stress levels were reported by 35.3%, 58.8%, and 4.7% of the current study participants, respectively. The results of this study agree with those of a previous study conducted on patients with stroke in Jordan, in which more than two-third of the patients with stroke experienced stress (Almhdawi, Alazrai, et al., 2021). However, a study held by Bruggimann et al., (2006) reported lower levels of stress among patients with storke than the current study. Further, comparable to this current study, studies reported that sociodemographic variables such as advanced age, gender, family income and educational levels are associated with higher levels of psychological reactions, such as depression, anxiety and stress (Almhdawi, Alazrai, et al., 2021; Ojagbemi et al., 2017).

## Creative Art Therapy

Studies have acknowledged that art therapy sessions promote the psychological well-being of patients with chronic diseases (Keser & Medicine, 2016). Creative art therapy, including listening to music, singing, and dancing, provides verbal and nonverbal approaches to enhance motor, cognitive, and physical stimulation (Kongkasuwan et al., 2016b). In other words,

figurative motion, patterns, rhythms, shades, and colors would help patients address their psychological difficulties (Kim & Kang, 2013). Studies have confirmed that patients with stroke often experience major depression, which can be accompanied by psychological reactions, such as anxiety and stress (Godwin et al., 2013; Ilut et al., 2017). This led to the argument that a management plan that depends only on the inherent physical features of stroke falls short in addressing the psychological status of this cohort. Therefore, studies must examine other psychotherapeutics to complement the physical therapy for this debilitating health condition. Creative art therapy is a novel psychotherapy approach that can help reduce depression, anxiety, and stress levels in patients with stroke (Kongkasuwan et al., 2016a; Kulari, 2017; Shella, 2018).

The current study revealed that creative art therapy sessions have significantly reduced the levels of study-related psychological reactions, including depression, anxiety, and stress. The present study results are in agreement with those of previous studies, which reported that creative art therapy could be used as a complementary therapy to enhance pharmacological treatment among patients with neurological diseases (Frances. Reynolds, 2012; Kongkasuwan et al., 2016b). Additionally, studies worldwide have indicated that creative art therapy can reduce negative psychological reactions, such as depression, thus promoting the mental well-being of patients with stroke (Kongkasuwan et al., 2016b; Mare et al., 2019; Shella, 2018). In other words, stroke, which is a limiting health condition, is a turning point among those receiving such a diagnosis because it is a major health threat that leads to high dependability levels in self-care management and activities of daily living. Such considerable changes resulting from stroke would lead to a high number of comorbidities concerning the mental health status (Damsbo et al., 2020). Poorly managed psychological conditions would negatively impact the prognosis and clinical course of

stroke. Therefore, a multidisciplinary approach, such as pharmacological rehabilitation and psychotherapy, is needed to manage this intricate condition.

Creative art therapy is a form of psychotherapy that helps patients with chronic diseases express their feelings, thereby promoting their psychological status. Thus, it can be used to manage psychological difficulties, such as depression, anxiety, and stress among patients with stroke. These patients can express their internal conflicts, feelings, mood disorders, and psychological difficulties through artworks or processes, thereby promoting their mental health problems (Eum & Yim, 2015).

This study showed that depression, anxiety, and stress are psychological reactions that could be predicted among patients with stroke. The patients in this cohort encounter such feelings because the loss of motor function results in difficulties in their mental well-being. These mental health difficulties should be addressed as early as possible in patients with stroke to increase the chances for recovery (Kaadan & Larson, 2017). Additionally, the present study results confirmed that creative art therapy had a significantly positive influence on depression, anxiety, and stress levels. These results could be attributed to creative art therapy, an expressive therapy in which patients with stroke can explore their feelings (Aguilar, 2017). The intervention protocol employed in this study included different forms of creative art tasks based on equally important themes and allowed patients to address their psychological status, including their thoughts and feelings. Furthermore, the protocol included some metaphors that helped the study participants engage in art creation, which possibly encouraged them to express their unconscious feelings. Using this approach among patients with stroke in Jordan was highly important because the creative art therapy session was a less invasive method for managing the psychological reactions compared with other pharmacological interventions. These results resonate with those of

previous studies, which reported that using creative art therapy in clinical practice is an opportunity for individuals to express themselves verbally and nonverbally and a catalyst for verbal dialog (Frances. Reynolds, 2012). In agreement with the present study results, several studies reported that to promote self-expression, art tasks based on specific themes yielded good results in patients with psychological complexities, such as depression, anxiety, and stress, and physical symptoms, which would help meet patients' treatment needs (Ali et al., 2014; Kim & Kang, 2013).

The results of this study are also in agreement with other studies, which reported that using creative art therapy in clinical practice allows individuals to express themselves verbally and nonverbally and as a catalyst for verbal dialog. Additionally, similar to the current tudy results, studies also asserted that to promote self-expression, art tasks based on specific themes were provided good results in patients with psychological complexities, such as depression, anxiety, and stress (Blomdahl et al., 2016). Moreover, Sit et al. (2014) reported that creative art therapies in stroke rehabilitation could enhance patients' sense of enjoyment and self-expression, strengthen their connections with and appreciation of other people, and promote their holistic well-being. Creative art therapy reduced isolation and anxiety among patients with stroke via group discussions that allowed them to express their feelings of frustration and hope for recovery after receiving the therapy for 6 weeks (Ali et al., 2014; Kongkasuwan et al., 2016b). This therapy was used as a complementary therapy for women with chronic diseases living in rural areas. Participants agreed that creative art therapy reduced pain and increased their overall well-being; it is an important method for enhancing coping skills in patients with chronic diseases (Kongkasuwan et al., 2016b). Studies have reported that creative art therapy improves the quality of life of this cohort in addition to improving their psychological well-being. Reynolds and

Shella investigated the effects of this therapy on the general quality of life in patients with stroke (Frances. Reynolds, 2012; Shella, 2018). These patients were satisfied with the creative art protocol and experienced positive changes in coping with emotions, experiencing meaning in life, and increasing creativity. Kim and Kang examined creative art therapy for patients with stroke and physical disabilities and their caregivers who suffered from mental instability. They explored the impact of two hour of color therapy session per week for 2 months (16 sessions) and followed up with participants up to five months after the last therapy session. They found that art therapy was a beneficial adjuvant therapy that improved the participants' mental health status and quality of life and found a sense of purpose in life (Kim & Kang, 2013).

Furthermore, the results of this study suggest the use of art therapy as an outlet for patients' thoughts and feelings because participants showed positive health outcomes and a significant reduction in depression, anxiety, and stress levels (Keser & Medicine, 2016) after being subjected to various planned themes. This was also reflected in the literature in which art therapy helped stroke survivors experience "renewed purpose and joy in living" (Wilson, 1999), medicating the relationship between the body and mind and oneself and others, which can offer a space to link the fragmented and meaningless experiences (Michaels, 2010). The results of this current study resonated with a review study that found that art therapy could fulfill the cognitive, emotional, and functional needs of patients with stroke (Frances. Reynolds, 2012), (Kim & Kang, 2013).

The present study results also support the previous literature that found that creative art therapy reduced depression and anxiety levels among patients with stroke. Notably, Mare et al. suggested that nurses should start using this approach in the nursing care plan for this cohort to reduce the levels of post-stroke psychological reactions (Mare et al., 2019). A study conducted in Bangkok,

Thailand, reported similar results to the present study results; the findings of their randomized controlled trial showed that using art therapy as a complementary treatment method is highly effective in enhancing the psychological well-being of patients with stroke (Kongkasuwan et al., 2016).

Additionally, the current study results confirmed several previous reports on anxiety levels among patients with stroke (Ali et al., 2014), which also reported that using art therapy to assist patients with stroke is a practical strategy to reduce their anxiety levels (Shella, 2018). A randomized controlled trial found that listening to music during rehabilitation sessions could help patients with stroke feel less anxious (Le Danseur et al., 2019).

This study also revealed that creative art therapy sessions are an effective intervention to reduce stress levels among patients with stroke. When patients suffer from high levels of stress, their capacity to cope with several health threats is reduced. Notably, the current study results support various earlier studies, which claimed that listening to music reduced stress levels among patients with stroke (Doğan et al., 2011; Särkämö & Soto, 2012; Supnet et al., 2016).

## 5.3. Implications

The current study has vital implications for various health sectors, including healthcare practice and healthcare policies concerning the mental health status of patients with stroke, particularly in Jordan and Arab countries.

### Implications for Health Practice

This study is significant because it assesses the levels of psychological reactions, including depression, anxiety, and stress, among patients with stroke and examines the impact of creative

art therapy on the study-related psychological reactions. It indicates that depression, anxiety, and stress are highly prevalent among patients with stroke and proves that creative art therapy sessions effectively reduce the study-related psychological variables.

This study has several implications: i) it added important evidence to the literature concerning the prevalence of depression, anxiety, and stress among patients with stroke during the 3 month period of confirmed diagnosis; ii) it showed the impact of mindful creative art therapy on the psychological reaction levels among patients with stroke in a study using a large sample size compared with other intervention studies among this cohort; this would maximize the benefits of the present study results; iii) the study used a quasi-experimental design that allows the results to establish a cause-and-effect relationship, which would provide the basis on how to address mental health difficulties among patients with stroke; and iv) it provided a snapshot of the prevalence of depression, anxiety, and stress among patients with stroke. These results illuminate the overlooked health condition and focus on the critical need for a comprehensive health intervention plan that considers the holistic approach while dealing with this cohort.

Overall, this study provided a snapshot of the prevalence of depression, anxiety, and stress, in addition to the evidence regarding the impact of creative art therapy on the mentioned psychological reactions among patients with stroke. These empirical data focus on the critical need for health programs that complement the existing treatment plan of this cohort. The data resulting from this study are of great value to policymakers regarding regulations and legislation. These results suggest that patients with stroke suffer from a huge psychological burden; this provides scientific evidence for the need for future national and regional studies on the precise estimation of depression, anxiety, and stress levels. Further randomized controlled trials are

needed for more rigorous results. The results of this study would form a basis for future studies; for example, conducting studies with a large sample size in Jordan and the Arab region would help trace the psychological status of patients with stroke across time and interventions.

This study is one of the few studies that used a quasi-interventional design to evaluate a specific intervention. This design is a level below the experimental design in the hierarchy of scientific evidence, and it can produce relevant and specific results. Overall, there was a lack of evidence regarding the impact of creative art therapy on the mental health of this cohort in the Arab societies in the existing literature on interventions related to the psychological status of patients with stroke. To address this critical gap in the literature, this study used a quasi-interventional design to provide rigorous evidence based on the creative art therapy protocol.

The hypothesis of this study turned out to be correct among Jordanian patients with stroke. In particular, respondents in this study participated in creative art therapy sessions, which applied an intervention based on various themes. These empirical data would help healthcare providers provide a customized healthcare plan to meet the individual needs of patients with stroke.

### Policy and Practice

The Jordanian government could use the results of this study to combine mental health intervention and psychological counseling programs with physical health services for patients with stroke, thus reducing the burden of depression, anxiety, and stress among this cohort. Health policymakers should ideally acknowledge the need to establish creative art therapy programs and leverage and train healthcare personnel to better combine such therapy with the physical domain of the health plan in patients with stroke.

Healthcare programs that incorporate this type of treatment should be accessible to all patients with stroke. These programs could be provided in various settings, for example, acute health settings, outpatient clinics, community settings, workplaces, and remote settings. In summary, using creative art therapy does not replace any other medical views or plans for managing the psychological status of patients with stroke. Instead, it is considered a complementary therapy as art therapy provides a venue to deliver holistic care for patients with stroke.

It is essential to implement a psychotherapy program led by trained counselors who have experience in integrating creative art therapy as a psychotherapeutic approach among patients with stroke. Furthermore, the high prevalence rates of depression, anxiety, and stress among these participants suggest that the mental health status of patients with stroke is under-recognized. Therefore, policymakers in the local governments are invited to establish local guidelines and strategies for the early detection of this condition among patients with stroke.

Moreover, the Jordanian government could also establish a policy related to activating the use of a multidisciplinary approach that involves art therapists, social workers, nurses, and clinicians who have experience in using art as a treatment modality. Additionally, the local health policymakers should use the health education program to increase the awareness of how collaborating and coordinating the use of creative art therapy with all healthcare providers would lead to better health outcomes.

## Future Studies

Further studies investigating the mental health status of patients with stroke are warranted. This study used a quasi-interventional design due to the feasibility of the study and for ethical reasons.

Hence, future randomized controlled trials (RCT) are recommended among diverse groups because this type of research establishes a meaningful control group at higher levels of standardization, and RCT is considered at a high level in the evidence-based hierarchy. Thus, RCTs produce more rigorous results in terms of cause-and-effect relationships and allow for more cross-study and cross-cultural comparisons. This type of research is consistent with the measures used, indicating that the trend of achieving good health outcomes associated with creative art therapy is reliable. However, randomized controlled studies could be established over a short period. Thus, the researcher assumed recommend future longitudinal studies that can demonstrate the long-term effect of creative art therapy intervention *via* a follow-up plan over a long period, allowing the examination of the sustainability of the health outcomes over time. Moreover, regarding different types of research methodology, the researcher would also recommend that future studies based on qualitative design could provide another perspective on the meaning of art and healing because qualitative studies promote the uniqueness of the individual and phenomenon. Finally, the researcher recommends conducting more studies in the community settings because most studies related to stroke and creative art therapy have been conducted in acute health settings, which could preclude understanding other social determinants in relation to creative art therapy, such as social support.

### 5.3.4. Strengths

To the best of our knowledge, this study is a pioneering study in assessing the influence of creative art therapy sessions on depression, anxiety, and stress levels among patients with stroke in Jordan. It is the first study to evaluate the aforementioned psychological reaction levels among patients who received a stroke diagnosis not more than 3 months before the study. This

study could be used as a basic framework through which strategies related to creative art therapy could be implemented to enhance the mental health status of patients with stroke in Jordan.

Further, this study recruited its respondents using a poster promoting full voluntary participation and ensuring that there is no undue coercion from the staff or researcher. Data related to participants' cognitive abilities were assessed using AMMSE and the medical records, which further strengthened the reliability of results of the current study because the integrity of this information was examined through protocols.

A quasi-interventional design was used as described in a previous study (White & Sabarwal, 2014). This approach has been identified at the second level in the hierarchy of evidence, and it is the most appropriate approach for this type of study. It is feasible and ethical in this type of cohort and allows us to test the study-related hypotheses. Furthermore, this study makes a primary contribution by using DASS in a clinical-based health setting. This tool could be used by healthcare members, including clinicians, nurses, and social workers, to identify patients with stroke who have depression, anxiety, and stress.

Healthcare providers can evaluate and assess health difficulties beyond the physical domain of stroke, and the psychological aspect of stroke must be addressed to ensure that a holistic healthcare plan is provided.

In general, the results of this study may promote the mental health status among patients with stroke in Jordan, thus reducing the burden of the high concomitant rates of depression, anxiety, and stress among patients with stroke.

### Limitations

The results of the present study were based on a sample from two hospitals in Jordan. Because Al-Bashir and Madaba hospitals are central hospitals, participants recruited for this study were more likely to have an acute or serious clinical course of stroke, which would result in high levels of mental health complexities. However, the study only promoted those with good literacy levels. Therefore, this could limit the generalizability of the study results. Illiterate patients are in a more vulnerable state in terms of their mental health status, and illiteracy limits the use of healthcare services.

Additionally, no participant in this study had a severe form of depression. Thus, the current study did not assess the influence of creative art therapy among patients with stroke and concomitant severe depression. It is important to provide a platform for those who suffer from stroke and severe form of depression to express their feelings and thoughts, considering the vulnerability of their situation.

Furthermore, data collection in this study was performed using self-reporting questionnaires. Although it is a well-known method in the literature and an accepted practice in scientific research, it could generate empirical biased data (McCrae & Costa, 1983), such as social desirability bias, in which participants promote themselves in a socially acceptable manner. It is a common and frequent bias that surfaces when using this data collection method.

## 5.4. Summary

Overall, creative art therapy is an effective approach for managing psychological symptoms among patients with stroke. This study addresses a major gap in the treatment of mental health

difficulties, among patients with stroke in Jordan. Creative art therapy along with conventional physical therapy can significantly reduce depression, improve physical functions, and increase the quality of life compared with physical therapy alone. Creative Art therapy can identify the emotional status of patients and serve as a useful auxiliary tool to help patients with stroke in their mental health rehabilitation.

Considering that stroke is often accompanied by depression and anxiety, rehabilitation effects can be maximized by combining physical and psychological therapies. These efforts should be supported by clinical research, which will benefit patients with stroke in the future.

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# Appendixes

## Appendix A: Study Measures/ Arabic version

**استبانة لقياس فاعلية استخدام العلاج بالفن لتقليل مستويات الاكتئاب والقلق والتوتر عند مرضى الجلطات الدماغية في الأردن.**

**العوامل الديموغرافية**

**العمر: .....**

**الجنس: .....** **أنثى□** **ذكر □**

**الحالة الاجتماعية: .....** **أعزب □** **متزوج □** **مطلق □** **أرمل□**

**المستوى التعليمي: .....** **ثانوي او اقل □** **جامعة او دراسات عليا □**

**الحالة الاجتماعية: .....** **أعزب □** **متزوج □** **مطلق □** **أرمل□**

**مدة الاصابة: .....** **اقل من 1 شهر □** **1 -3شهر □**

**الدخل الشهري للعائلة: .....** **500< دينار □** **500- 1000 دينار□**

**الحالة الوظيفية: .....** **اعمل □** **لا اعمل □**

**هل هناك إصابات أخرى في العائلة: ..... ... نعم □** **لا □**

**هل تعاني من مشاكل صحية سابقة: .....** **نعم □** **لا □**

**هل اصبت/ي بحالة اكتئاب سابقة: .....** **نعم □** **لا □**

**هل سبق ان خضعت/ي لأي تدخل علاجي بالفن لإدارة الاكتئاب والقلق والتوتر؟ اذا كانت الإجابة نعم، ما هو مصدر معلوماتك :**

**.....**

**نعم □** **لا □**

## Appendix B1: Depression Anxiety Stress Scales - Short Form (DASS-21)

**Instructions: Please read each statement and press a response that indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any statement**.

**NEVER - Did not apply to me at all**

**SOMETIMES - Applied to me to some degree, or some of the time**

**OFTEN - Applied to me to a considerable degree, or a good part of time**

**ALMOST ALWAYS - Applied to me very much, or most of the time**

| | NEVER | SOMETIMES | OFTEN | ALMOST ALWAYS |
|---|---|---|---|---|
| I found it hard to wind down | | | | |
| I was aware of dryness of my mouth | | | | |
| I couldn't seem to experience any positive feeling at all | | | | |
| I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion | | | | |
| I found it difficult to work up the initiative to do things | | | | |
| I tended to over-react to situations | | | | |
| I experienced trembling (eg, in the hands) | | | | |
| I felt that I was using a lot of nervous energy | | | | |

| | | | | |
|---|---|---|---|---|
| I was worried about situations in which I might panic and make a fool of myself | | | | |
| I felt that I had nothing to look forward to | | | | |
| I found myself getting agitated | | | | |
| I found it difficult to relax | | | | |
| I felt down-hearted and blue | | | | |
| I was intolerant of anything that kept me from getting on with what I was doing | | | | |
| I felt I was close to panic | | | | |
| I was unable to become enthusiastic about anything | | | | |
| I felt I wasn't worth much as a person | | | | |
| I felt that I was rather touchy | | | | |
| I was aware of the action of my heart in the absence of physical exertion (eg,sense of heart rate increase, heart missing a beat) | | | | |
| I felt scared without any good reason | | | | |
| I felt that life was meaningless | | | | |

**DASS 21 SCORE**

| **DEPRESSION SCORE** | **ANXIETY SCORE** | **STRESS SCORE** |
|---|---|---|
| | | |

| | Depression | Anxiety | Stress |
|---|---|---|---|
| **Normal** | 0-4 | 0-3 | 0-7 |
| **Mild** | 5-6 | 4-5 | 8-9 |
| **Moderate** | 7-10 | 6-7 | 10-12 |
| **Severe** | 11-13 | 8-9 | 13-16 |
| **Extremely severe** | 14+ | 10+ | 17+ |

## Appendix B2:تقيم التوتر والضغط النفسي والاكتئاب

**اقرأ كل من النصوص التالية وضع دائرة حول الرقم 0،1،2 أو 3 الذي يبين درجة انطباق هذا الشعور عليك في الأسبوع الماضي. لا يوجد إجابات صحيحة أو خاطئة**

**استعمل التقديرات التالية:**

**0= لا ينطبق علي بتاتا**

**1= ينطبق علي بعض الشيء أو قليلا من الأوقات**

**2= ينطبق علي بدرجة ملحوظة او بعض الأوقات**

**3= ينطبق علي كثيرا أو معظم الأوقات**

| | | | | العبارة |
|---|---|---|---|---|
| 3 | 2 | 1 | 0 | وجدت صعوبة في الاسترخاء والراحة |
| 3 | 2 | 1 | 0 | شعرت بجفاف في حلقي |
| 3 | 2 | 1 | 0 | لم يبدو لي أن بإمكاني الإحساس بمشاعر ايجابية على الإطلاق. |
| 3 | 2 | 1 | 0 | شعرت بصعوبة في التنفس (شدة التنفس السريع، اللهثان بدون القيام بمجهود جسدي مثلا) |
| 3 | 2 | 1 | 0 | وجدت صعوبة في أخذ المبادرة بعمل الأشياء. |
| 3 | 2 | 1 | 0 | كنت أميل إلى ردة فعل مفرطة للظروف والأحداث |
| 3 | 2 | 1 | 0 | شعرت برجفة باليدين مثلا |
| 3 | 2 | 1 | 0 | شعرت بأنني استهلك الكثير في الطاقة العصبية (شعرت بأنني استهلك الكثير من قدرتي على تحمل التوتر العصبي) |
| 3 | 2 | 1 | 0 | كنت خائفا من مواقف قد أفقد فيها السيطرة على أعصابي وأسبب إحراجا لنفسي |
| 3 | 2 | 1 | 0 | شعرت بأن ليس لدي أي شيء أتطلع إليه. |
| 3 | 2 | 1 | 0 | شعرت بأنني مضطرب ومنزعج بسبب أمور تافهة. |
| 3 | 2 | 1 | 0 | أجد صعوبة في الاسترخاء. |

| | | | | |
|---|---|---|---|---|
| شعرت بالحزن والغم. | 0 | 1 | 2 | 3 |
| كنت لا أستطيع تحمل أي شيء يحول بيني وبين ما أرغب في القيام به. | 0 | 1 | 2 | 3 |
| شعرت بأنني على وشك الوقوع في حالة من الرعب المفاجئ بدون سبب | 0 | 1 | 2 | 3 |
| فقدت الشعور بالحماس لأي شيء. | 0 | 1 | 2 | 3 |
| شعرت بأن قيمتي قليلة كشخص. | 0 | 1 | 2 | 3 |
| شعرت بأنني أميل إلى الغيظ بسرعة. | 0 | 1 | 2 | 3 |
| شعرت بضربات قلبي بدون مجهود جسدي (زيادة في معدل الدقات أو غياب دقة قلب مثلا). | 0 | 1 | 2 | 3 |
| شعرت بالخوف بدون أي سبب وجيه. | 0 | 1 | 2 | 3 |
| شعرت بأن الحياة ليس لها معنى. | 0 | 1 | 2 | 3 |

# Appendix C: Arabic Mini Mental State Examination (AMMSE)

## Mini-Mental State Examination (MMSE)

Patient's Name: _____ Date: _____

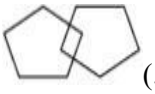
***Instructions:*** ***Ask the questions in the order listed. Score one point for each correct response within each question or activity.***

| Maximum Score | Patient's Score | Questions |
|---|---|---|
| 5 | | "What is the year? Season? Date? Day of the week? Month?" |
| 5 | | "Where are we now: State? County? Town/city? Hospital? Floor?" |
| 3 | | The examiner names three unrelated objects clearly and slowly, then asks the patient to name all three of them. The patient's response is used for scoring. The examiner repeats them until patient learns all of them, if possible. Number of trials: _____ |
| 5 | | "I would like you to count backward from 100 by sevens." (93, 86, 79, 72, 65, ...) Stop after five answers.<br>Alternative: "Spell WORLD backwards." (D-L-R-O-W) |
| 3 | | "Earlier I told you the names of three things. Can you tell me what those were?" |
| 2 | | Show the patient two simple objects, such as a wristwatch and a pencil, and ask the patient to name them. |
| 1 | | "Repeat the phrase: 'No ifs, ands, or buts.'" |
| 3 | | "Take the paper in your right hand, fold it in half, and put it on the floor." (The examiner gives the patient a piece of blank paper.) |
| 1 | | "Please read this and do what it says." (Written instruction is "Close your eyes.") |
| 1 | | "Make up and write a sentence about anything." (This sentence must contain a noun and a verb.) |
| 1 | | "Please copy this picture." (The examiner gives the patient a blank piece of paper and asks him/her to draw the symbol below. All 10 angles must be present and two must intersect.)<br>  |
| 30 | | TOTAL |

(Adapted from Rovner & Folstein, 1987)

**اسم المريض:** _____ **التاريخ:** _____

**التعليمات: اطرح الأسئلة بالترتيب المذكور. سجل نقطة واحد لكل إجابة صحيحة في كل سؤال او نشاط.**

| الأسئلة | علامة المريض | العلامة العليا |
|---|---|---|
| ما هي السنة؟ الفصل؟ التاريخ؟ يوم من الأسبوع؟ الشهر؟ | | 5 |
| اين انت الان؟ الولاية؟ البلدة؟ المدينة؟ المستشفى؟ | | 5 |
| الطابق؟ يقوم الفاحص بعد ذلك بتسميه ثلاث أشياء غير مرتبطة بوضوح وببطء يطلب من مريض تسمية الثلاث. يتم استخدام استجابة المريض للتسجيل. يقوم الفاحص بتكرارها حتى يتعلمها المريض جميعا ان أمكن. | | 3 |
| اود منك العد التنازلي من 100 في السبعينات (93, 86, 79,72,65) توقف بعد خمس إجابات البديل تهجئة كلمه العالم بشكل عكسي. | | 5 |
| اخبرتك سابقا بأسماء ثلاث أشياء هل يمكنك ان تخبرني ما هذه الأشياء؟ | | 3 |
| اظهر للمريض شيئين بسيطين مثل ساعة اليد وقلم رصاص واطلب من المريض تسميه هذه الأشياء | | 2 |
| كرر عباره لا، إذا، لكن. | | 1 |
| خذ الورقة بيدك اليمنى وقم بطيها من المنتصف وضعها على الأرض يعطى الفاحص للمريض قطعه من الورق الفارغ. | | 3 |
| من فضلك اقرا هذا وافعل ما يقول (التعليمات المكتوبة*أغمض عينيك*) | | 1 |
| "اختلق واكتب جملة عن أي شيء "هذه الجملة يجب ان تحتوي على اسم وفعل. | | 1 |
| "الرجاء نسخ هذه الصورة"(يعطي الفاحص للمريض ورقة فارغة ويطلب منه/منها رسم الرمز ادناه. يجب ان تكون الزوايا 10 موجودة ويجب ان يتقاطع اثنان.)  | | 1 |
| المجموع الكلي | | 30 |

## Appendix D: Consent Form Arabic version

دراسة حول:" استخدام العلاج بالفن كعلاج مساعد لتحسين الحالة الصحة النفسية بين المرضى الأردنيين المصابين بالسكتات الدماغية "

هذه الدراسة هي حول استخدام العلاج بالفن كعلاج مساعد لتحسين الحالة الصحة النفسية بين المرضى الأردنيين المصابين بالسكتات الدماغية.

هذه الدراسة سوف توفر تقييما دقيقا ومناسبا لاستخدام العلاج بالفن كعلاج مساعد لتحسين الحالة الصحة النفسية بين المرضى الأردنيين المصابين بالسكتات الدماغية والتي قد تكون ضرورية للعاملين في الرعاية الصحية في وضع الأولويات من اجل تطوير برامج صحية أفضل لمرضى الامراض المزمنة وتحسين الصحة النفسية لديهم، واتحاذ الإجراءات والتدخلات المناسبة.

الرجاء عدم كتابة اسمك على هذه الدراسة. كما ان الاجابات التي ستعطيها ستحفظ بشكل خاص وسري. فلا أحد سيعرف كيف أجبت عن الأسئلة.

اجابة الأسئلة يعتمد على ما تعرفه أو تقوم به بالواقع. فلا توجد اجابات صحيحة او خاطئة.

اكمال هذا المسح هو اختياري. كما أنه لك حرية الاختيار في عدم الاجابة على أي من الأسئلة، وإذا لم ترغب في الاجابة على أي سؤال الرجاء تركه فارغا.

الرجاء التأكد من قراءة كل سؤال، ووضع الاجابة المناسبة لكل سؤال والتي تطابق رأيك.

## Appendix D2: Consent Form

**Dear Participant,**

We would like to request your participation in my research study "On the Use of Art Therapy as Adjunctive Therapy to Improve Mental Health among Jordanian Stroke Patients". I am asking you to participate because you have fulfilled the criteria required in this study. Please read this form carefully and ask questions you may have before agreeing to participate in the study.

**Introduction**

I am doing a quantitative methodological research on "On the use of art therapy as an adjunct therapy to improve mental health among Jordanian stroke patients". I would like to invite as a participant in this study. I provide information about research, which you can read if you have any question, feel free to ask me, you do not have to decide today whether to take part in the research, and before you decide, you can talk to anyone with whom you feel comfortable about the search.

**Purpose of research**

The purpose of the study is to discover how the use of art therapy contributes to improving mental health among Jordanian stroke patients." The study is interested in your awareness and understanding of this experience, which will help us improve the care of the current and future study.

**Type of research intervention**

The research will include a personal interview and the use of a range of interventions to complete the opinion polls.

**Choose the participants**

You are invited to participate in this research because you are willing to share your experience on "the Use of Art Therapy as Adjunctive Therapy to Improve Mental Health among Jordanian Stroke Patients".

**Voluntary Participation**

Your participation in this research is voluntary. It is your choice whether to participate or not. You can withdraw at any time if you feel uncomfortable.

**Procedures**

If you agree to participate in this study, you will be asked to fill out a questionnaire on Use of Art Therapy as Adjunctive Therapy to Improve Mental Health among Jordanian Stroke Patients (pre/post), at your convenient time. No one other than the researcher will attend unless you want someone else to be with you.

**Duration**

The research study will be completed in period between early November 2021 to late January 2022.. The intervention will be completed within a duration of at least 1.5-hour.

**Risks**

There are no physical risks involved at any time from the start of the completion of the study. I will respect if there is any religious or socio-cultural limitations or inhabitations from the participants.
The participant will decide which and to what extent of the information he or she will provide.
Benefits
The information that the researcher will gain from this study may help in enhancing the understanding of the importance of "questionnaire on Use of Art Therapy as Adjunctive Therapy to Improve Mental Health among Jordanian Stroke Patients", and this would benefit patients and the Ministry of Health.

**Reimbursements**

You will not be provided with an incentive to take part in the research.

**Confidentiality**

Your name or any other information that will directly identify you will not be obtained. A code will be assigned to your questionnaire. Only the researcher will know who is behind the given code to identify who I can go back for further clarification or confirmation of the information you have shared.
All information gathered will be used only for the purpose of this research.

**Sharing the Results**

Nothing that you tell us today will be shared with anybody outside the research team, and nothing will be attributed to you by name. The knowledge that the researcher gets from this research will be shared with you before it is made widely available to the public. Later on, the results of this research will be published in an international journal and presented in an international conference.

**Right to Refuse or Withdraw**

You do not have to take part in this research if you do not wish to do so; you may stop participating in the interview at any time that you wish without being affected. I will give you an opportunity at the end of the study to review your remarks, and you can ask to modify or remove portions of those if you do not agree with any notes or if I did not understand you correctly.

**عزيزي المشارك ،**

نود أن نطلب مشاركتك في دراستي البحثية "حول استخدام العلاج بالفن كعلاج مساعد لتحسين الصحة العقلية بين مرضى السكتة الدماغية الأردنيين". أطلب منك المشاركة لأنك استوفيت المعايير المطلوبة في هذه الدراسة. يرجى قراءة هذا النموذج بعناية وطرح الأسئلة التي قد تكون لديك قبل الموافقة على المشاركة في الدراسة.

**مقدمة**

أقوم ببحث منهجي كمي حول "حول استخدام العلاج بالفن كعلاج مساعد لتحسين الصحة العقلية بين مرضى السكتة الدماغية الأردنيين". أود أن أدعو كمشارك في هذه الدراسة. أقدم معلومات حول البحث، والتي يمكنك قراءتها إذا كان لديك أي سؤال، فلا تتردد في أن تسألني، ليس عليك أن تقرر اليوم ما إذا كنت ستشارك في البحث، وقبل أن تقرر، يمكنك التحدث إلى أي شخص تتعامل معه تشعر بالراحة حيال البحث.

**الغرض من البحث**

والغرض من الدراسة هو اكتشاف كيف يساهم استخدام العلاج بالفن في تحسين الصحة العقلية بين مرضى السكتة الدماغية الأردنيين ". نحن مهتمون بوعيك وفهمك لهذه التجربة ، مما سيساعدنا على تحسين رعاية الدراسة الحالية والمستقبلية.

نوع التدخل البحثي

سيتضمن البحث مقابلة شخصية واستخدام مجموعة من التدخلات لاستكمال استطلاعات الرأي.

**اختيار المشاركين:**

أنت مدعو للمشاركة في هذا البحث لأنك على استعداد لمشاركة تجربتك حول "استخدام العلاج بالفن كعلاج مساعد لتحسين الصحة العقلية بين مرضى السكتة الدماغية الأردنيين".

والمشاركة الطوعية

مشاركتك في هذا البحث تطوعية. إنه خيارك سواء للمشاركة أم لا. يمكنك الانسحاب في أي وقت إذا شعرت بعدم الارتياح.

إجراءات

إذا وافقت على المشاركة في هذه الدراسة، فسيُطلب منك ملء استبيان حول استخدام العلاج بالفن كعلاج مساعد لتحسين الصحة العقلية بين مرضى السكتة الدماغية الأردنيين (قبل / بعد)، في الوقت المناسب لك. لن يحضر أي شخص آخر غير الباحث إلا إذا كنت تريد أن يكون معك شخص آخر

**المدة**

سيتم الانتهاء من الدراسة البحثية في الفترة ما بين أوائل نوفمبر 2021 إلى أواخر يناير 2022 .. سيتم الانتهاء من التدخل في غضون مدة لا تقل عن 1.5 ساعة.

**المخاطر**

لا توجد مخاطر جسدية متضمنة في أي وقت من بداية الانتهاء من الدراسة. سأحترم ما إذا كان هناك أي قيود أو قيود دينية أو اجتماعية -ثقافية من المشاركين. سيقرر المشارك أي وإلى أي مدى من المعلومات التي سيقدمها. فوائد

قد تساعد المعلومات التي سنكتسبها من هذه الدراسة في تعزيز فهم أهمية "الاستبيان حول استخدام العلاج بالفن كعلاج مساعد لتحسين الصحة النفسية بين مرضى السكتة الدماغية الأردنيين"، وهذا من شأنه أن يفيد المرضى ووزارة الصحة.

**التعويضات**

لن يتم منحك حافزًا للمشاركة في البحث.

**السرية**

لن يتم الحصول على اسمك أو أي معلومات أخرى تحدد هويتك بشكل مباشر. سيتم تخصيص رمز للاستبيان الخاص بك. سيعرف الباحث فقط من يقف وراء الكود المحدد لتحديد من يمكنني العودة لمزيد من التوضيح أو التأكيد على المعلومات التي قمت بمشاركتها. سيتم استخدام جميع المعلومات التي تم جمعها فقط لغرض هذا البحث.

**نشر النتائج**

لن تتم مشاركة أي شيء تخبرنا به اليوم مع أي شخص خارج فريق البحث، ولن يُنسب إليك أي شيء بالاسم. ستتم مشاركة المعرفة التي نحصل عليها من هذا البحث معك قبل إتاحتها على نطاق واسع للجمهور. سيتم نشر نتائج هذا البحث لاحقًا في مجلة دولية وعرضها في مؤتمر دولي.

**الحق في الرفض أو الانسحاب**

لا يتعين عليك المشاركة في هذا البحث إذا كنت لا ترغب في القيام بذلك؛ يمكنك التوقف عن المشاركة في المقابلة في أي وقت ترغب فيه دون أن تتأثر. سأمنحك فرصة في نهاية الدراسة لمراجعة ملاحظاتك، ويمكنك أن تطلب تعديل أو إزالة أجزاء منها إذا كنت لا توافق على أي ملاحظات أو إذا لم أفهمك بشكل صحيح.

## Appendix D-3: Certificate of Consent

I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about the study and answered them according to my satisfaction. I have understood that there are no risks involved, and I understand that there is no compensation involved in this study. I am affixing my signature without any force to signify my consent to be a participant in this study.

Print Name of Participant_____

Signature of Participant _____

Date _____

Day/month/year

Statement by the researcher/person taking consent

## Appendix E: Ethics Certificate

3/11/2021

جامعة الإسراء

حضرة الدكتورة رسمية الأعمر المحترمة
عضو هيئة تدريس في كلية التمريض-
قسم التمريض المتقدم

تحية طيبة وبعد،

فإشارة الى توصية لجنة أخلاقيات البحث العلمي في الجامعة وباجتماعها الثاني وبتوصية رقم (2020/2021-2/3). فقد وافقت اللجنة على مشروعكم المعنون في

العلاج بالفن كعلاج مساعد لتحسين حالة الصحة النفسية بين المرضى الاردنيين المصابين بالسكتات الدماغية

Creative art therapy as an adjuvant treatment for improving mental health status among Jordanian patients with cerebrovascular accidents

علما بأن رقم الموافقة هو SREC/21/11/016.

وتقبلوا وافر الاحترام والتقدير،

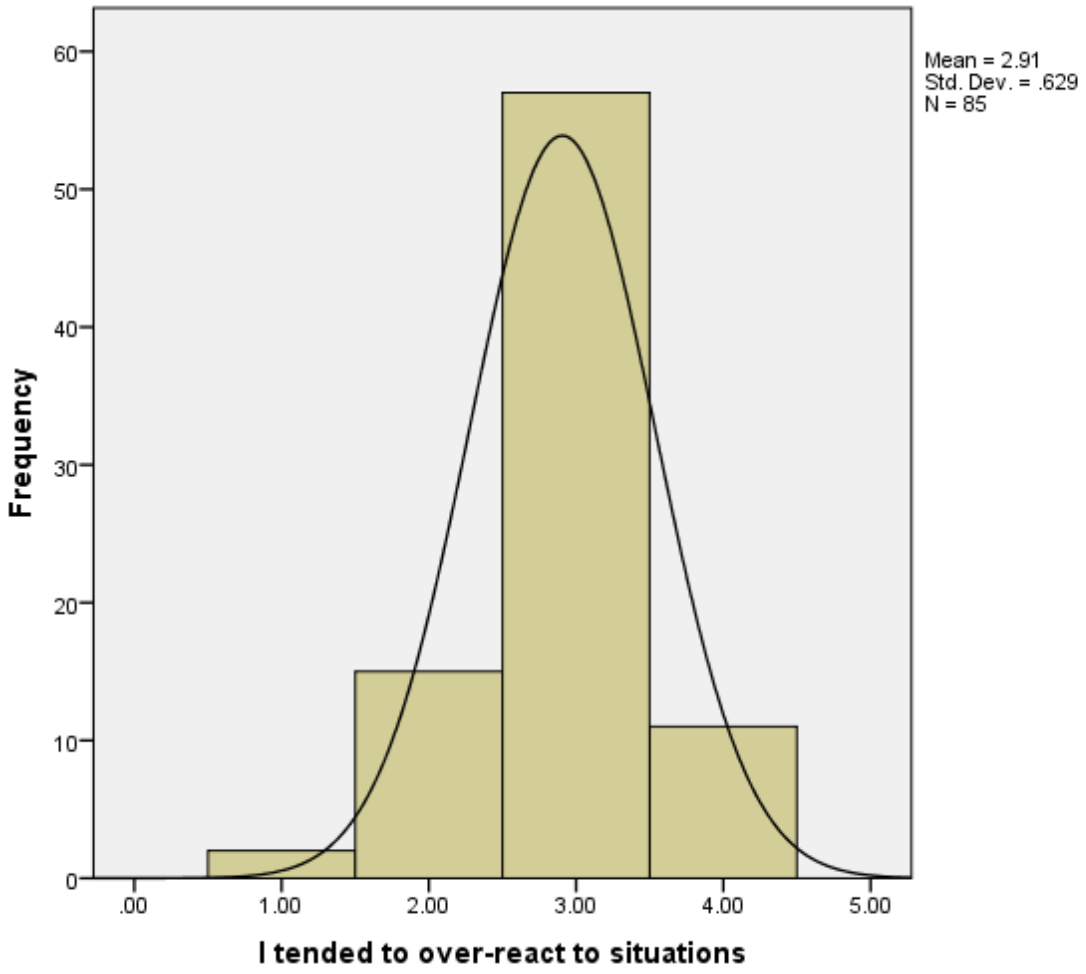
رئيس اللجنة

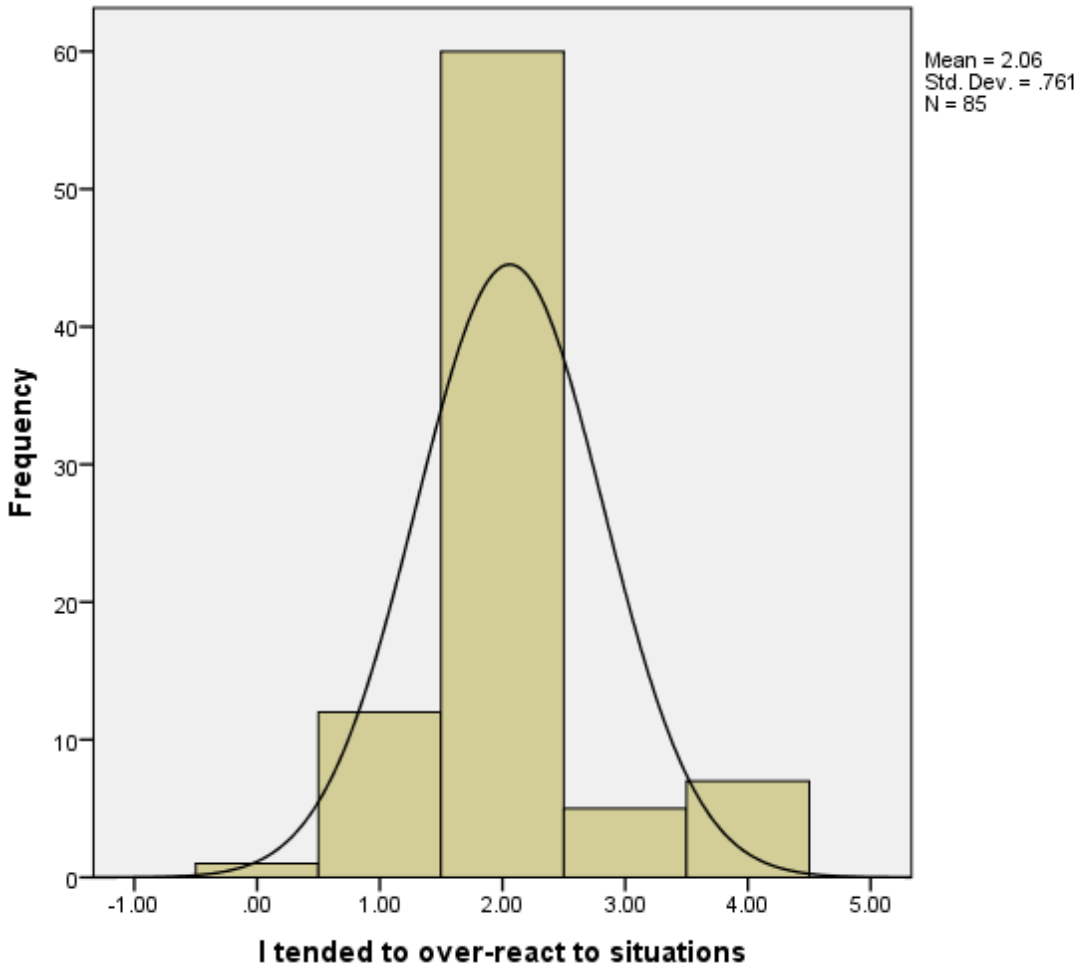
د. رابعة الروسان

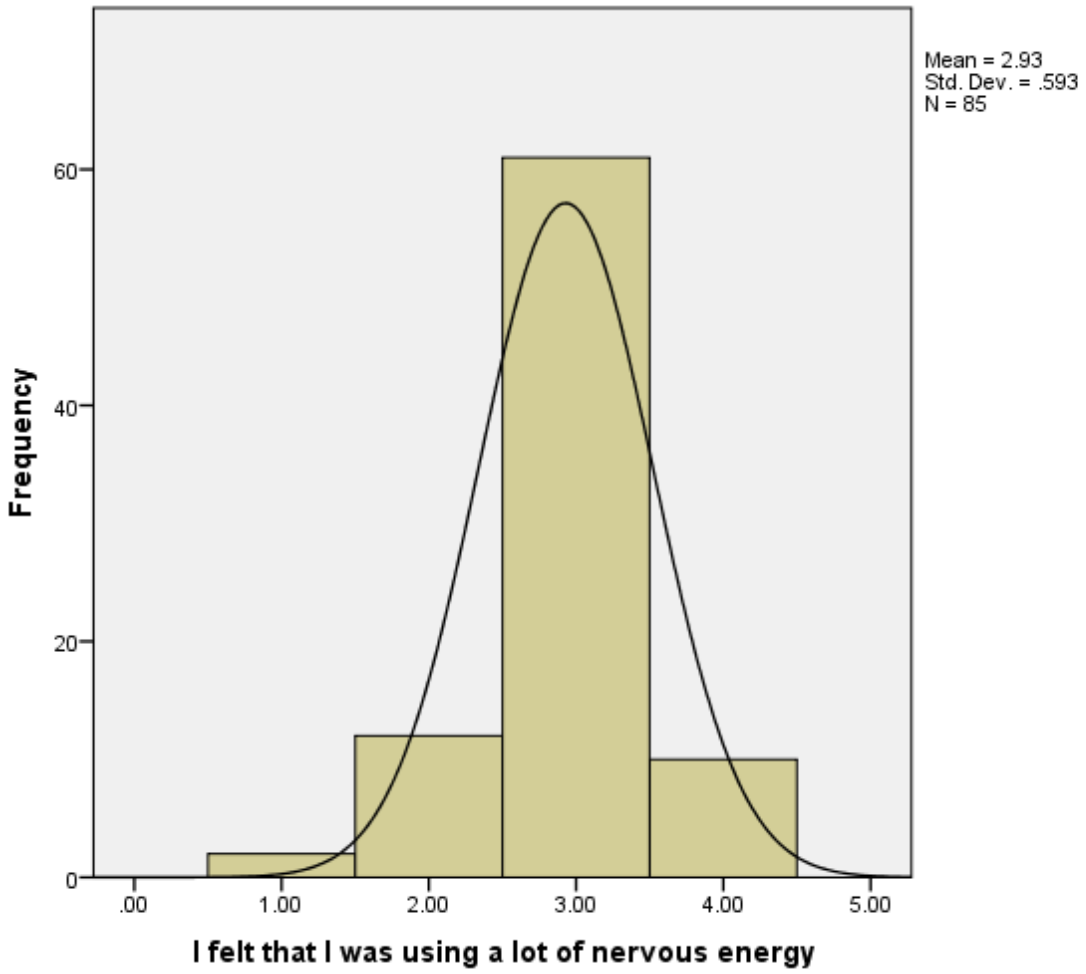
نسخة: عميد البحث العلمي والدراسات العليا

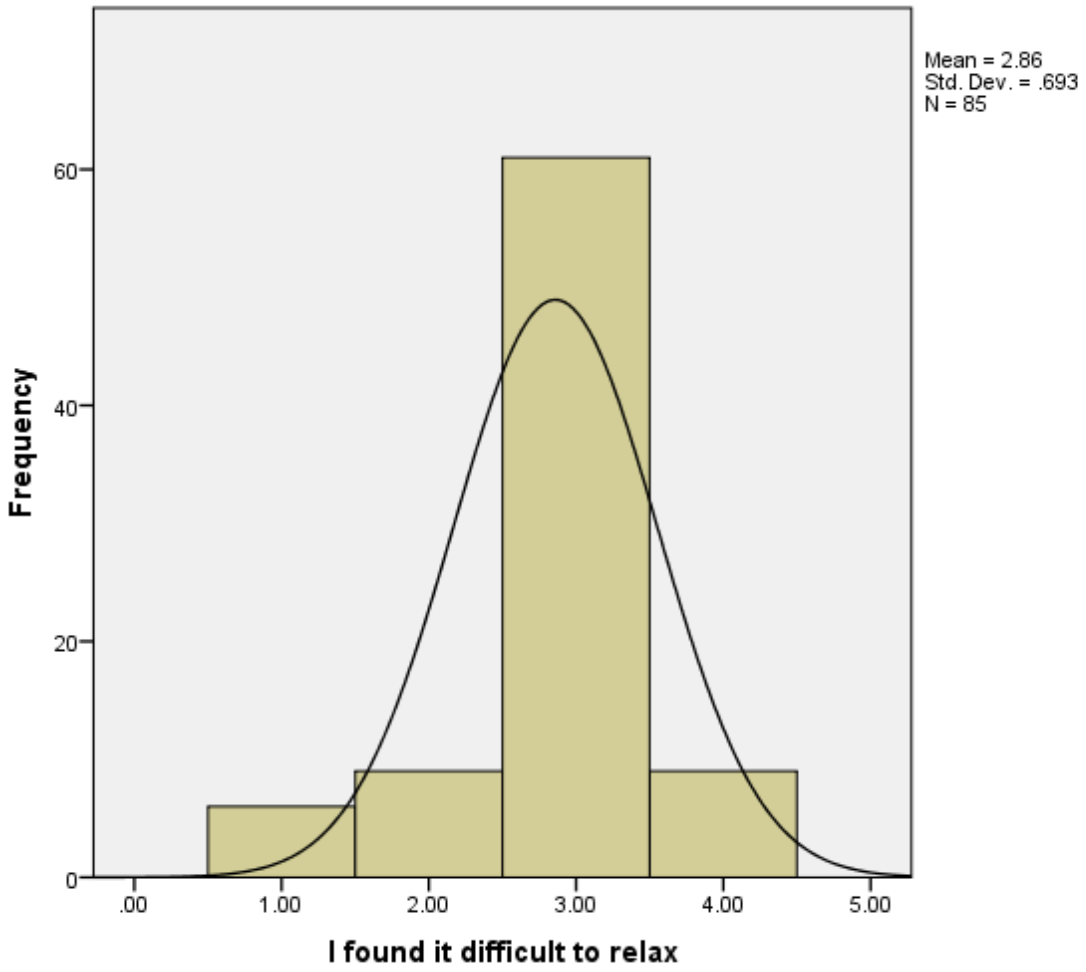
QUALITY

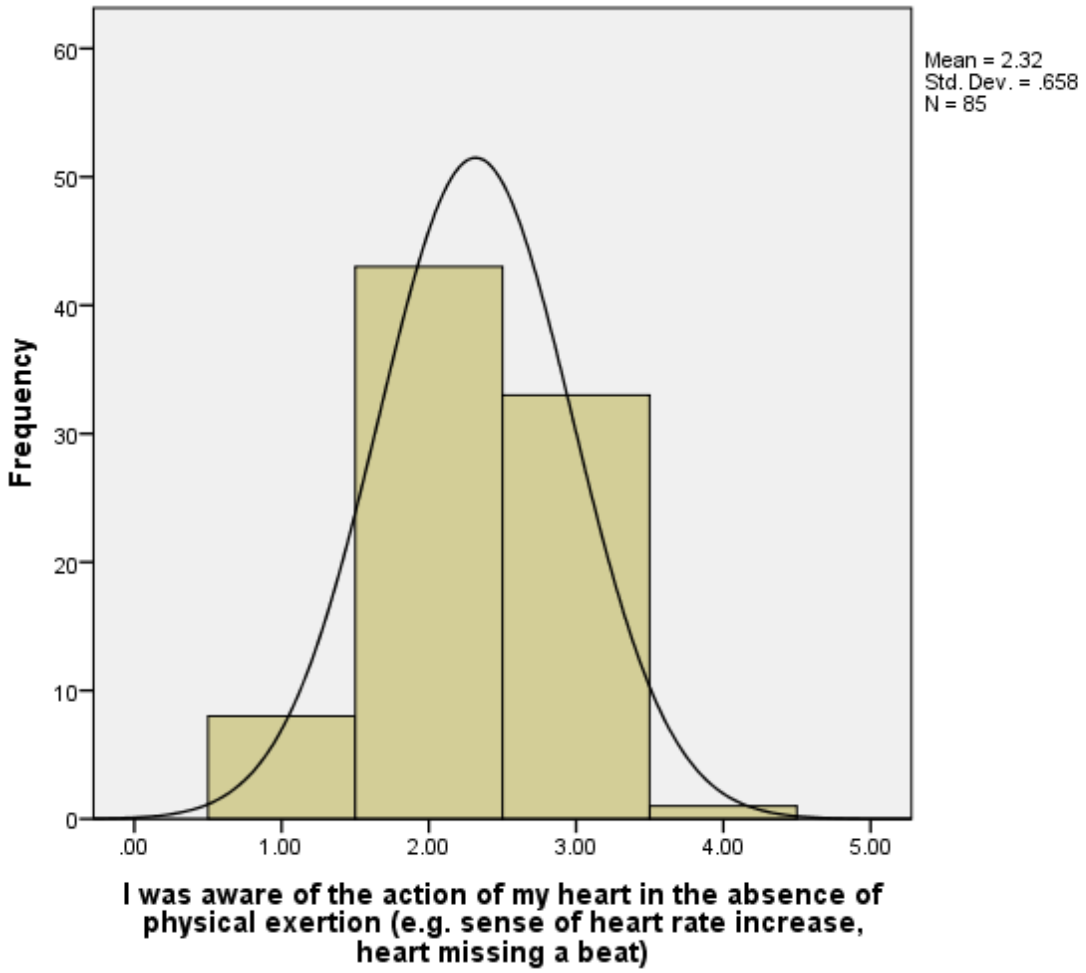
## Appendix F: Normality Histogram




Mean = 2.06
Std. Dev. = .761
N = 85
Frequency
60
50
40
30
20
10
0
-1.00
.00
1.00
2.00
3.00
4.00
5.00
I tended to over-react to situations


Mean = 2.93
Std. Dev. = .593
N = 85
Frequency
60
40
20
0
.00
1.00
2.00
3.00
4.00
5.00
I felt that I was using a lot of nervous energy


Mean = 2.86
Std. Dev. = .693
N = 85
Frequency
60
40
20
0
.00
1.00
2.00
3.00
4.00
5.00
I found it difficult to relax




## Appendix G: Glossary

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|---|---|
| **WHO** | **World Health Organization** |
| **BAAT** | **British Association of Art Therapists** |
| **CVA** | **Cerebrovascular Accident** |
| **PSA** | **Post Stroke Anxiety** |
| **PSS** | **Post Stroke Stress** |
| **PSD** | **Post Stress Disorder** |

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| **DALYs** | **Disability- adjusted Life-years** |
| **GBD** | **Global Burden of Diseases** |
| **DASS** | **Depression, Anxiety and Stress Scale** |
| **AMMSE** | **Arabic Mini Mental State Examination** |
| **PTSD** | **Post-traumatic stress disorder** |
| **RCT** | **Randomized Controlled Trial** |
| **M** | **Mean** |
| **JDs** | **Jordan Dinners** |
| **N** | **Number** |
| **(%)** | **Percentage** |
| **Confidence interval (CI)** | **A range of values (interval) that act as an estimate of the unknown population parameter used to indicate the reliability of an estimate; represent the range of effect sizes and statistical accuracy for interpreting results.** |
| **Standard Deviation (SD)** | **Indicates the portion of variation that exists from the mean; low SD indicates that values are within close proximity to the mean, whereas high SD indicates that values lie further from the mean.** |
| **Validity** | **The extent to which an instrument measures the underlying construct it is intended to measure** |
| **Reliability** | **The degree to which an instrument measures a construct yielding consistent and dependable results within similar circumstances** |

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| **P-Value** | **The calculated probability of rejecting the null hypothesis when the hypothesis is true; with a value ranging from zero to one.** |
| **Statistical Package for the Social Sciences (SPSS)** | **Software designed for statistical calculations and analysis.** |
| **Chronbach's Alpha Coefficient** | **A value indicative of the degree of reliability of a psychometric test score.** |
| **Effect Size** | **A measure of the magnitude to which two variables correlate in a statistical population.** |
| **Chronic diseases** | **Diseases, which have one or more of the following characteristics, they are permanent, leave residual disability, are caused by no reversible pathological alteration, require special training of the patient for rehabilitation, or may be expected to require a long period of supervision, observation or care.** |
| **Prevalence** | **The proportion of individuals in a population who at a particular time (be it a point in time or time period) have a disease or condition. Prevalence is a proportion and not a rate.** |
| **Prevalence rate** | **The proportion of individuals that are affected by a disease or a risk factor at a given point in time** |
| **Depression** | **A mood disorder characterized by sadness, inactivity, difficulty with thinking and concentration, significant** |

| | |
|---|---|
| | **increase or decrease in appetite and time spent sleeping, feelings of dejection and hopelessness, and, sometimes, suicidal thoughts or an attempt to commit suicide.** |
| **Morbidity** | **Any departure, subjective or objective, from a state of physiological or psychological wellbeing.** |

**العلاج بالفن الإبداعي كعلاج مساعد في تحسين الصحة النفسية بين المرضى الذين يعانون من السكتات الدماغية.**

**أعدت من قبل**

**خديجة عيد الوليدات**

**أشرف عليها**

**د. رسمية مصطفى الأعمر**

**أ.د رامي نجيب حداد**

**الملخص**

**مقدمة**

تعتبر حوادث الأوعية الدموية الدماغية / السكتة الدماغية من الأمراض المنهكة التي ترتبط ارتباطًا وثيقًا بالاضطرابات العصبية والنفسية بما في ذلك الاكتئاب والقلق والتوتر. تعد الصعوبات النفسية بعد السكتة الدماغية ، بما في ذلك الاكتئاب والقلق والتوتر ، من المشكلات الصحية الهامة بين الأردنيين الذين يعانون من السكتة الدماغية وتتطلب استجابة وطنية عاجلة وتدخلًا فوريًا.

**الغاية**

هدفت هذه الدراسة إلى تقييم تأثير العلاج بالفن الإبداعي على مستويات الاكتئاب والقلق والتوتر لدى مرضى السكتة الدماغية في الأردن.

**المنهج**

كان المشاركون في الدراسة مرضى بسكتة دماغية تتراوح أعمارهم بين 44–70 سنة والذين حضروا المستشفيات التابعة لوزارة الصحة الأردنية. تم استخدام مجموعة من تصاميم الاختبار القبلي والبعدي على مدى أسبوعين باستخدام أسلوب أخذ العينات الهادف.

**النتائج**

تضمنت عينة الدراسة الحالية 85 مريضاً مصاباً بسكتة دماغية ، بمتوسط عمر 54.42 (الانحراف المعياري = ± 6.1) سنة. كما أن 67.6٪ من المشاركين في الدراسة كانوا إناث ، 40.0٪ ذكور ، 60.0٪. أبلغ أكثر من 70٪ من المشاركين في الدراسة عن مستويات مختلفة من الاكتئاب ، منها 17.6٪ و 28.2٪ و 68٪ أفادوا بمستويات شديدة وشديدة ومتوسطة من القلق على التوالي. ما يقرب من 90٪ أبلغوا عن مستويات شديدة إلى متوسطة من التوتر.

كانت هناك علاقة إيجابية كبيرة بين الاكتئاب والعمر * r = 0.448) ؛ (p <0.001 ؛ القلق والعمر والجنس ودخل الأسرة قبل التدخل * r = 0.638) ، p <0.01؛ * r = 0.219 ، p <0.01؛ و r = * 0.217، p <0.05 ، على التوالي) ؛ والإجهاد والعمر والجنس * r = 0.587) ، pو <0.01 r = ** 0.399، p <0.01 ، على التوالي.(

كشفت النتائج عن وجود فرق معنوي بين مستويات الاكتئاب والقلق والتوتر بين المشاركين في الدراسة قبل وبعد جلسات العلاج بالفن الإبداعي والتدخل للاكتئاب والقلق والتوتر t = 37.98) ، p <0.001؛ t = 20.59 ، p <0.001؛ وt = 35.52 ، p <0.001 ، على التوالي). أدى العلاج بالفن الإبداعي إلى تحسن كبير إحصائيًا في مستويات الاكتئاب والقلق والتوتر.

**استنتاج**

تؤكد هذه النتائج أن العلاج بالفن الإبداعي يمكن أن يكون علاجًا تكميليًا لزيادة الرفاهية ؛ تقليل مستويات الاكتئاب والقلق والتوتر. ومساعدة مرضى السكتة الدماغية على التعبير عن مشاعرهم وعواطفهم.