

# The Effectiveness of Acceptance and Commitment Therapy Based on the Handicraft in Reducing Post-Traumatic Stress Disorder among Hearing Impaired University Students

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**Abstract:** The present study aimed to assess the effectiveness of Acceptance and Commitment Therapy (ACT) based on the use of handicrafts in reducing symptoms of Post-Traumatic Stress Disorder (PTSD) among university students with hearing impairments. A total of 12 hearing impaired students were randomly assigned to either the experimental group (n=6, M=19.47, SD=3.55) or the control group (n=6, M=19.47, SD=3.55). Participants in the experimental group underwent fifteen sessions of group-based ACT using handicrafts. The researchers measured PTSD symptoms before, immediately, after, and two months after the therapy sessions. The findings revealed that ACT based on the use of handicrafts effectively reduced symptoms of PTSD in the experimental group on the post-test and follow-up assessments. These results indicate that ACT based on the use of handicrafts may be a valuable approach in treating individuals with PTSD.

**Keywords:** Acceptance and commitment therapy, handicraft, post-traumatic stress disorder, hearing impaired, university students.

## 1 Introduction

Undergraduate students go through an important transitional period in their growth stages. They face physiological and social challenges, engage in social and academic exploration, and experience academic stress. This stage becomes even more difficult for students with hearing impairments.

Hearing loss is a common difficulty that affects millions of people worldwide. It is estimated to be the fourth leading cause of disability globally. The World Health Organization states that approximately 5% of the world's population, which amounts to 430 million people, experience hearing loss and require rehabilitation to address their "disabling" hearing loss (432 million adults and 34 million children). By the year 2050, it is expected that 2.5 billion people will suffer from some degree of hearing loss, with almost 80% of those affected residing in low- and middle-income countries [1]. In a national survey conducted to estimate the prevalence of hearing impairment in Egypt, the prevalence of hearing loss was found to be 16% [2].

Hearing impairment have various causes, including antenatal and childbirth complications, genetic factors, or acquired causes throughout one's life such as meningitis, Meniere's disease, premature births, fetal alcohol syndrome, damage to the hearing system as one gets older, aging, prolonged exposure to loud and sharp noises, medication, accidents resulting in trauma to the hearing mechanism, diseases that attack and damage the hearing mechanism, problems within the outer and middle ear, as well as sensorineural factors [1, 3, 4, 5].

Individuals with hearing impairments can be classified into two categories: those who are deaf before or at birth (congenital) and those who become deaf after birth (acquired). Hearing impairments can result from issues within the ear or along the auditory nerve, specifically sensorineural problems. It is important to note that individuals with hearing impairments can possess intelligence levels similar to those of individuals without hearing impairments, particularly when appropriate methods of measurement are available. [4, 6]. The culture of a hearing-impaired individual is shaped by the family they grow up in, influencing their identity formation, acquisition of sign language, and social interactions. This process is largely influenced by the hearing status of their parents. As time goes on, their core identity evolves within the broader societal context, blending aspects of deaf culture with the culture of those who can hear. However, they may encounter language development challenges that differ from those experienced by typically hearing children.

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When parents fail to encourage their hearing-impaired children to use sign language and discourage them from embracing their identity as hearing-impaired individuals, it can lead to feelings of inferiority. This is particularly notable when they perceive themselves as physically capable but are unable to meet the societal expectations associated with hearing abilities [6].

The social identity theory explains the importance of group relationships and social orientations in the context of hearing impairment. If an individual feels uncomfortable with their minority group, they are unlikely to join that group. However, if they perceive the minority group as valuable, they are more likely to become part of it. Neil Glickman's Developmental Theory of Deaf Identity Development suggests that deaf individuals strive to resemble hearing individuals as much as possible. They go through four stages (cultural hearing, cultural marginalization, immersion/integration, biculturalism) to acquire both hearing and deaf culture and integrate into their environment [6, 7].

Hearing-impaired individuals face various challenges, including family history, medical issues at birth, education, socioeconomic status, sexual orientation, race, limited literacy, and difficulties accessing health-related information advertised on television, radio, or the Internet. This lack of access can lead to feelings of discrimination among deaf patients [6, 8]. Additionally, hearing-impaired individuals may require mental health services at a higher rate compared to the general population, particularly when they experience emotional or behavioral problems [9, 10].

Studies have shown that people with hearing impairments have stress, difficulties in communication even before using face masks, fear of infection with the highly contagious virus, fear of losing loved ones, false or misleading information about the COVID-19 pandemic, and lack of Medical treatment, lack of properly equipped units to treat patients, and problems related to the lockdown (such as prolonged isolation at home, social distancing, food insecurity, fear of unemployment, loss of income) were associated with psychological problems such as stress, anxiety, and depression among them, along with these factors [11], exposure physical or sexual abuse, disasters most common causes of post-traumatic stress disorder, it is widely recognized that acute illness and admission to critical care are potentially traumatic events [12].

Post-traumatic stress disorder (PTSD) is a condition that can develop after experiencing very traumatic events such as interpersonal violence, irritability, hyper-vigilance (a state of sensitivity to threat or preoccupation with the possibility of danger), fighting, life-threatening accidents or natural disasters, traumatic and intrusive memories, difficulty sleeping, poor concentration, and emotional withdrawal [13]. Its stressful shock situation, which may be difficult to control, raises a kind of panic, anxiety, fear for life or property, affects the behaviors, attitudes, or relationships of the individual, as the effects of psychological stress do not begin to appear until the person begins to recall images of the events that occurred. Sorrow and sadness resurface in his soul during his daily life, and its previous influence begins to appear again [14].

Post-traumatic stress appear in the individual as the experience of the traumatic event through imagination, dreams, nightmares or thoughts repeatedly in memory, denial of the traumatic event such as avoidance responses, a sense of isolation, lack of interest in activities, weak affective and emotional responses, increase in emotional responses such as anger, fear and anxiety, resorting to deviation drug and alcohol abuse, sleep disorder, poor concentration, frequent outbursts of extreme anger. Likewise, a state of disintegration in mental activity may occur in the victim, with a duration ranging from seconds to a number of hours, or even days. This allows the components of the traumatic event to relive in memory. The individual behaves as if the traumatic event had occurred right now [15].

The Diagnostic and Statistical Manual of Mental Disorders (DSM-5) [16] determined the criteria for diagnosing PTSD to include exposure to actual or threatened death, serious injury, or sexual violence, presence of one (or more) of intrusive symptoms associated with the traumatic event, beginning after the traumatic event occurred, continued avoidance of stimuli associated with the traumatic event after the event has occurred, negative changes in cognition and mood associated with the traumatic event that begin or worsen after the traumatic event, observable changes in arousal and reactivity associated with the traumatic event that begin or worsen after the event, and the disturbance is not attributable to the physiological effects of a substance (e.g., medication or alcohol) or to another medical condition.

Studies have shown that the hearing impaired can exposed to post-traumatic stress disorder because of their disability, and they need to overcome this trauma through targeted coping strategies, they are at risk of exposure to traumatic events associated with symptoms of psychological disorder about painful events, with an average of (6.2) types; (85%) of them reported exposure to post-trauma, and the patterns of trauma in both sexes are like those found in auditory clinical samples [17, 18].

Hearing-impaired students at university experience psychological abuse, physical abuse, and sexual coercion as abuse, even when these experiences involved severe violence. The severity of deafness increases the risk of exposure to abuse [19].

Post-traumatic stress disorder is the most common diagnosis in hearing-impaired, they are more likely to be diagnosed with a mood disorder, anxiety disorder, personality disorder, developmental disorder, at risk of self-harm, and sexual abuse. They are often in boarding schools and far from the family's home, which makes them, their families feel exhausted, and most of them bonded with other deaf children in the school and exchanged with them their experiences and common language; They became isolated from their families and more closed with their peers [20, 17].

Schild and Dalenberg [21] indicated higher responses to traumatic experiences among the hearing impaired. It included traumatic events, additional disabilities, sexual orientation, substance abuse, and low social support. Higher levels of trauma exposure were associated with more depression, anger, irritability, and sexual fears. Stress behaviors and drug use problems, and there was no gender difference in the type or number of traumatic events that occurred.

The hearing-impaired need mental health services compared to the general population, and this happens when they have emotional or behavioral problems that require psychological attention, they are not immune to violence such as physical violence, emotional abuse, forced sex (rape). These percentages were higher in the hearing-impaired group, females and males on university are 1:5 times more likely to be a victim of sexual harassment, sexual assault, psychological abuse, and physical abuse than their hearing peers, and these individuals feel particularly vulnerable to abuse [9, 10, 22, 23, 24].

Acceptance and commitment therapy is one of the modern types of psychotherapy that represents a promising intervention for people suffering from complications of both psychosis and trauma. Clinical improvement and changes in psychological processes have been found, as this type of therapy integrates mindfulness and cognitive behavioral principles [25], and studies have shown that acceptance and commitment therapy has become superior to CBT in post-treatment follow-up periods of more than (6) months of follow-up [26]. Studies have indicated the effectiveness of acceptance and commitment therapy in treating people with post-traumatic stress disorder, anxiety, or depression [27].

Fiorillo et al. [28] examined the acceptability, feasibility, and effectiveness of an acceptance and commitment therapy intervention for the treatment of trauma-related psychological difficulties in survivors of personal trauma who experienced forms of personal abuse, including sexual or physical abuse, or childhood sexual or physical abuse. All participants received an acceptance and commitment therapy program. On the internet consisting of six sessions, it was presented over six weeks and assessed before and after the intervention, and the results indicated the effectiveness of the treatment, as a statistically significant improvement was found between the pre and post measurement on the symptom measures of post-traumatic stress disorder, depression, and anxiety. Spidel et al. [29] revealed the effectiveness of acceptance and commitment therapy with psychosis and those with a history of childhood trauma. The results indicated that symptom severity for both generalized symptoms and anxiety decreased over the course of treatment, and participants' ability to regulate their emotional responses (i.e., acceptance) increased.

According to the theory of acceptance and commitment therapy, disorders result from trying to avoid past experiences; Thus, the goal of this therapy is to develop more accepting and aware attitudes towards painful memories and negative conditions rather than avoiding them. The focus is more on reducing and changing symptoms. It includes exercises, role-playing, and metaphors as part of the therapy to address six basic processes [27, 30].

Art therapy focused on the average individual. It also focused on people with special needs, including the hearing-impaired, as individuals living within society and having the right to receive the care and attention that an ordinary individual receives to bring them to an acceptable degree of personal, social, and economic adaptation, which qualifies these groups to contribute to building society and art. Here, it has a leading role in modifying the behavior of these groups, raising their level of awareness of themselves and others, and coping with their pathological conditions, pressures, and traumas they go through, so they improve their cognitive abilities and enjoy life through the practice of art [31].

Art has a major role in modifying the behavior of these groups and raising their awareness of themselves and others, coping with their pathological conditions, the pressures they experience, and the traumas they go through, improve their cognitive abilities, enjoy life by practicing formation in the field of artistic works as art and an auxiliary therapeutic method, satisfying and developing a sense of contentment and happiness to express feelings and ideas that the deaf cannot express verbally, as he finds a natural outlet to vent what is inside him, and thus improves his behavior, and reduces his stress and disorder [32].

Handicraft are adopted as a creative activity that includes sensory, imaginative, and symbolic elements, aiming to attract interest towards beauty, transcend human feelings to integrate and accept integration, committed to learning useful experimental practices, making him an active member of society with an imprint and income, art in different eras has features that distinguish it in each era from others, and nature is considered an important source of inspiration for the artist with its raw materials, and the field of artistic works is one of the fields related to raw materials, their plastic

capabilities and their implemented performance methods [32]. Handicraft based on a variety of materials, traditional crafts, the material in general is one of the basic factors in building any artwork, and it considered the material medium that highlights plastic and expressive values in the artwork [34].

Baza et al. [35] confirmed the effectiveness of a program based on collective art works to reduce negative emotional sensitivity of deaf children, and the continuity of its effectiveness beyond the follow-up period.

Egypt's Vision 2030 focuses on integrating people with special needs into society, given the universal nature of all human rights and fundamental freedoms, and the need to ensure that persons with disabilities enjoy these rights fully and without discrimination, and stresses the importance of integrating the issues of persons with disabilities as an integral part of sustainable development strategies, and recognizes The current and potential valuable contribution of persons with disabilities to the overall well-being and diversity of their societies.

The studies indicated that the prevalence rates of violence at the university level for the hearing impaired were high, (87.5%) reported experiencing at least one experience of psychological abuse, (39.6%) reported physical abuse, (19.6%) reported an injury, and (19.6%) reported an injury. (56.7%) reported sexual coercion, which rates seem shockingly high [36]. Studies also indicated that three-quarters (71.7%) of adult females who are deaf and hard of hearing who receive mental health services have experienced for psychologically abusive behaviors, more than half (56.5%) reported a history of physical violence. Recently, studies have shown an increase in the proportion of post-traumatic stress disorder among the hearing impaired before and after the COVID-19 pandemic, from 17.87% to 46.43% [17, 37].

Based on the above, the current study aims to investigate The Effectiveness of Acceptance and Commitment Therapy Based on The Handicraft in Reducing Post-Traumatic Stress Disorder Among Hearing Impaired at University Students, based on the above conceptual framework, this research established the following two hypotheses for further empirical examination:

H1. There are statistically significant differences in post-traumatic stress disorder between the experimental and control groups' post-test.

H2. There are statistically significant differences in experimental groups for post-traumatic stress disorder between pre-test, post-test, and Follow-up test.

## 2. Method

### 2.1. Participants

The research first group of participants includes 289 volunteer students at Aswan University who responded to Post-Traumatic Stress Disorder for Assessment reliability and validity properties of the Scale. Another group of participants includes 12 volunteers (9 male/ 3 female) hearing impaired students selected deliberately at Faculty of Specific Education, Aswan University to participate in the therapy program. After three sessions; 1 female student withdrew due to unavoidable circumstances. The researchers used the quasi-experimental pre-posttest design, and 2-month follow-up test. Participants randomly assigned equally into the experimental group ( $M = 19.08$ ,  $SD = 3.6$ ) and control group ( $M = 19.47$ ,  $SD = 3.55$ ). There are no statistically significant differences between the experimental and control groups in the pretest scores in Post-Traumatic Stress Disorder.

### 2.2. Measures

#### 2.2.1 Post-Traumatic Stress Disorder Scale (PTSDS)

The PTSD aimed to measure the Post-Traumatic Stress in students. The dimensions and items derived by theoretical literature and previous studies including DSM-5 [16]. The initial form of the scale consisting of (24) items, which presented to 7 experts in psychology, they approved 80% for items except for (2) items. the scale items were (22) items. each item using a 5-point rating scale from 1 (strongly disagree) to 5 (strongly agree), Higher scores reflect high Post-Traumatic Stress. The factorial analysis of the scale items conducted using the principal components method, and the axes rotated using the "varimax" method. The results were four factors; the latent root of which is greater than the correct one, and explained (75.71%) of the total variance, and thus the number of scale items in its final form was (22) items. Traumatic experience restoration factor (6 items), with total variance (21.07) and latent root (4.56); Avoiding the stimuli of the traumatic experience factor (6 items), with total variance (19.65) and latent root (4.32); Arousal of the traumatic experience factor (5 items), with total variance (17.77) and latent root (3.91); Traumatic experience emotions factor (5 items), with total variance (17.22) and latent root (3.79).

The reliability of the scale was calculated using Cronbach's alpha (0.81, 0.80, 0.84, 0.80), and the total score (0.88). The internal consistency was calculated using Pearson correlation coefficients, and the values of Traumatic experience

restoration dimension ranged between (0.69-76), avoiding the stimuli of the traumatic experience dimension between (0.64-0.77), arousal of the traumatic experience dimension between (0.81-0.87), and Traumatic experience emotions dimension between (0.80-0.89).

### 2.3 Acceptance and Commitment Therapy Based on The Handicraft program

The goal is to increase the ability to communicate with the current moment completely and consciously, maintaining or changing behavior if this achieves goals, and uses basic psychological processes: acceptance, cognitive diffusion, being present, self as context, the subjective values, the commitment to reduce post-traumatic stress disorder. ACT was based on the foundations of psychological and educational counseling (considering age characteristics, individual differences, gender differences and growth demands), philosophical foundations (taking into account human nature and the ethics of psychological counseling), and social foundations (concern for the individual as a member of a group, benefiting from all the resources of society). ACT relied on the techniques and methods such as lecture, discussion, dialogue, role-playing, acceptance, connection to the present, self-compassion, cognitive separation, self-reflection, thoughts, refuting ideas, persuasion, cognitive reconstruction, the empty chair, feedback, humor, fun and homework [38, 39, 40].

Performing techniques and methods used to implement artistic crafts, including twisting, cutting, deleting, adding, cutting, sawing, gluing, filing, coloring, braiding, tassels, bead systems, weaving with weaving structures, hollowing out, and various forming methods [41].

The Handicraft are system stems from the formation systems that the art practitioner achieves from artistic and aesthetic values, requires performance techniques that are compatible with the nature of the materials. Through it, the individual can express himself in one of two ways: The first: the completion of works that have utilitarian functions, in addition to their artistic value, by making use of the foundations of design. The second: Doing things with a purely aesthetic goal, including the three-dimensional stereoscopic and the flat two-dimensional ones [42]. The therapeutic sessions consisted of fifteen sessions, in 50-minute group sessions. including assessments in the first and the last session.

## 3 Statistical Analysis

SPSS v. 28 program was used to analyze data. The non-parametric analysis was used due to the limited sample size. The researchers used Mann-Whitney U Test to compare means of PTSD between experimental group and control group on the pre-test, and post-test, and the Friedman test on the pre-test, post-test, and at the 2-month follow-up test.

## 4 Results

H1. There are statistically significant differences in Post-Traumatic Stress Disorder between the experimental and control groups post-test.

Means, standard deviations and the differences between the experimental and control groups in PTSDS are listed in Table 1.

**Table 1:** The results of Mann-Whitney U Test for comparing between Experimental and Control Group post-test in PTSDS

Variable	Experimental Group		Control Group		Mann-Whitney U
	Mean	SD	Mean	SD	
<b>PTSD</b>	46.67	4.72	88.50	5.24	2.88**
Traumatic experience restoration	14.00	1.79	22.33	1.37	2.94**
stimuli of the traumatic experience	13.33	2.07	23.67	2.66	2.89**
Arousal of the traumatic experience	10.00	2.10	20.67	3.08	2.88**
Traumatic experience emotions	9.33	2.07	21.83	2.14	2.89**

\*\* (P < 0.01), PTSDS= Post-Traumatic Stress Disorder

There was a significant difference between the experimental and control groups in the posttest scores of both PTSDS components (p < 0.01). The mean score for PTSDS for the experimental group in the posttest (45.86) is significantly lower than the mean score of the control group (67.71). Additionally.

H2. There are statistically significant differences in experimental groups for PTSDS between Pre-test, Post-test, and



Follow-up test.

Means, standard deviations and the differences between Pre-test, Post-test, and Follow-up in are listed in Table 2.

**Table 2:** The results of Friedman Test for comparing between Experimental Group Pre-test, Post-test, and Follow-up in PTSDS

Variable	Pre-test			Post-test			Follow-up			Chi-Square
	Mean	SD	Mean Rank	Mean	SD	Mean Rank	Mean	SD	Mean Rank	
PTSDS	88.00	6.00	3.00	46.67 <sup>a</sup>	4.72	1.33	47.67	3.98	1.67	10.18**
Traumatic experience restoration	22.83	2.14	3.00	14.00 <sup>a</sup>	1.79	1.33	14.33	1.97	1.67	10.18**
stimuli of the traumatic experience	23.33	2.58	3.00	13.33 <sup>a</sup>	2.07	1.50	13.33	1.86	1.50	9.82**
Arousal of the traumatic experience	20.33	2.58	3.00	10.00 <sup>a</sup>	2.10	1.33	10.33	1.75	1.67	9.33**
Traumatic experience emotions	21.50	2.07	3.00	9.33 <sup>a</sup>	2.07	1.33	9.67	1.37	1.67	10.18**

\*\* ( $P < 0.01$ ), a= significant between Pre-test and Post-test, PTSDS= Post-Traumatic Stress Disorder

There was a significant difference in experimental group for PTSDS between Pre-test, Post-test, and Follow-up ( $p < 0.01$ ). the Friedman Test indicated a significant improvement in the experimental group (Chi-square = 10.18,  $p=0.01$ ), significant difference found between Pre-test and Post-test in Pairwise Comparisons (Sig. 0.04), and not significant difference found between Post-test and Follow-up in Pairwise Comparisons (Sig. 0.56).

## 5 Discussion

The present study investigated The Effectiveness of acceptance and commitment therapy based on the Handicraft in reducing post-traumatic stress disorder among hearing impaired at university students. The findings of the current study indicated that using acceptance and commitment therapy based on the handicraft reduced post-traumatic stress disorder among the hearing impaired students.

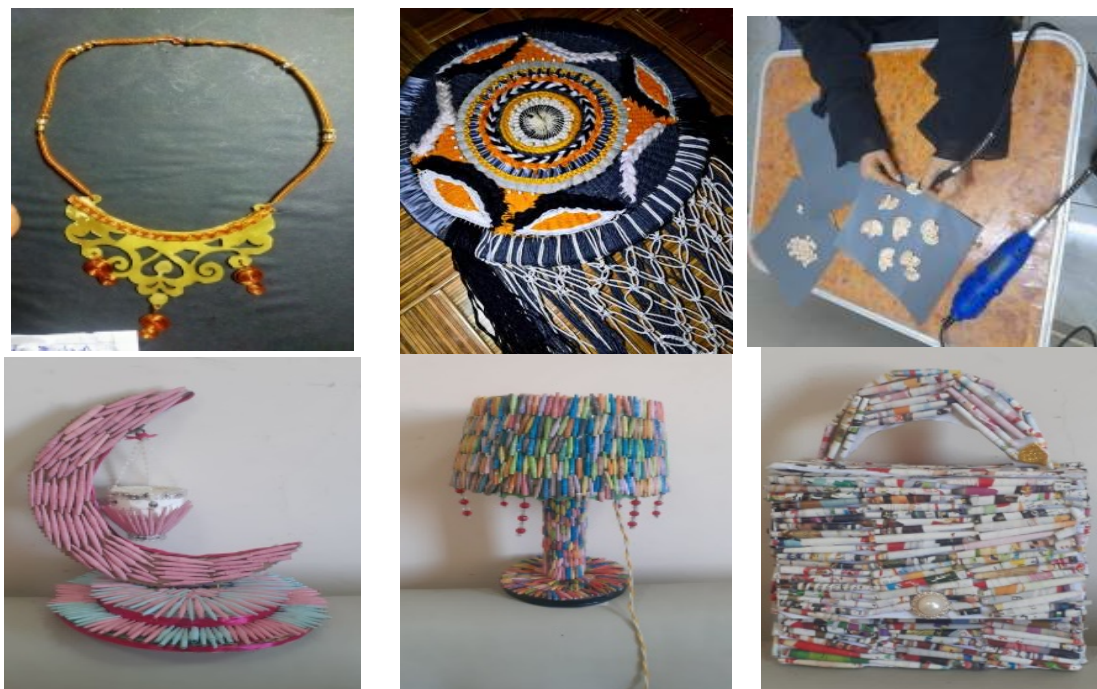
This finding is consistent with the results of prevue's research, who confirmed that acceptance and commitment therapy was effective in reducing post-traumatic stress disorder, trauma, anxiety, psychosis, and childhood sexual or physical abuse [26, 27, 28, 29, 35]. Acceptance and commitment therapy is one of the recent forms of psychotherapy, which holds promise as a treatment for those dealing with the side effects of both psychosis and trauma, instead of avoiding unpleasant memories and conditions. This therapy aims to help person grow more accepting and conscious attitudes toward them. The emphasis is on symptom reduction and modification, and it addresses six fundamental processes through exercises, role-playing, and metaphors as part of therapy [25, 27, 29]. Acceptance and commitment therapy helps experimental group students to change the relationship with their thoughts, encourages them to realize that they have thoughts, but they do not have to feel that they are under the control of these thoughts. Hence, alleviate the symptoms of PTSD by recognizing that the special experiences that occur are the cause of suffering, see the events associated with PTSD as a threat that must be controlled or removed, and helping to understand that attempts to control traumatic events that genuinely and directly aggravate the disorder, and avoid use of emotional avoidance and escape strategies.

The effectiveness of the treatment program can be interpreted due to the program concentration on modifying the person's relationship with his emotions by modifying his thoughts instead of avoiding them, improving self-contact, and enhancing awareness, in addition to the program's inclusion of many techniques and homework that enhanced the positive effect of the program. Training on the program increases the focus on removing avoidance among the experimental group, realizing that not accepting explanations, assessments, and rules as correct and necessary descriptions of reality. Negative thoughts and emotions are not harmful in the perception of acceptance and commitment therapy. On the contrary, members have the concept of acceptance, Acceptance involves the individual's voluntarily experiencing unwanted thoughts, emotions, memories, and physical states. Thus, acceptance does not include the need for or tolerance of experience. It means allowing experience to exist openly without trying to mitigate it or avoid it.

The experimental group benefited from the principles and techniques of acceptance and commitment therapy, achieve through six operations that they were able to implement during and after the application of the program; acceptance, removal, a little cognitive danger, and the fact that the individual is present in the present moment experienced, the sense of self as a context, adherence to a set of values in the many areas of life that the individual passes through, and

the disposition of concern and commitment.

The nature of the artistic works contains the depth of the process of artistic creativity with its various components, as it is a representation, expression, and technical creativity. Its value estimated based on the extent to which conformity and formal consistency achieved, and the aesthetic, creative and functional characteristics that have achieved in the medium formed by raw materials and materials through experimentation as Figure 1.



**Fig. 1:** Example of participants works

As the artifacts are a constructive formation that is subject to artistic and aesthetic systems and values, and aims to achieve civilized elements in society, and the aesthetics of its plastic form play a prominent role in determining its artistic, aesthetic and even functional value as well, as it is a state of compatibility and interdependence between its parts [33].

The role of raw material as a formal intermediary through training to perform a distinctive skill which is one of the most important stimuli that stimulate and stimulate the imagination and creative expression of the students in its formal and formal form, whether it is wood or wood,, And the sub-details and structures and touches translate aesthetic relations expressive, and superficial values embodied the elements of plastic art and its structural basis to achieve the dual function of the mediator to express exciting and inspired to produce artwork based on the relationship between the student and the seriousness of his work to show the functional side The selected craft inspired by folk art [19].

That art in all eras has features that distinguish it in each of the eras from others, and nature is considered an important source of inspiration for the artist, including the materials it contains, and since the field of artistic works is one of the fields related to raw materials, their plastic capabilities and their implemented performance methods [32], nature is considered The artistic works course depends on various materials and traditional crafts, the material in general is one of the basic factors in building any artwork, and it is considered the material medium that highlights plastic and expressive values in the artwork. They had an experience in “Fares Village”, the winning green village in Aswan, and the student “Hala” explained to the women, Figure (1), how to make a box of accessories and a small project for them to profit from, and they were more interested in it. Artistic works are adopted as a creative activity that includes sensory, imaginative, and symbolic elements, aiming to attract interest towards beauty, which transcends human feelings to integrate and accept integration and is committed to learning useful experimental practices that make it an effective member of society with an imprint and income that helps it reduce post-traumatic stress disorder among students The University of the Hearing Impaired

## 6 Limitations and future research

keeping hearing impaired students engaged in the sessions and activity represented a challenge because of the small sample size. Data analysis was depended on non-parametric analysis because of the limited sample size. Future research

should focus on the comparative effectiveness of ACT compared to Cognitive behavioral therapy using a larger sample size, checking the applicability of applying the therapy on hearing impaired children, and the study recommends the presence of an art education specialist in each educational stage, with high and professional qualification.

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## Conflict of interest

The authors declare that there is no conflict regarding the publication of this paper.

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