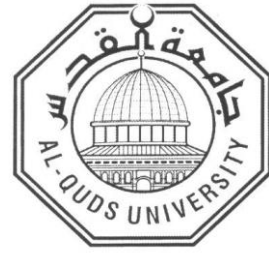


Al – Quds University

Deanship of Graduate Studies

Community Mental Health



**Post Traumatic Stress Disorder and Depression
Disorder among Children Victims of Burns in
Gaza Governorates: Comparative Study**

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M.P.H Thesis

Jerusalem - Palestine

1436/2015

**Post-traumatic stress disorder and disorder depressive among child
victims of burns in Gaza governorates:**

A comparative study

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**Thesis Submitted in Partial Fulfillment of the Requirements for the
Master Degree of Community Mental Health**

Al – Quds University

1436/ 2015

Dedication

*This thesis is dedicated to my parents
who introduced me to the joy of reading from birth,
enabling such a study to take place today.*

Declaration

I hereby declare that this research study submitted for the degree of master in mental health is my own work and effort, and has not been submitted to any institution or university.

In addition I had financial and administrative support from MSF during all my studies in the past 2 years, but I don't have any commercial interests with any official, semiofficial or private organization.

Mohammed Abed Abu Mughaiseeb

Signature:

Date: / / 2015

Acknowledgment

There are a great many people, without which this thesis would not have taken the shape that it has.

Abed Aziz Thabet, my supervisor, and intellectual guide, for sharing with me, your vast knowledge, your many considered judgment, and your deep generosity of spirit. Thank you for striding the hurdles of time, geography and knowledge to enable my learning and my experience in growth.

Abed Abu Mughaiseeb, my great father, for firstly stimulating an interest in the world of community psychology and public health, and thereafter involving me in countless intellectual and social adventures, often across many time zones, my thanks to the opportunities you have unselfishly offered.

The many generous and kind parents and their children who participated in this study, and displayed a remarkable cooperation and commitment.

I would like to greatly thank Medicine San Frontiers for professional and financial support of my study, and their commitment and encouragement to pursue my study, and the medical college staff in MSF rehabilitation clinics for collecting the data and their magnificent devotion.

And finally, to my life partner, Hala, and my beloved kids Abed, Malek, and Rena, who have forever changed my life, my place in this world, and brought a long overdue balance to my life, my deep love to you.

Abstract

Burn injury in children is a traumatic experience to them and to their families. The aim of the study is to examine the prevalence post traumatic disorder and depression in children burns victims compared to a control group in Gaza Strip governorates, the population consisted of total 67 children with burn who were referred to two rehabilitation clinics for MSF in Gaza Strip and 126 control cases. From the total sample, 37 of children with burn were boys (55%) and 30 were girls (45 %), while 63 of control group were boys (51%) and 62 were girls (49%). The age ranged from 3- 14 years with a mean age of 5 years.

Results: The study showed that the most common cause of burn was hot fluids- hot water, hot tea, and hot oil, while the least common cause was burn contacts with plastic material, according to degrees of burn, 9 % had first degree burn, 76.1 % had second degree, and 9 % had second and third degree, and 6 % had third degree. The most affected body areas were lower extremities (37 %), trunk and neck (25 %), upper extremities (25 %), face and neck (6 %) each.

For psychopathology of burn children, the most common post-traumatic stress symptoms reported by children 7 years and above were: unable to recall the traumatic events of burn events 61%, upset by some things which reminded him/her of burn events 56 % and avoiding things or situations which remind him of events 56 %. For post-traumatic stress disorder, 7% of children reported no symptoms, 27% reported one cluster of symptoms, 33% reported partial, and 33% reported full criteria of PTSD. For preschool age children 13.5% reported no PTSD, 27 % reported one cluster of symptoms, 36.5 % reported partial criteria (2 cluster symptoms), and 23% reported full criteria of PTSD.

In comparing depression between children with burn and control group, the most common depression symptoms rated by mothers of burned children aged 3-6 years injured were: 96% needs support in activities, 96% feeling rejected, 96% needs reassurance, 92% anxious and worried and ,92% moody , grouchy and irritable. Depression symptoms in those 7 years and above 47% do not have lot of energy, 35% do not look forward, 29% do not like to go out and 29% feel like running away.

This study showed clearly a marked load of psychological symptoms in children subjected to burn trauma (Anxiety, Depression and PTSD) compared to normal control.

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List of abbreviations

ASD	Acute Stress Disorder
ANOVA	Analysis of Variance
BDI	Birleson Depression Inventory
DSM-IV-TR	Diagnostic and Statistical Manual of Mental Disorders forth version
DSM-5	Diagnostic and Statistical Manual of Mental Disorders fifth version
GAD	Generalized Anxiety Disorder
GS	Gaza Strip
MDD	Major Depressive disorder
MOH	Ministry Of Health
MSF	Medicines Sans Frontiers
NIS	New Israeli Shekel
NRS	Numeric Rating Scale
NSAIDs	Non-Steroid anti-inflammatory drugs
PCDC	Preschool Children Depression Checklist
PTSD	Post Traumatic Stress Disorder
SPSS	Statistical Package of Social Science
SSRIs	Serotonin-reuptake inhibitors
TBSA	Total Body Surface Area
USA	United State of America
WHO	World Health Organization

Chapter I

1. Introduction:

This topic was chosen as it is often an area overlooked in burn centers and is very relative to the care provided by medical staff. When gathering research studies only English language papers were reviewed these were assessed from online database such as PsycINFO, PsycARTICLES, Academic Search Premier, PubMed and Ovid. The literature reviewed consisted of many different styles of research studies mainly from academic journals. Search words were generated when searching for studies which are related to the topic, these words were included: Burns, Burn injury, depression, anxiety, Post-traumatic stress disorder, coping strategies and social implications, although there were a wide variety of studies, but there was no Palestinian studies found regarding this topic.

Burn injuries are serious traumatic events for anyone, especially children. The morbidity and the mortality rates of them are tremendously high. In USA, burn injuries cause around 3000 deaths per year, and 1 million emergency department's visits (The Merk Manual, 2006). Burn injuries neuropsychiatric sequels are the most neglected aspects of the care provided to burn victim. This co-morbidity is usually unknown by health professionals working in this area. It's also unknown, that adults suffering from a psychiatric disorder such as mood disorder, anxiety disorder, personality disorders, drug addiction and psychotic disorder (Pavan, 2012) are more at risk of burn accidents than the general population; unfortunately, there isn't clear data on child population regarding this matter.

1.1. Study Problem:

Gaza inhabitant population is under tremendous stressors due to several factors: siege since 2007 up till now, poor material resources and poverty, danger to physical and psychological integrity due to repeated devastating wars, this afore mentioned stressful factors affect the ability of individuals to cope and maintain reasonable level of adaptation.

The individual variance in coping strategies to stress resulted in emergence pf psychological symptoms and impairments in function and quality of life. Stressful struck

patients are prone to accidents of several types including burns (Natalia et al, 2012). This promoted us to look for the not uncommon and man-made traumatic stress (burns) in Gaza Strip area as this subject have not been touched before, mainly children, this group are still in their potential path of development and burn trauma may have everlasting physical and psychological sequelae.

1.2. Study justification:

Several studies in Gaza Strip dealing with psychological symptoms in stressful situations and effects on quality of life of Palestinian population (Thabet .AA, et al , 2008, 2009), are done with focus on stress, mood disorders and post-traumatic stress disorders resulting from siege and wars. As burns trauma have never been studied in our Palestinian child population, this study was initiated to fill the gap of spectrum of these several stressors on our unfortunate vulnerable young children by traumatic burn injuries which can be reduced markedly and hopefully be eradicated, this main themes of clinical interest in these children were depressive and PTSD and anxiety symptoms were frequently reported in burned patients (Palmu et al, 2010).

1.3. Study goal:

Palestinian people in Gaza Strip are living under very stressful conditions, this has been created by continuous siege from 2007 up till now and the destructive war attacks by Israel (3wars). Observation and studies showed a marked increase of psychopathology symptoms, with clinical feature of PTSD, stress reaction, anxiety, and depressive symptoms (Thabet et al, 2009).

In this study we focus on one serious traumatic events, that is burn in which there is remarkable clinical psychopathological symptoms both acute with event of burns and chronic PTSD evolutionary to burn trauma, with serious impact on and influence on quality of life, rehabilitation and reintegration of burned victims to pre-trauma function.

The group of burned victims we choose in our study are children 3-14 years of both genders and matched control in socio-demographic factors from different areas in Gaza

Strip who attend MSF clinics for burn care and treatment, the source of referral is either self-referred or from the governmental health centers and hospitals.

1.4. Specific research objectives:

- To identify the presence of PTSD symptoms in burned children and their prevalence, intensity, and severity.(this evaluated by the presence of full criteria of PTSD, partial criteria or single symptoms variable).
- To determine the prevalence of depressive symptoms in burned children and matched control.
- To recognize the causative agents causing burn trauma in our community children victims.
- To predict coping strategies and preventive measures necessary to avoid exposure to burn in young children.
- Psychosocial attitude and awareness of accident prone children vulnerable to trauma in general and burns in particular.

1.5. Context

Palestinian people in Gaza Strip are under severe unfavorable and harmful stresses, siege since 8years, and repeated exposure to destructive wars, increase psychological decompensation and disorders, this scene is complicated by disadvantageous socio-economic factors (poverty, unemployment, unsuitable residential places, involvement of young children in home chores and works). In this situation children are the vulnerable groups of these ailments and stressors including burn injuries.

In Gaza Strip, MSF runs two clinics offering postoperative care to help patients recovering from trauma and burn injuries, most of the time, after they have been discharged from one of Gaza strip hospitals' burn units. Most of these clinic's patients are children, victims of burn injuries, aged from few months to 17 years old. These injuries are caused by domestic accidents due to electricity cut or shortages of fuel which force people to find alternative

means to cook or heat their homes. Children are burned by hot liquids, flames or electric wire. The care offered includes physiotherapy, dressings and psychological support.

Short term psychotherapy has been provided for some patients in need, more and more each month, through a clinical psychologist based in each clinic.

MSF is an international, independent, medical humanitarian organization that delivers emergency aid to people affected by armed conflict, epidemics, natural disasters and exclusion from healthcare. MSF offers assistance to people based on need, irrespective of race, religion, gender or political affiliation. MSF is present in the Palestinian Occupied Territories since 1989 and in Gaza strip since 2000, running medical, surgical, and mental health projects. In Gaza strip, the activity is also focused on plastic surgery, reconstructive surgery and hand surgery for patients suffering from serious burns, trauma and other debilitating injuries. Specialist surgeons, anesthetists and operating theatre nurses work alongside Palestinian colleagues in the two main public hospitals (Shifa & Naser), during surgical rounds.

1.6. Definitions:

1.6.1 Burn injury:

Is defined as damage to the skin or other body parts by extreme heat, flame, or contact with heated objects or chemicals.

1.6.2 TBSA:

Size refers to the extent of area of the body damaged and is expressed as a percentage of total body surface area (TBSA)

1.6.3 PTSD:

A common anxiety disorder that develops after exposure to a terrifying event or ordeal in which grave physical harm occurred or was threatened.

1.6.4 Depression:

An illness that involves the body, mood, and thoughts and that affects the way a person eats, sleeps, feels about himself or her, and thinks about things.

Chapter II

2. Conceptual framework & literature review:

The reaction of the individuals to traumatic events and stressors whether burns accidents or others differs greatly and the resulting symptoms in heterogeneous in presentation. This depends on various factors both negative and positive to give a final outcome to burn trauma (see figure 1) for detailed display of interacting variables.

As shown in (figure 1) we are going to study the prevalence of PTSD and depression among burn children and depression among control group and to find the main differences between the two groups in depression and in relation to other socioeconomic variables such as sex, age, place of residence, family monthly income, and number of siblings.

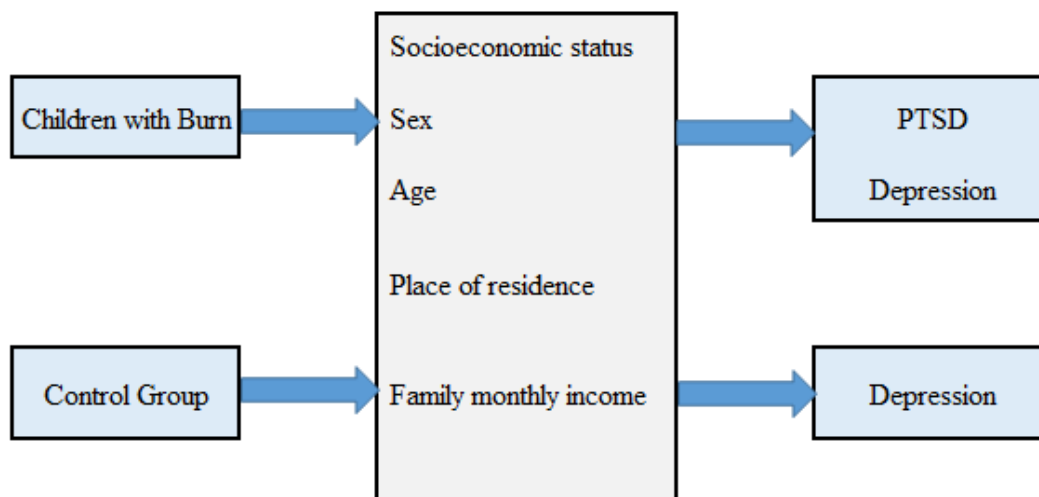


Figure 1 : Conceptual frame work of study

2.1. Trauma and stressor related disorders:

Trauma and stress related disorders in which exposure to a traumatic or stressful event is listed explicitly in DSM-5 as diagnostic criterion; these include reactive attachment disorder, disinhibited social engagement disorder, post-traumatic stress disorder, acute stress disorder and adjustment disorders (DSM-5, 2013).

Psychological distress following exposure to a traumatic or stressful event is quite variable, In the sense that many individuals exhibit a phenotype in which, rather than anxiety or fear-based symptoms, the most prominent clinical characteristics are anhedonia and dysphoric symptoms, angry and aggressive symptoms or dissociative symptoms, of clinical distress following exposure to catastrophic or aversive event, the DSM-5 grouped the aforementioned disorders under a separate category: Trauma- and stress – related disorders.

Furthermore, it is not uncommon for the clinical picture to include some combination of the above symptoms (with or without anxiety or fear-based symptoms). Such a heterogeneous picture has long been recognized in adjustment disorders as well.

Social neglect that is, the absence of adequate care giving during childhood is a diagnostic requirement of both reactive attachment disorder and disinhibited social engagement disorder (DSM-5, 2013). The internalizing symptoms of these are depressive symptoms with withdrawn behavior and the externalizing symptoms are angry and aggression (Pavan, 1996).

The exposure to burn trauma is one of the most serious and distressing event a child can face. Children are vulnerable group for accidents of serious nature especially falls and burns are the most prevalent in the childhood trauma scene. Thus burns in children represent an important cause of mortality, morbidity with serious physical and emotional sequelae. Male children have higher levels of burns incidence which probably due to gender difference in behavior compared with girls and this is observed in different cultures in which family impose greater surveillance among girls and boys have more chance to explore and develop risky behavior exposing them to accidents of several types including burns (Natalia et al, 2012).

Burns accidents events in childhood are quite related to gender, age, development phase, and presence of physical or mental impairments. Most burns injuries in children occur at home, the causal agents, hot fluid, chemicals, inflammable products, hot metals, electric plugs and wires. In late childhood periods flames are more frequent, traumatic burn injury cause damage to the skin or other body parts by extreme heat, flame or contact with heated objects or chemicals (William, 2012).

Burn victims often suffer from psychiatric disorders and there a clear connection between the extent and severity of injuries, total body surface area (TBSA) and mental illness (see figure 2.1) particular anxiety, mood disorders, and post-traumatic stress disorders (Pavan et al, 2012), older and children are usually less able to cope with traumatic experiences. For example up to 80 % of children suffering from burns develop PTSD 1 or 2 years after the trauma versus 30% of adults (Pavan et al, 2012).

The impact of burn injuries on health service is tremendous. In USA about one million burn victims occur every year, 500 thousands are attended at emergency services and 40 thousands are hospitalized (Gonclaves et al, 2012), deaths due to burns are the fifth common cause of non-intentional trauma and the third cause of fatal trauma at home (Yoder et al, 2010).

Burns are a global public health problem, accounting for an estimated 265,000 deaths annually. The majority of these occur in low-and middle income countries and almost half occur in the WHO south-east Asia region (WHO, 2014), In many high-income countries, burn death rates have been decreasing, and the rate of child deaths from burns is currently over 7 times higher in low-and middle-income countries than in high-income countries.

Not only mortality but also non-fatal burn are escalating and leading cause of morbidity, including prolonged hospitalization, disfigurement and disability, often with resulting stigma and rejection. In 2004, nearly 11 million people worldwide were burned severely enough to require medical attention (WHO, 2014), In India, over one million people are moderately or severely burnt every year. Data from some countries also mirror the seriousness and wide spread burn injuries. In Bangladesh nearly 173,000 children are moderately or severely burnt every year, 17% of them have temporary disability and 18% have a permanent disability. In other countries particularly Nepal, burns are the second most common injury accounting 5% of disabilities. Figures from WHO reveals regional differences in burns rates.

Children in African under 5 years have almost 3 times the incidence of burn deaths than infants worldwide, the boys less than 5 years in Eastern Mediterranean region are almost 6 times as likely to die from burns as boys in European region.

In burns injures females and males have broadly similar rates, this is in contrast to the usual injury pattern, where the rates of injury for the various injury mechanisms tend to be

higher in males than females. In children the presence of physical or mental disability is a risk factor for burn injury with improper adult supervision and child maltreatment, as children are particularly vulnerable to burns, serious burn injury leading to death in children aged 1-9 years are the 11th leading cause among them and the fifth most common cause of non-fatal childhood injuries(WHO , 2014).

The economic impact of burn injury is huge. In 2000, direct cost for care of children with burns in USA exceeded 211 million dollars. In Norway, cost for hospital burn management in 2007 exceeded 10.5 million Euros. In direct costs such as prolonged care for deformities and emotional trauma, and commitment of family resources, also contribute to socioeconomic impact (Brigham, 1996), what is more noticeable is that people living in low- and middle-income countries are at higher risk for burns than people living in high-income countries. Within all countries however, burn risk correlates with socioeconomic status (WHO, 2014), other important risk factors for children in burn injuries are poverty, overcrowding, lack of proper safety measures, placement of young girls in household roles such as cooking and care of small children. And children burns occur for this reason mainly at home in domestic kitchens, from upset receptacles containing hot liquids or flames, or from cook stove explosions.

Due to advancement of medical care for burns and increased awareness of its impact among medical profession and public, the incidence of burns accidents declined. In a recent evaluation it has been found that the incidence level of burns decreased in recent years from 10 cases per 1000 in 1950 to 4.2 per 1000 in 1990 (Brigham, 1996). And the symptoms clusters maybe few and sub-syndromal or the psychological distress is fully apparent in well recognized disorder which met diagnostic criteria of trauma and stressor related disorders, especially in those with preexisting psychopathology and poor coping through dysfunctional and disruptive strategies (Dalal et al, 2010).

The premorbid psychopathology maybe proposed as proneness or vulnerability risk factors for burn trauma in the same ideas of accidents prone people including car accidents, and it is logic to assume that impulsive, aggressive and reckless traits of personality put a risk factor of great magnitude.

2.2 Psychological effects of burn children

2.2.1 Acute stress disorder

Acute stress disorder (ASD) as defined by DSM-V is composed of dissociative symptoms, intrusive, avoidant and arousal symptoms with negative mood criterion added in DSM-V version.

Acute stress disorder occurs easily in burn trauma (first week), dissociative symptoms are prominent from beginning (de-realization, emotional numbing, depersonalization, reduction of awareness of ones surroundings). These can be observed in various types of accidents (Speigel,1992) (Cardina et al, 1993). In preschool children, acute stress was reported in 25 % - 29 % of the children (De Young, 2012). Separate symptom clusters were highly prevalent: 80 % for re-experiencing, 62 % for avoidance, and 39 % for arousal (Stoddard, 2006), negative mood features such as sad, fearful, irritable, angry and withdrawn.

In school-aged children, acute stress disorder (ASD) was diagnosed in 31 % of the children within the first 2 weeks post burn injury (Saxe et al, 2005), the duration of symptoms requirement is three days up to one month and can typically begin immediately after burn trauma. .Acute stress disorder with anxiety and depressive features are prevalent in various studies 18%-26 % (Medianos et al, 2001). (Difeda et al, 2002).

Wide range of psychological distress and symptoms are expected in the plethora of seriousness of burn trauma results, such as losses, pain, disfiguring, distorted body image, sleep disturbance and social dysfunction, the well-recognized psychiatric disorder following burn injury is PTSD – Post Traumatic Stress Disorder. Some authors found moderate to severe depression in high proportion of burn survivors (Wiechman S.A et al, 2001), and anxiety features in those who recover from severe burn injury 65 % compared to 55 % in those with non-burn injury (William et al, 2008). **See Annex 6: DSM-5 Diagnostic Criteria for Acute Stress Disorder.**

2.2.2 Post-Traumatic Stress Disorder (PTSD)

It is well established that trauma-exposed children and adolescents run considerable risk of developing posttraumatic stress disorder (PTSD). Since Terr (1981; 1983) first described

posttraumatic stress symptoms in children (Saigh, 1996), the study of pediatric PTSD has shown an exponential growth, the Prevalence of post-traumatic disorder in trauma exposed young children varies between studies with rate 25 % (Bryant, 2004) to 76.5% (Khamis, 2008), on average 30% of traumatized young children develops PTSD.

Post traumatic disorder is a major mental illness in acute burn injury. Exposure to perceived life threatening trauma or event, must involve intense personal emotional response that results in social or occupational impairment (Ibrahim et al, 2013), (APA-DSM-V, 2013), to qualify for post-traumatic stress disorder diagnosis, the complication of PTSD economically is tremendous. In 2005 US war Veterans were receiving disability compensation for this illness, for a cost of 4.3 billion USD, this is because of the frequently correlated agonizing pain, mental stress, extended admittance in hospitals, permanent amputation, contractures formations, all of which contribute to the enhancement of physical and mental disability and impairment in social and occupational domains, and quality of life (Ibrahim et al, 2013) mentioned that the incidence of burn injury homicidal in India – Pakistan region has always been astronomical in rates and that 10.9 % of total admission in Khayber-teaching hospital of Peshawar was due to burn injuries.

Early literatures identified mental health consequences of burn injury resulting in dissociation experiences, avoidance, and acute grief in those hospitalized for burn injuries (Tedston et al, 1997), and the rate of PTSD reported by (Bryant et al, 1996) was 45 % in adults 12 months after burn injury. Diagnosis of PTSD can only be established more than one month after the traumatic event; screening instruments for detection of symptoms (intrusion, avoidance, and hyper arousal) are useful to identify those at risk and in need of treatment.

The predisposing risk factors associated with PTSD were younger age (adolescents), gender female, and greater total body surface area injured by burn (Loey, 2003), also found that anxiety related to acute pain was a predictor of PTSD symptoms after burns and long after discharge from hospital, and that pain severity was the most robust predictor of later expression of suicidal ideas and thinking.

This has been observed in different types of trauma with disproportionate suicidal rates among individuals suffering from different type of pain, the size and severity of burn injury do not always predict psychological outcome in children, factors such as family cohesion, support, and loving style in children rearing.

Behavior and conduct problem in injured children pre burned trauma are complex interplay of factors which can enable us to understand why a person with minor burn trauma may have devastating psychological reaction, whereas some with massive burn injury may adjust surprise (Taal et al, 1997), the pain perception in burns has a large psychological component and attracts a strong attentive response because of the potential threat of damaged tissue associated with the sensation (Linzette, 2012).

Patient comfort and compliance during wound care and rehabilitation as well as successful healing of the wound, is essential in achieving optimal functional outcomes and quality of life post-injury (Linzette, 2012). Adequate pain management in burns injured patients stressed by several authors to make the rehabilitation process as well as the entire recovery process less distressful and improve compliance and recovery process (Hoffman et al, 2011).

As burns injury is a most painful experience to child victim, and their emotional problems experienced have long been overshadowed by the emphasis on survival, Child undergoes various stages of maturation and adjustment that parallel the stages of physical recovery, adjustments of burns injury seem to involve interplay between the child temperament before the injury, moderating environmental factors and ensuing medical care, Understanding the process behind emotional suffering of children following burns will help the clinicians to recognize the psychiatric sequelae. (Taal et al, 1998). This will help in appropriate psychiatric services to patients with burn and will help in speeding up their recovery.

Rehabilitation into their social, academic and family situation will thus be more easily achievable if emotional needs of the victimized child can be handled more effectively, quality of life in children surviving massive burns can be improved by multidisciplinary after care and family support, family services should be incorporated into both acute management and follow up care. In addition children should resume age appropriate activities including school, as soon as possible after discharge (Sheridan et al, 2000).

As children cognitive development are not able to process or rationalize the traumatic burn event, which leads to persistence of the distress and avoidance behavior, emotional paralysis and para arousal, Post-traumatic stress disorder (PTSD) usually develops sometimes after traumas, the delay maybe relatively short or perhaps as long as 30 years (Paven et al, 2012). Symptoms may fluctuate over time and more intense in stressful

periods. Around 10 % show no improvement, the remaining either recover or maintain mild symptoms. Children are less able to cope with burn experiences, for example, up to 80 % of children suffering burns develop PTSD 1 or 2 years after trauma.

Those surrounded by a stronger social support network are more greatly protected against the development of PTSD, or develop less severe form, and tend to have better and quicker recovery (Lu et al, 2007). **See Annex 7: DSM-5 Diagnostic Criteria for Post-Traumatic Stress Disorder.**

The main therapeutic approaches are supportive and encouragement to discuss the burn event, sleeping pills and mild sedatives can often also help as well as anti-depressants such as Imipramine and Amitriptyline, which have proved to be effective in both anxiety and reactive depression.

Some Selective-Serotonin Reuptake Inhibitors (SSRI) can also be helpful in treating symptoms, especially in the acute phase. Other drugs may also be useful in PTSD – symptoms and signs, (Stanovic et al, 2001) reported on use of Risperidone in burn trauma in adults 10 in number in retrospective study. Risperidone is an atypical antipsychotic medication that demonstrate significant α - noradrenergic antagonism. It showed moderate to high efficacy with PTSD – related symptoms including pain, nightmares, distressing symptoms, negative mood and aggression. the dose which Stanovic used 0.5 mg – 2 mg , average 3 mg and no reported side effects. As the sample is small and patients are adults with no long term follow up, its use in children with burn trauma have to be selected with high care and close observation by psychiatrist.

The study of Harmon & Riggs reported also a beneficial effect of clonidine in PTSD in seven preschool children (ages 3- 6) with a diagnosis of PTSD received open treatment with clonidine at dose range of 0.05 -0.15 mg per day, (Harmon et al, 1996), the minority of children showed at least moderate improvement in hyper-arousal, hypervigilance, insomnia, nightmares and mood lability, the rationale for use of Risperidone is the reduction of central nervous system (CNS) adrenergic activity, same as clonidine, Norepinephrine appears to play important role in acute stress and post – traumatic stress disorder (PTSD) symptoms such as arousal, nightmares, vigilance, and selective attention.

2.2.3 Mood Disorders in burn injuries

Major depressive disorder is categorized, in the DSM-5, under mood disorders. The estimated lifetime prevalence is 6% across the world (Waraich, 2004). The symptoms can vary from one to another patient, but include a depressed mood or loss of interest/pleasure in daily activities lasting for a minimum of 2 weeks. These symptoms have negative consequences on the individual's routine activities and/or relationships.

Of all mood disorders, major depressive disorder is the most frequent reported in burn injured patients, 15 to 21 % (Palmu et al., 2010). Many studies have found that, of all the negative psychological outcomes, depression is a common childhood psychological reaction to burn injury (Patterson et al., 1993). And as stated by Lawrence et al. (2006) depression is the most common mental consequences of burn trauma. There isn't any clinical difference in terms of symptoms quality between major endogenous depressive disorder and a depressive episode caused by a traumatic experience .

A major and necessary distinction has to be made between major depressive disorder and adjustment disorders to life events such as burns. An adjustment disorder is, by definition, directly related to an acute event which happened in the previous three months and should last no longer than 6 months after the event. The prognosis is better than the major depressive disorder one or anxiety disorders ones .

Most burn survivors' depression index is within mild to moderate range (Wiechman et al., 2001). However, moderate to severe depressive disorders have been found in 18 to 45% of burn survivors, several years after their physical injuries healed (Thombs et al., 2007). One study, with a child population with minor burns, didn't report depression as a consequence, several weeks up to 4 years after the burn (Fukunishi, 1998). However, two cross sectional studies found major depression in 3 % of a 7 to 19 years old child population; 9 years after the incident (Stoddard et al., 1992), and in 9 % of young adults, 14 years after the burn (Meyer et al., 2007). Long-term cross-sectional studies on depression-related concepts, such as mood and psychological adjustment, have reported mixed results. Overall depression ratings in adolescents 3-14 years post burn were higher compared to both healthy controls and controls with fractures (Rivlin, 2007). The child depressive reactions include suicidal ideation, self-rejection, aggressiveness, irritability, and withdrawal behavior (El Hamaoui, 2002). Furthermore, Stoddard (1982) reported in their study that anger, grief, and guilt were also identified among pediatric burn patients.

In summary, diagnostic studies have shown that depression might be a long-term issue for a small subgroup of survivors. Significant rates of depression were particularly found among survivors of large burns. Depression is linked to anxiety (Stoddard et al., 1992), worse quality of life, negative body esteem, and dissatisfaction with appearance (Pope et al., 2007).

This point towards follow-up studies with goals of tackling different areas of impairments and encourage various professional domains-physicians, psychologist's, social workers, physiotherapists and family all collaborating to improve the health and quality of life of these young burn injured victims. Adolescents and young adults from more positively functioning families (Rosenberg et al, 2006), and with more social support from friends (Orr et al., 1989) were less depressed than others.

2.2.4 Anxiety disorders in burn patients

Anxiety is one of the psychiatric disorders a burned patient can experience. There is a clear connection between injury's extent and severity as measured by TBSA and the development of this mental illness (Pavan et al., 2012).

Anxiety disorders were present in 14% of burned patients before the incident (anxious personality). And in 20 % of cases, the anxiety disorder developed after the incident will last forever (Franulic et al., 1996), state anxiety is what we observe in burned victims; it's due to psychosocial or natural stressful events regarding grieving reaction over the loss of their previous appearance sometimes troubled by reactions of others (Partridge et al., 1995).

There is an issue of appearance and aesthetic especially when there is facial injury or large injury. They have a significant impact on self-consciousness. In consequence, they increase the risk of developing an anxiety disorder (Tebble et al., 2004). And that other magnitude of anxiety disorder across groups of non-burned trauma, burned trauma and neutral reveals a remarkable high anxiety in severe burn injury (Hulbert et al, 2008).

Burn pain is the most excruciating type of pain, in burn injury, it leads to anxiety in viscous circle as shown on the figure 2.3 adapted from (Loncar et al., 2006).

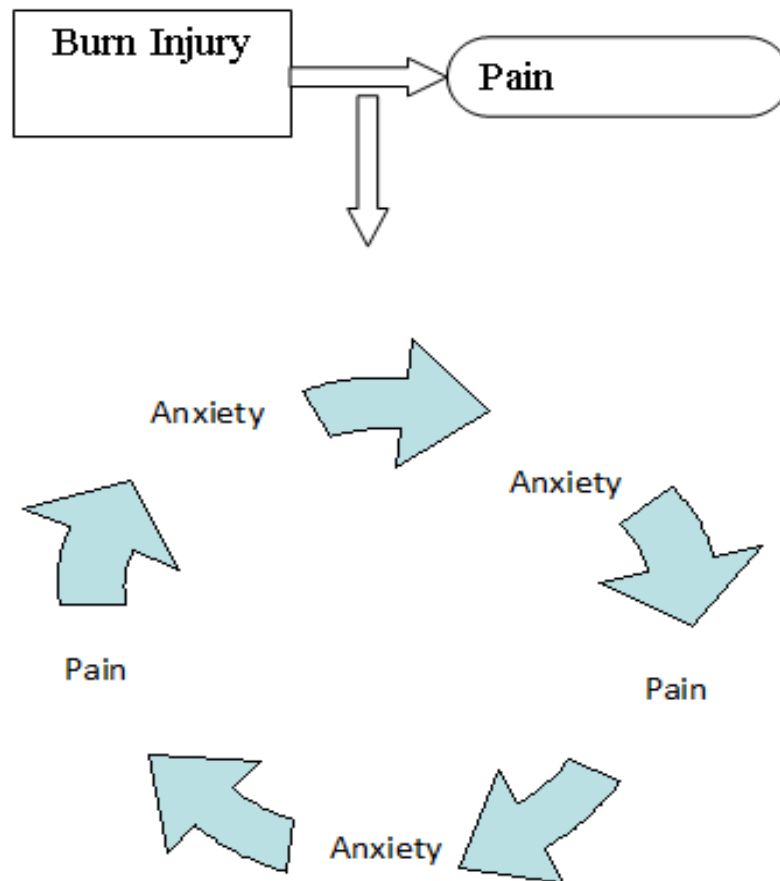


Figure 2: The relationship between burn pain, and anxiety.

An adequate and proper pain management would help a lot to reduce distress, suffering and anxiety of burn injured patients.

2.2.5 Sleep disorders in burned patients

Insomnia and nightmares are reported in 70 % of PTSD cases; and it is core features of PTSD diagnosis. Nightmares are usual symptoms of PTSD; they seem to predict the emergence of acute and chronic PTSD (Pavan et al., 2012). Strategies based on emotional and therapeutic effective family approaches can reduce the frequency and intensity of nightmares events, and it's prudent to monitor burned patients to evaluate the risk of acute and chronic PTSD (Low et al., 2006).

Children who are severely burned have a high risk of developing sleep problems, which in return have significant adverse effect on their recovery. Difficulty falling asleep, increased arousal, nightmares, and increased daytime sleepiness are common in the acute phase and may persist up to one year after the event.

Treatment is divided into two major types: non pharmacological and pharmacological. Non pharmacological treatment, also referred as behavioral techniques, may include one or a combination of the followings: sleep hygiene, stimulus control, sleep restriction, relaxation techniques, cognitive, and light therapy. Pharmacological therapies may include hypnotics (benzodiazepine, non -benzodiazepine, or benzodiazepine receptor agonists), antidepressants, over-the-counter preparations, hormone replacement therapy, herbs, and melatonin. What is suitable for a burned child is the antihistaminic Cyproheptadine; it is useful on both insomnia and nightmares.

2.3 Pain in burn injury

Burn injury pain is arguably one of the most excruciating types of pain known to the mankind and the most difficult type of acute pain to manage (Loncar et al., 2006). It has been reported that patients who didn't receive appropriate pain management, had more chance to develop chronic pain, post-traumatic stress disorder, and associated depression (Taal, 1997). Pain management is one of the most important parts of burn management. Fear and anxiety induced by a negative acute pain experience increases pain perception and causes patient loss of faith in medical staff and poor compliance with rehabilitation therapies (Loncar, 2006).

Routine pain monitoring and treatment is an important aspect of burn management. Pain numeric rating scale (NRS), interviewer administered (verbal) and self-administered (visual), is nearly ubiquitous in health care settings (Kurt et al., 2000). The interviewer is asking the patient: "on a scale from 0 to 10, where zero means no pain and 10 equals the worst possible pain, what is your current pain level?". Adolescents and elder children have good enough development cognition to understand how to respond to this pain assessment. For younger children, it isn't suitable. So, apples pictures can be used, they have different sizes symbolizing the pain the child is experiencing. The physician can also judge from their behavior .

The skin pain threshold temperature is 42°C. Analgesia is best accomplished by cooling, covering the burned area, and opioid IV (Morphine) in a dose weight schedule. In child burned victims antidepressant are useful also as analgesics associated with pediatric formulations of (NSAIDs) non-steroid anti-inflammatory drugs, local Lidocaine in the form of cream or spray. Opioid derivative therapy is recommended as last resort in specialized burns clinics. The importance of this is the often overlooked conception of the importance of the relationship of pain and psychological distress, and that the burn individual feels pain exaggerated by his anxiety during procedure of treatment leading to further anxiety and pain as both positively correlated (Abdi et al, 2002).

This emphasizes the importance of psychological treatment in pain therapy. There are several non-invasive management approaches which are found to be useful adjuncts to pharmacological analgesic, as treatment for both pain and pain related anxiety. These include the following methods:

- ✓ Music therapy.
- ✓ Video games.
- ✓ Attention focusing.
- ✓ Cognitive behavior technique. (Can be used in older children).
- ✓ Relaxation therapy in adolescents.
- ✓ Deep breathing exercise.
- ✓ Patient education and preparation.

Note: desensitization and supportive psychotherapy can be used in older adolescents with good cognitive abilities and willing for cooperation and comply with schedule of therapy sessions (Linzette D Morris, 2012), this component of management ensures prompt social reintegration and optimal quality of life post burn- injury (Sen, et al, 2010).

Chapter III

3. Methodology

3.1 Introduction:

This chapter covers in detail the research methodology that is used to obtain the result of study; this includes search sample, overview of information needed, research design, methods of data collection, methods for data analysis and synthesis, ethical considerations and limitations of the study.

3.2 Study design

This survey is a descriptive comparison study as it is useful in assessing stress related psychological symptoms in a community like Palestinians in Gaza Strip who are already under stress of siege and faced destructive wars and several disadvantages other stress.,

3.3 Study population

The population of burn included all the children with burns injury of the age ranging from 3- 14 years old , and who were coming to the MSF clinics, and the control were chosen from siblings and neighbors of the burn children matching age ,and sex and had no history of traumatic injury.

The total number of children with burn and included in the study was 67 cases, and the control group was 126 children.

3.4 Sampling method

Every child attending the clinic for burn rehabilitation was included in the survey after checking the exclusion criteria. The inclusion for the control group was done the same day or another day, depending of the clinic activity with siblings of child patients, and neighbors.

3.5 Study setting

MSF rehabilitation postoperative program in the Gaza Strip started in 2007 to provide postoperative care (dressing, physiotherapy and medical care) for burn and trauma patients. The medical teams are specialized in providing medical care for burn patients. Around 80% of patients attending the clinics are domestic burn injuries, 60 % are children under 16 years old.

3.6 Eligibility criteria

3.7.1 Inclusion

- Inclusion criteria were: burned injured children, aged over 3 and less than 14 years old.
- Oriented and able to communicate with others.
- Burn injury at least 4-6 weeks.

3.7.2 Exclusion

- Exclusion criteria were:
- Intellectual developmental disorder.
- Epilepsy.
- Chronic physical illness causing motor impairment, sight and hearing function impairment.
- Age under 3 and over 14 years old.

3.7 Data collection procedure

A structured interview with 5 tools has been implemented to collect data directly from burned child parents attending to the MSF clinics in Gaza City and Khan Younis governorates through an interview with one of the medical staff of the clinic (physicians, nurses, and physiotherapists). Information and instructions have been provided to the MSF medical staff about the study. Every ambiguous question has been clarified with them if necessary.

3.8 Data entry and analysis

The researcher used statistical package the social science (SPSS) program, version 20, the stages of data analysis included coding the questionnaire, data entry, data cleaning, constructing frequency table for all the study variables, testing for frequency distribution, cross tabulation for main findings and advanced statistical tests such as Chi square test to compare categorical variables between cases of burns and control, and t test or One way ANOVA test to compare means of numeric variables will be done when required to analyze questionnaire data and will find the difference in PTSD and depression.

3.9 Study instrumentations

The researcher used five instruments to implement his study

3.10.1 Socio- Demographic Questionnaire

This questionnaire included epidemiological data: sex, age, area of residence, type of residence, number of siblings, parent's education, parents work, cause of burn, location of burn and the degree of burn.

3.10.2 Depression Self-Rating Scale for Children

(Birleson 1978), translated in Arabic (Thabet, 2010)

The DSRS-C is simple to use. It is brief and only takes a child a few minutes to complete. Children with poor reading skills or short-term auditory memory difficulties may require help in understanding the longer items, but the scoring patterns of younger children have been found to be very similar to those of their elder peers (Birleson et al. 1987).

Children are usually pleased to describe their experience through completing the scale and this communication or sense of being understood may facilitate a therapeutic relationship. Children are asked to consider their experience during the previous week and to tick how each item has applied to them. Explain that there is no right or wrong answer and that the important thing is to say how they have really felt.

They are asked to choose whether the statement applied to them "most of the time", "sometimes" or "never". Item responses are simply scored in the direction of disturbance, i.e. depressive items score 2, "sometimes" items score 1, and non-depressive items score 0.

For items 1, 2, 4, 7, 8, 9, 11, 12, 13 and 16 'mostly' scores 0, 'sometimes' scores 1 and 'never' scores 2. For items 3, 5, 6, 10, 14, 15, 17 and 18 'mostly' scores 2, 'sometimes' scores 1 and 'never' scores 0. The item scores are summed to give the total score.

3.10.3 The Pre-school Children Depression Checklist (PCDC).

(Translated in Arabic (Thabet, Abu Kousa, 2013))

Depressive symptoms were transformed into 32 questions that cover an array of depressive behaviors in this age range (mood, affects, interaction with peers and with adults, play characteristics, somatic and vegetative disturbances, etc.). Arabic version of the scale was used in current study consisted of 32 items. Items on the checklist were scored on a severity scale of 0 to 4 (0 = never observed; 1 = rarely observed; 2 = sometimes observed; 3 = often observed; 4 = always observed). The 32 questions cover an array of depressive behaviors preschool children where lack of vitality and worthlessness (2, 3, 6, 8, 9, 14, 15, 16, 17, 19, 22, 23, 28, 30), loneliness and anxiety (11, 12, 13, 18, 24, 25, 26, 31), while anger and aggression (4, 5, 21, 27, 29). Items on the checklist were scored on a severity scale of 0 to 4 (0 = never observed; 1 = rarely observed; 2 = sometimes observed; 3 = often observed; 4 = always observed).

Particular care was given to the choice of terminology with a preference for terms that could be easily understood by personnel in daily and prolonged contact with children (parents, teachers and nurses).

3.10.4 The Posttraumatic Stress Disorder Checklist (DSM-IV)

(Translated in Arabic (Thabet, 2008))

The Posttraumatic Stress Disorder Checklist contains 17 items adapted from the DSM-IV PTSD symptom criteria. The 17 PTSD symptoms are rated by the participant for the previous month on a scale indicating the degree to which the respondent had been bothered by a particular symptom from 1 (not at all) to 5 (extremely). Items can be categorized as follows: items 1-4, 17: criteria B (intrusive re-experiencing); items 5-11: criteria C (avoidance and numbness); and items 12-16: criteria D (hyper arousal). Respondents are asked to rate on a 5-point Likert scale (1 = not at all to 5 = extremely) the extent to which symptoms troubled them in the previous month. Previous research (Blanchard et al, 1995) has suggested using as a minimum sum either a score of 3 or 4 on a symptom for it to count as positive towards the diagnosis. This scale was used in previous studies and showed high reliability and validity (Thabet et al, 2007, 2008).

3.10.5 UCLA PTSD Index for DSM-IV: Parent Version.

(Rodriguez et al, 1999), (Thabet et al 2008, 2014)

The items of the UCLA PTSD indices are keyed to DSM-IV criteria and can provide preliminary PTSD diagnostic information. Self-reports for children and adolescents exist, as well as a parent report of PTSD symptoms. The adolescent version (for adolescent aged 13 years and older) contains a total of 22 questions, have also been administered in school classroom settings. A 5-point Likert scale from 0 (none of the time) to 4 (most all the time) is used to rate PTSD symptoms. The structure of the measure facilitates scoring. The first 18 questions on the child and adolescent version, and the first 19 questions on the parent version, assess for DSM-IV PTSD Criterion B, C, and D symptoms, three separate scores were computed from these 20 items for intrusive symptoms (Criterion B), avoidance symptoms (Criterion C), and hyper arousal symptoms (Criterion D). Questions 13-19 assess Criterion A1, and 20-22 assess for Criterion A2. The internal consistency of the Arabic version of the PTSD mother form Reaction Index was highly satisfactory.

3.10 Ethical Considerations

An official approval was obtained from community mental health department at Al-Quds University.

Approval letter was obtained from Helsinki committee to implement his study.

Approval letter was obtained from MSF to give the researcher the Opportunity to enter the clinics to implement the study.

The parents were provided with an exploratory about the study; including the purpose of the study and confidentially information and instructions for applying the questionnaires. Informed consent from each parents for every child.

3.11 Limitation of the study

The sample size is small, only 67 patients with burn injury. The results can't be generalized to the all burned child population of Gaza strip, a social worker wasn't available to do home visit and report about families' socio economic situations, education style, residence safety measures and the parents' awareness level of fire risks.

Mothers may exaggerate their view and report of symptoms in answering to the questionnaires believing that this will give more attention and care by the treating team in the clinic, and fathers were absent when mothers answered the questionnaires; so their point of view hasn't been explored. Family history of mental health problems or stressors including adolescents and children conduct disorder features may predispose to trauma in general including burn incidents.

It may also be of great interest to undertake a long-term follow-up of these children, to study the clinical and psychopathological evolution of burn trauma, with its influence on life quality.

Chapter IV

4 Results

4.1 Introduction:

This chapter aimed to describe and analyze the main socio-demographic, economic variables, and prevalence of depression and quality of life related to the study. The researcher will pose the methods utilized to finding the results of the study.

The results of current study are presented by description of the socio-demographic characteristics of the study sample, using the descriptive, statistics, frequencies, percentages, means and standard deviation.

4.2 Socio-demographic characteristic of the study sample:

There 67 children in the patient group and 126 children in the control group have been included in the study.

4.2.1 Distribution of the sample according to sex:

The sample consisted of 64 boys from control group (51 %) and 37 boys from children with burn (55%) and 62 girls from control group (49%) and 30 girls from children with burn (45%). No significant differences between the two groups.

Table 1: Distribution of the sample according to sex

Sex		Control	Children with Burn	Total	χ^2	p
Male	No.	64	37	101	0.34	0.55
	%	51	55	52.3		
Female	No.	62	30	92		
	%	49	45	47.7		
Total	No.	126	67	193		
	%	65	35	100		

4.2.2 Distribution of the sample according to age

Table 2 shows the distribution of the sample according to age, According to the selection criteria, the age range was 3-14 years, with a mean age of 4.94 years (SD = 2.44).

Also, 78% of children with burn age ranged from 3-6 years, and 22 % from age 7-14 years. While 80% of control group from age 3-6 years, and 20 % from age 7-14 years. There were no significant differences according to age ($\chi^2 = 2.44$, $p = 0.29$).

Table 2: Distribution of the sample according to age

Age		Control	Children with Burn	2χ	p
3-6 years	No.	101	52	2.44	0.29
	%	80	78		
7-14 years	No.	25	15		
	%	20	22		

4.2.3 Distribution of the sample according to place of residence:

Regard place of residence, majority of patients were from Gaza governorate equally both the burned and control, followed by the north area governorates, there were no difference between the control and burn children as regards area of residence.

Table 3: Distribution of the sample according to place of residence

Governorate	Control group	Children with Burn
North Gaza	26 (21%)	14 (21%)
Gaza	75 (59.5%)	40 (60%)
Middle	8 (6%)	4 (6%)
Khan Younis	7 (5.5%)	4 (6%)
Rafah	10 (8%)	5 (7%)
Total	126	67

4.2.4 Distribution of the sample according to number of siblings:

Table 5 shows the distribution of the sample according to number of siblings, 51% of children with burn and 48% from control group had 4 and less siblings, 34% of burn children had 5-7 siblings, and 15% had 8 and more siblings, There were no significant differences in number of siblings ($\chi^2 = 3.83, p = 0.15$).

Table 4: Distribution of the sample according to number of siblings

Number of siblings	Control	Children with Burn	χ^2	<i>p</i>
4 and less siblings	61	34	3.83	0.15
	48%	51 %		
5-7 siblings	56	23		
	44 %	34 %		
8 and more siblings	9	10		
	7 %	15 %		

4.3 Medical history of burn children

As shown in table 7, the most common cause of burn was hot water (41.8%), hot tea (26.9%), and hot oil (11.9%), while the least common cause was burn by plastic material (1.5%) and Gas (1.5%). That shows that (80.6 %) were home domestic burn accidents.

According to safe kids worldwide, the organization reports the sobering statistics that 90 percent of burn injuries to children under age 5 are caused by scalds or contact burns.

Children have thinner skin than adults, which means burns can be more severe, and very young children most likely do not perceive the danger of hot liquids, food and steam. In some instances, lifelong scarring or even death can occur.

As shown, 9% had 1st degree burn, 76.1% had 2nd and 3rd degree, 9% had 2nd degree, 6% had 3rd degree. According to place of burn, 37% had burn in lower extremities, 25% upper body (trunk and back), 25% upper extremities, 6% face, and 6% neck.

Table 5: Medical characteristic of children with burn

	No.	%
Cause of burn		
Hot water	28	42
Hot tea	18	27
Hot oil	8	11.5
Electricity	5	7.5
Fire	3	4.5
Gasoline	3	4.5
Plastic	1	1.5
Gas	1	1.5
Degree of burn		
First degree	6	9
Second degree	6	9
Second and third degree	51	76
Third degree	4	6
Total	67	100
Place of burn		
Lower extremities	25	37
Trunk & back	17	25
Upper extremities	17	25
Face	4	6
Neck	4	6

4.4 Prevalence of PTSD symptoms in burn children age 7 -14 years:

As shown in table 6, the most common post-traumatic stress symptoms reported by children 7-14 years old were: unable to recall important parts of the event (61.1%), upset by some things which reminded him of the events (55.6%), and avoiding doing things or going into situations which remind you by the events (55.6%).

Table 6: Prevalence of PTSD symptoms in burn children age 7 - 14 years

	Never/rarely (%)	Sometimes (%)	Often/always (%)
Painful images or memories of the events.	27.8	22.2	50
Distressing dreams of the events.	33.3	33.3	33.3
Thoughts of the events were reoccurring.	38.9	27.7	33.3
Upset by some things which reminded you of the events.	16.7	27.7	55.6
Avoiding any thoughts or feelings about the event.	33.3	16.6	50
Avoiding doing things or going into situations which remind you by the events.	22.2	22.2	55.6
Found yourself unable to recall important parts of the event.	22.2	16.6	61.1
Difficulty enjoying things.	44.4	27.7	27.8
Distant or cut off from others people.	44.4	22.2	33.3
Unable to have sad or loving feeling.	50	22.2	27.8
Found it hard to imagine having along life span fulfilling your goals.	50	11.1	38.9
Trouble falling asleep or staying sleep.	66.7	27.7	5.6
Irritable or had outbursts of anger.	50	22.2	27.8
Difficulty in concentration.	44.4	11.1	44.4
On edge been easily distracted or hade to stay.	38.9	27.7	33.3
Jumble easily started.	50	16.6	33.3
Physically up set by reminders of the event.	16.7	27.7	55.6

4.5 Prevalence of PTSD in burn children age 7-14 years.

Using the DSM-IV criteria for mothers form of PTSD (one re-experiences, three avoidance, and two arousal), 6.7 % showed no PTSD, 26.7 % showed one cluster of symptoms, 33.3% showed two cluster of symptoms (partial PTSD criteria) and 33.3% showed full PTSD. (Table 7).

Table 7: Prevalence of PTSD in burn children age 4-7 years

PTSD adolescents	No	%
No PTSD	1	6.7
One Symptom	4	26.7
Partial PTSD	5	33.3
Full PTSD	5	33.3
Total	15	100

The PTSD symptoms which were observed in burn patients have been variable in symptom grouping, and it was found that not all of them have the symptom cluster criteria of PTSD, with 15 burn patients have the symptom of re-experiencing the event, 14 the symptoms had the symptoms of avoidance behavior, and finally 15 had arousal symptoms.

Table 8: Means and Standard deviations of PTSD of adolescents

	N	Mean	Std. Deviation
PTSD 17 items_ adolescents	15	34.78	13.5
Re-experiences	14	10.92	4.8
Avoidance	15	13.71	4.9
Arousal	15	10.14	4.9

4.6 Prevalence of PTSD symptoms in burn children age 3-6 years

The most common post-traumatic stress symptoms reported by children age 3-6 years were: My child feels grouchy, angry or mad (66%), When something reminds my child of what happened he/she gets very upset, scared or sad (58.5%), and My child tries to stay away from people, places, or things that make him/her remember what happened (52.8%).

Details are shown in (table 9).

Table 9: Prevalence of PTSD symptoms in burn children age 3-6 years

	Always/often %	Sometimes %	Never/ Rarely %
My child watches out for danger or things that he/she is afraid of.	50.9	28.3	20.8
When something reminds my child of what happened he/she gets very upset, scared or sad.	58.5	24.5	17
My child has upsetting thoughts, pictures or sounds of what happened come into his/her mind when he/she does not want them to.	28.3	41.5	30.2
My child feels grouchy, angry or mad.	66	13.2	20.8
My child has dreams about what happened or other bad dreams	43.4	24.5	32.1
My child has flashbacks of what happened; he/she feels like he/she is back at the time when the bad thing happened living through it again.	30.2	37.7	32.1
My child feels like staying by him/her self and not being with his/her friends.	15.1	28.3	56.6
My child feels alone inside and not close to other people.	9.4	28.3	62.3
My child tries not to talk about, think about, or have feelings about what happened.	24.5	30.2	45.3
My child has trouble feeling happiness or love.	20.8	34	45.3
My child has trouble feeling sadness or anger.	22.6	35.8	41.5
My child feels jumpy or startles easily, for example, when he/she hears a loud noise or when something surprises him/her.	52.8	22.6	24.5
My child has trouble going to sleep or wakes up often during the night.	49.1	30.2	20.8
My child feels that some part of what happened is his/her fault.	22.6	18.9	58.5
My child has trouble remembering important parts of what happened.	11.3	34	54.7
My child has trouble concentrating or paying attention.	17	26.4	56.6
My child tries to stay away from people, places, or things that make him/her remember what happened.	52.8	20.8	26.4
When something reminds my child of what happened, he/she has strong feelings in his/her body like heart beating fast, headaches, or stomach aches.	47.2	22.6	30.2
My child thinks that he/she will not live a long life.	1.9	9.4	88.7
My child is afraid that the bad thing will happen again.	13.5	28.8	57.7

4.7 Means and Standard deviations of PTSD of children age 3-6 years

Table 12 shows that mean PTSD reported by mothers was 30.71 (SD = 10.6), mean re-experiences was 10.34 (SD = 3.54), avoidance mean was 7.79 (SD = 4.8), and arousal mean was 10.82 (SD = 3.44)

Table 10: Means and Standard deviations of PTSD of preschool children

	No	Mean	SD
PTSD -20 Items preschool	52	30.71	10.6
Re-experiences	52	10.34	3.54
Avoidance	52	7.9	4.8
Arousal	52	10.82	3.44

4.8 Prevalence of PTSD in preschool children

Using the DSM-IV criteria for mothers form of PTSD (one re-experiences, three avoidance, and two arousal), 13.5% showed no PTSD, 26.9% showed one cluster of symptoms, 36.5% showed two cluster of symptoms (partial PTSD criteria) and 23.1% showed full PTSD.

Table 11: Prevalence of PTSD in preschool children (3-6 years)

PTSD- cases for preschool	No	%
No PTSD	7	13.5
One Symptom	14	27
Partial PTSD	19	36.5
Full PTSD	12	23
Total	52	100

4.9 Depression symptoms in children with burn age 3-6 years according to preschool children depression checklist

The most common depression symptoms rated by mother of burn children aged 3-6 year were: he/she needs support to improve his/her activities (96.2%) , feels rejected by others (96.2%), needs reassurance/seek gratification (96.1%), needs reassurance to stop playing

a game or to go away (94.3%), is anxious, worried (92.4%), and is moody, grouchy or irritable (92.3%). While the most common depression symptoms by control group preschool age children were anxious, worried (75.4%), constantly on the (56.8%), cries frequently (53.9%), and needs support to improve his/her activities (41.1%).

Table 12: The Preschool Children Depression Checklist (PCDC)

No .		Always/ often	
		Burn (%)	Control (%)
1	Seems younger than his/her age	5.8	15.8
2	Does not talk much	17.3	15.6
3	Moves little and/or slowly	7.7	14.7
4	Is constantly on the move	73.1	56.8
5	Tires easily	0	11.7
6	Tends to give up in the face of difficulty	7.7	15.6
7	Gets easily frustrated by scolding and failure	21.1	11.7
8	Finds it difficult to enjoy new situations, is afraid of novelty	46.1	11.7
9	Finds it difficult to socialize, s/he feels better in small groups	80.7	18.6
10	Feels rejected by others	96.2	8.8
11	Finds it difficult to leave parents	5.7	38.2
12	Needs reassurance/seeking gratification	96.1	29.4
13	Says he/she feels alone, unloved	1.9	5.8
14	Feels inadequate, incapable	9.6	2.9
15	Seems unable to make up his/her mind	42.3	6.8
16	Is not interested in activities, objects, or situations	46.1	10.7
17	Plays monotonously, repetitively, with descriptive, formal elements	50	25.4
18	Spends more time with adults	19.2	30.3
19	Needs support to improve his/her activities	96.2	41.1
20	Is not very curious, does not explore very much	5.7	10.7
21	Needs reassurance to stop playing a game or to go away	94.3	29.4
22	Does not get involved in games easily	67.3	12.7
23	Finds it difficult to express desires and needs or to ask for help	86.5	10.7
24	Cries frequently	61.5	53.9

No .		Always/ often	
		Burn (%)	Control (%)
25	Is anxious, worried	92.4	75.4
26	Thinks about death	0	3.9
27	Is moody, grouchy or irritable	92.3	13.7
28	Is sad, morose	28.8	7.8
29	Gets angry—has temper tantrums	13.5	15.6
30	Is timid, closed, embarrassed	25	14.7
31	Has somatic complaints	13.4	3.9
32	Has problems with food	1.9	9.8

4.10 Differences in Means and standard deviation of depression in cases of burn and control in preschool children:

In order to find differences in mean depression between the two groups, independent t test was conducted in which case/control was entered as independent variable and mean depression in preschool as dependent variable. The results showed that mean depression in control was 38.74 (SD =17.7) and for children with burn was 70 (SD =8.8). There were statistically significant differences in depression between the two groups toward preschool age children with burn ($t= 12.01$, $p = 0.001$), but we cannot categorize depression as major or dysthymic disorder because these children unable to express themselves cognitively or express idea of suicide, guilt, or worthlessness, but probably these children will manifest clear picture if we follow them up for a longtime so their intellectual development will be mature.

Table 13: Means and standard deviation of depression of Children with Burn and control group

		N	Mean	Std. Deviation	t	P
Depression preschool	Control	101	38.74	17.7	12.01	0.001
	Burn	52	70	8.8		

4.11 Depression symptoms in children with burn and control group age 7 and above years according to Self-reported Depression scale

The most common depression symptoms rated by children with burn aged 7 year and above were: I [do not] have lots of energy (47.1%), I [do not] look forward (35.3%), I [do not] like to go out (29.4 %), and I feel like running away (29.4%). While the most common depression symptoms rated by control group children aged 7 year and above were, I get tummy aches (65.2%) I [do not] have lots of energy (60.9%) and I [do not] like to go out (34.8 %).

Table 14: Depression symptoms in children with burn age 7 and above years according to Self-reported Depression scale

No.		Mostly	
		Control %	Burn %
1	I [do not] look forward	21.7	35.3
2	I [do not] sleep very well	6.5	17.6
3	I feel like crying	26.1	23.5
4	I [do not] like to go out.....	34.8	29.4
5	I feel like running away	15.2	29.4
6	I get tummy aches	65.2	35.3
7	I [do not] have lots of energy	60.9	47.1
8	I [do not] enjoy my food	15.2	23.5
9	I can [not] stick up.....	15.2	11.8
10	I think life isn't worth living	13	17.6
11	I am [not] good at things I do	6.5	17.6
12	I [do not] enjoy things	19.6	23.5
13	I [do not] like taking	0	5.9
14	I have horrible dreams	13	29.4
15	I feel very lonely	10.9	11.8
16	I am [not] easily cheered up	15.2	17.6
17	I feel so sad I can.....	8.7	5.9
18	I feel very bored	21.7	11.8

4.12 Differences of depression disorder in cases of burn and control in adolescents:

In order to find differences in mean depression between the two groups, independent t test was conducted in which case/control was entered as independent variable and mean depression as dependent variable. The results showed that mean depression in control was 25 (SD =13.0) and for children with burn was 16.40 (SD =6.16). There were no statistically significant differences in depression between the two groups ($t = 1.89, p = 0.06$).

Table 15: Means and standard deviation of depression in children with burn and control group in adolescents

Burn/control		N	Mean	Std. Deviation	t	p
Birleson Depression	Control	25	13.0	5.05	1.89	0.06
	Burn	15	16.40	6.16		

4.13 Differences in percentage of depression in total adolescents (N=40)

Table 18 Using cut-off points of depression scale of 18 and more as depression, depression in children with burn was 17.5 % compared to 12.5 % among the control group. The difference is marginal in favor of burn children, but it is not statistically significant differences in depression toward Children with Burn ($\chi^2 = 3.17, p = 0.07$), and this in contradiction to depression rate in burn pre-school children, and this probably due developmental age of adolescents and their cognitive abilities to cope with stressful events.

Table 16: Differences in prevalence in depression in cases of burn and control in adolescents

No Depression			Depression	χ^2	p
Control group	No	20	5	3.17	0.07
	%	50	12.5		
Burn	No.	8	7		
	%	20	17.5		
Total	No	28	12		
	%	70	30		

Chapter V

5 Introduction:

This chapter presents a discussion of the results of the study as presented in chapter four, these findings are discussed in line of literature review that is important to clarify them in comparison of other studies conducted by other researchers.

The chapter also presents recommendations regarding to trauma, PTSD, anxiety and depression among children with burn injuries in Gaza strip, also to provide decision makers recommendation to put plans to care about this category.

5.1 Discussion:

Burn injury is a serious traumatic event everyone can face in their life. Burn injuries' neuropsychiatric sequels are the most neglected aspects of the care provided to burn victim. This co-morbidity is usually unknown by health professionals working in this area.

In Gaza Strip, MSF runs two clinics offering postoperative care to help patients recovering from trauma and burn injuries, most of the time, after they have been discharged from one of Gaza strip hospitals' burn units.

Most of these clinic's patients are children. It's because it has never been studied on the Palestinian child population that this study has been designed, focusing on PTSD and Major Depressive Disorder. Of all psychiatric disorder, Major Depressive Disorder is the most frequently reported by burned patients (15-21%) (Palmu et al., 2010).

The aim of this study was to compare the prevalence of PTSD and Depressive Disorder in the child burn victim population of MSF clinics and in a control population, matched by sex, age and other socio-demographic variables.

67 children in the patient group and 126 children in the control group have been included in the study. There was the same distribution for boys and girls. They were between 3 and 14 years old, age mean of 5 years old. The burned children have been injured by hot fluids for most of them. 9% of them had first degree burn, 76.1% had second and third degree burn, 9% had second degree burn and 6% had third degree burn.

The seriousness of burns is closely connected with the extent severity of injured body surface (TBSA). These children were coming, for most of them, from families with low income (29.5% with income < 1200 NIS); it's known that one of the risk factor of child high burn injury trauma is poverty, over-crowding, lack of safety measures and placement of young girls in house hold roles as cooking and care of small children (WHO, 2014).

In the patient population of this study, children 3 to 6 years old were presenting, from their mother point of view, a needy behavior, feelings of rejection, a need for reassurance, a withdrawn behavior, worries, a grouchy and irritable mood with a range prevalence going from 92.3% to 96.2% for each symptom.

Finding these symptoms in this population is consistent with literature (Difeda et al., 2002) but the prevalence of them is higher than what has been written in literature on this matter (Medianos, 2001 - 18- 26 %).

This plethora of psychological distress symptoms is observed early in the post-burn process. Later, other symptoms develop themselves such as losses of body part, pain, disfiguring, distorted body image, sleep disturbance, social dysfunctions, depression, PTSD, anxiety disorders... William and al. study (2008) reports 65% of anxiety features after severe burn injury and compares that number with 55% which is the incidence of these symptoms in another population exposed to non-burn injury. Wiechman and al. (2001) study reports severe depression in burn survivors, no figures were given.

In this study, symptoms of depressive disorder in preschooler children (3-6 years old) is very high, around 94 % (92.3% - 96.2%), the most common depressive symptoms rated were: loss of energy 47.1 %, not able to look forward in life 35.3 %, social isolation 29.4 %, feels like running away 29.4 %.

The later sequel and most serious psychological disorder of burn trauma is the post-traumatic stress disorder in its full diagnostic criteria. In Bryant and al. study (1996), they found a high rate (45%) of PTSD in adults after 12 month following burn injury. Ibram and al. (2013) study in Pakistan was more stringent, including only burned adult victims qualified for the full PTSD diagnostic criteria (DSM-5, 2013), but nevertheless found 10.9% of the victims with marked impairments in social, occupational and emotional interactions.

In this study, we looked for various elements of post-traumatic stress disorder diagnostic criteria in preschooler children and adolescents. What we found for preschooler is that they rate being unable to recall the event for 61.1%, they are upset by reminders of the event in 55.6 %, and they have an avoiding behavior in 55.6 %. Adolescents present re-experience experience in 10%, avoidance in 7.79 %, and arousal in 9.17 %. The majority of the children in this study present PTSD symptoms (partial diagnostic criteria: 33.3% of the adolescents and 36.5% of the preschooler; one symptom: 26.7% of the adolescents and 26.9% of the preschooler) or the full syndrome (33.3% of the adolescents, 23.1% of the preschoolers). Only 6.7 % of the adolescents and 13.5% of the preschooler were not presenting symptoms.

The majority of children burned treated in MSF clinics had developed psychological distress following the incident. They didn't all react the same way, some of them had better coping skills than other, which can explain why a full PTSD diagnostic isn't made to everyone. The child's coping skills are dependent of their developmental stage and the support offered by their environment and their family.

Regarding the small sample of this population, it isn't possible to extend the results to all Gaza child population burn victims. But, at least, it raises the awareness of health professionals on this very important subject that is the psychological sequels of burn trauma.

5.2 Trauma:

Traumatic or stressful events which individual are exposed, which include but are not limited to, exposure to war as a combatant or civilian, threatened or actual physical assault (e.g. Physical attack, robbery, mugging, childhood physical abuse), threatened or actual sexual violence (e.g. forced sexual penetration, alcohol/drug facilitated sexual penetration, abusive sexual contact, non-contact sexual abuse, sexual trafficking, being kidnapped, being taken hostage, terrorist attack, torture, incarceration or prisoner war, nature or human made disaster, severe motor vehicle accidents and burns accidents.

As burns injury is a most painful experience to child victim, and their emotional problems experienced have long been over shadowed by the emphasis on survival adjustment of burns injury in children involve interplay between several factors, child temperament before injury moderating environmental and familial factors, and ensuring medical care.

In our research we found that male children victims if burn out number female 19.2 % vs 15.5 % but the difference is not significant or marginally so ($P= 0.55$).

Number of siblings was not adverse factor in burn trauma: 4 or less sibling 17.6 % are burned victims, 8 and more siblings number 5.2 %, but the socio economic factor was prominent risk factor for burns as judged by family monthly income with rates of burns in children with income family of less than 1200 NIS 29.5 % vs 0.5 % in families with income more than 3010 NIS.

These trends are of findings in our research of burns injury vulnerability factors are concordance with recent research data and emphasized in WHO (WHO, 2014).

5.3 Epidemiology:

Thousands of children died from burns globally, and death due to burns are the fifth most common cause of non-intentional trauma and the third cause of fatal trauma at home (Yoder et al, 2010), in fact all our sample of burned injury children occurred at home.

(WHO, 2010) estimated that 322,000 people die each year from fire related burns with > 95 % of these occurred in developing countries.

Unfortunately in Gaza district we do not have clear statistical data of death due to burns in adults or children.

5.4 Depression and anxiety:

Mood and emotional disorder (depression and anxiety) are the most common reported in burn patient.

In children early in burn trauma, pain and anxiety with behavioral problems are observed in more than 90% of burns victims.

In our sample in children with burns age 3-6 years about 94 % reported by mothers to be grouchy, irritable, moody, anxious, worried, need reassurance and socially isolated, with prominent depressive symptoms: get easily frustrated by scolding and failure 21.1 %, finding it difficult to enjoy new situations 46.1 %, find it difficult to socialize feels better in small group 80.7 %, feel rejected by other 96.2 %, for more details see table 12 .

In those aged 7 years and above 60 % do not have lots of energy, 65.8 % have tummy aches, 34.8 % don't like to go out, 26.1 % feels like crying, and 21.7 % don't look forward.

In our study children on the age 3-6 years with burn trauma have a mean depression score of 70 with (SD= 8.8) compared with the control group 38.74 mean (SD=17.7) and this difference is highly significant ($p = 0.001$), but in the adolescent children there were no difference between the burn and control group 12.5 % control vs 17.5 % burn group.

5.5 Post-traumatic stress disorder (PTSD):

Post-traumatic stress disorder cluster symptoms reported in young children aged 3-6 years (one- re-experience, 3 avoidance, 2 arousal), 13.5 % showed no PTSD, 26.9 % showed one cluster of symptoms, 36.5 % showed 2 cluster of symptoms and 23.1 % showed full PTSD criteria.

In adolescents burned victims we found 33.3 % having full PTSD criteria, 26.7 % having one symptom.

Those finding in our research points toward the grave impact of burns injury to the mental health of children a subject unfortunately neglected by health professional in their dealing with physical component of injured children.

In addition this through lights on risk factors which are of potential significance – large family siblings, poor socioeconomic status and household environment context.

Hoping that community, media, health care system have to be knowledgeable and aware of the seriousness of burns injury in our community and take steps to improve the quality of life to our beloved children.

5.6 Recommendations:

Burns are preventable events. Prevention strategies should address the hazard for specific burn injuries (Hot liquids, flames and chemicals). Burn awareness campaign should be ran in Gaza strip, especially in vulnerable communities, schools, kindergarten and women centers through posters, health education seminars, and media.

There isn't much evidence that house safety education without the provision of safety equipment (smoke detectors, lowering geyser temperature, flame retarding) would reduce thermal injuries amongst children; and in Gaza strip, it's difficult to implement these equipment due to the poor socio economic condition, and the political context (occupation, dispute, and siege).

Regarding pain control management and pain monitoring system, it needs to be under constant revision and improvement, especially for burn children in the acute stage in Gaza

hospitals burn units. This will have a positive impact on the child's psychological condition during the recovery period.

Regarding depression and PTSD post burn trauma, it would be appropriate to provide psychological support and family guidance to burned children; in the acute, the recovery and the rehabilitation phase, in order to minimize the development of psychopathological symptoms.

A follow up system for children victim of burn through home visits by a social worker or a counselor should be implemented to study the socio economic impact of the burn injury on the child family; and so, adapt the care and support offered to be more efficient and helpful.

References:

- Abdi, S. Zhou, Y. (2002). Management of pain after burn injury. *Curr Opin Anaesthesiol*, 15, 563-567.
- American Psychiatric Association (2013). *Diagnosis and statistical manual of mental disorders*. American Psychiatric Association, Washington DC.5th Ed.
- Bryant, RA. (1996). Predictors of post-traumatic stress disorder following burn injury. *Burns*, 22(2), 89-92.
- Bryant, B., Mayou, L., Wiggs, L., Ehlers, A., & Stores, G. (2004). Psychological consequences of road traffic accidents for children and their mothers. *Psychological Medicine*, 34, 335–346.
- Burn. (2006). *Merk Manual Index*, 18, 2592.
- Birleson P. (1981) The Validity of Depressive Disorder in Childhood and the Development of a Self-Rating Scale: A Research Report. *J. Child Psychology Psychiatry* 22, 73/88.
- Birleson P. Hudson I, Grey-Buchanan D, Wolff S. (1987) Clinical Evaluation of a Self-Rating Scale for Depressive Disorder in Childhood (Depression Self-Rating Scale). *J. Child Psychology Psychiatry* 28, 43/60.
- Crome, G. (2002). Predictors of Quality of life in persons with major burns injury. *Burn care & Rehabilitation*, 23(3), 229-234.
- Dalal, P. K., R. S.,Agrawal, Manu. (2010). Burn Trauma Patients. *Indian Journal of Plastic Surgery*, 43, 136-142.
- De Young, A.C, Kenardy, J.A, Cobham, V.E. (2012). Prevalence comorbidity and course of trauma reactions in young burn-injured children. *Journal of Child Psychology and Psychiatry*, 53(1), 56-63.
- Doctor M, L. J., Fauerbach JA. (2002). Psychosocial forum. *Burn Care & Rehabilitation*, 23(3), 227-228.

- El Hamaoui Y. (2002). Post-traumatic stress disorder in burned patients. *Burns*, 28,647-650.
- Fauerbach, J. (2005). Burden of burn: a norm-based inquiry into the influence of burn size and distress on recovery of physical and psychosocial function. *Burn Care & Rehabilitation*, 26(1), 21-32.
- Franulic A.,Gonzalez X.,Trucco M.,Vallejos F.(1996).Emotional and psychosocial factors in burn patients during hospitalization. *Burns*, 22(8), 612-622.
- Fukunishi, I. (1998). Post-traumatic stress symptoms and depression in mothers of children with severe burn injuries. *Psychological Reports*, 83(1), 331-335.
- Grigorovich, A. (2013). Impact of Posttraumatic Stress Disorder and Depression on Neuropsychological Functioning in Electrical Injury Survivors. *Journal of Burn Care & Research*, 34(6), 659-665.
- Harmon RJ, Riggs PD. (1996). Clonidine for Post traumatic stress disorder in children. *J AM Acad Child Adolesc Psychiatry*, 35, 1247-1249.
- Hoffman H, Chambers T, Meyer J, Arceneauxl. (2011). Virtual Reality as an adjunctive non-pharamcological analgesic for acute burn pain during medical procedure. *Ann,Behav,Med*, 20(11), 183-191.
- Hulbert-Williams N.J., H.-W. S. L., Mcilroy D. & Bunting B. (2008).Anxiety in recovery from severe burn injury: An experimental comparison. *Psychol Health & Medicine*, 13(2), 162-167.
- Ibram, E., A. A. M., S.E.R. (2013). Burn Injury. *J Pakist Medic Associat*, 63(7), 888-891.
- Khamis, V. (2008). Post-traumatic stress and psychiatric disorders in Palestinian adolescents following intifada-related injuries. *Social Science and Medicine*, 67, 1199–1207.
- Kurt,K.,Erin E.,Krebs &Mathews,J.(2000).Treatment of chronic pain syndromes. *Psychopharmacology*, 4th edition, 1441-1474.

- Lawrence J.W., Fauerbach J.A & Thombs B.D. (2006). Frequency and correlates of depression symptoms among long-term adult burn survivors. *Rehabilitation Psychology*. 51(4), 306-313.
- Levi G, Sogos C, Mazzei E, Paolesse C .(2001). Depressive Disorder in Preschool Children: Patterns of Affective Organization. *Child Psychiatry and Human Development*, 32(1):55-69.
- Linzette D. (2012). Use of modern day technology for pain management during burn injury rehabilitation. *Burns prevention, causes and treatment*, Editors: McLaughlin and A.O Patterson, 155-170.
- Loncar, Z., Bras, M., & Mickovic, V. (2006). The relationship between burn pain, anxiety and depression. *Coll antropol*, 30(2), 319-325.
- Low, AJF., Dyster, A., Kildal, M., Ekselins, L., Gerdin, B. (2006). The presence of nightmares as a screening tool for symptoms of post-traumatic stress disorder in burns survivors. *Journal Burn Care Res*, (27), 727-733.
- Lu MK, Lin YS, Chou P, Tung TH. (2007). Post –traumatic stress disorder after severe burn in children in Southern Taiwan. *Burns*, (33), 649-652.
- Lund & Browder. (2004). Rule of 9's. *BMJ*, 329(7457), 101-103. _Available at: <http://rightatrium.tumblr.com>.
- Mcloughlin, E. (1996). Burn incidence and medical care use in USA. *Burn Care Rehabilitation*, 17(2), 95-107.
- Meyer W, Blakeney P, Thomas, CR, Russell W. (2007). Prevalence of major psychiatric illness in young adults who were burned as children. *Psychosomatic Medicine*, 69(4), 377-382.
- Medianos, M. G. (2001). Psychiatric Disorder in burn Patients. *Psychother and Psychosom*, 70, 30-37.
- Muqim, R. (2007). Epidemiologist and outcome of burns at Khyber teaching hospital Peshawar Pakistan. *Journal of medical Science*, 23, 420-424.

- Natalia, G. Raquel Pan, Marina Paes-Cultran et al. (2012). Impact of burns on health related quality of life of burned patients. *Burns*, 36, 207-218.
- Orr, D.A, Reznikoff, M. (1989). Body image self-esteem and depression in burn injured adolescents and young adults. *The Journal of Burn Care & Rehabilitation*, 10(5), 454-461.
- Palmu, R, Suominen, K, Vuola, J, Isometa, E. (2010). Mental disorders after burn injury: a prospective study. *Burns*, 36, 1072-1079.
- Partridge, J. & Robinson, E. (1995). Psychological and social aspects of burns. *Burns*, 21(6), 453-457.
- Patterson D. R., Everett J. J., Bombardier C. H., Questad K. A., Lee V. K., Marvin J. A. (1993). Psychological effects of severe burn injuries. *Psychology Bulletin*, 113, 362-378.
- Pavan, C. M. Azzi, L. Lancerotto, M. Marini and V. Vindigni. (2012). Psychiatric aspects in burn patients. *Burn: Prevention, causes, and treatment* New York: Nova Science Publishers, 225-246.
- Pavan, C. (2012). *Burn: Prevention, causes, and treatment* New York: Nova Science Publishers, 226-249.
- Pope, S.L, Solomons, W.R, Done, D.J (2007). Body image, mood and quality of life in young burn survivors. *Burns*, 33(6), 747-755.
- Rivlin, E, Faragher, E. (2007). The psychological sequelae of thermal injury on children and adolescents, Part 1. *Developmental Neurorehabilitation*, 10(2), 161-172.
- Rivlin, E, Faragher, E. (2007). The psychological sequelae on mothers of thermally injured children and adolescents: Future direction: Part 2. *Developmental Neurorehabilitation*, 10(2), 183-190.
- Rodriguez, R, Steinberg, A, Pynoos, R. (1999). The UCLA- PTSD Reaction Index. *Current Psychiatry Reports*, (6), 96-100.

- Rosenberg, L, Robert, R, Thomas, C.(2006). Assessing potential suicide risk of young adults burned as children. *Journal of Burn Care & Research*, 27(6), 779-785.
- Saigh, P. A. (1996). Posttraumatic stress disorder among children and adolescents: A introduction. *Journal of School Psychology*, 34, 103–105.
- Saxe, G, Stoddard, F. (2005). Risk Factors for acute stress disorder in children with burns. *Journal of Trauma & Dissociation*, 6(2), 37-49.
- Sheridan RL, Hinson MI, Nackel AF, Schoenfeld DA, Ryan CM. (2000). Long-term outcome of children surviving massive burns. *JAMA*, 283, 69-73.
- Sens, Greenhalgh D, Pamieri P. (2010). Review of burn injury research for the year 2009. *J Burn Care Res*, 31, 836-848.
- Stanovic JK, James KA, Vandever CA. (2001). The effectiveness of Risperidone on acute stress symptoms in adult burn patient: A preliminary retrospective pilot study. *Journal Burn Care Rehabilitation*, (22), 210-213.
- Staddard F, Stroud L. (1992). Depression in children after recovery from severe burns. *The Journal of Burn Care & Rehabilitation*, 13(3), 340-347.
- Staddard F, Saxe, G. (2006). Acute stress symptoms in young children with burns. *Journal of the American Academy of Child and Adolescent Psychiatry*, 45(1), 87-93.
- Thabet AA, Abu Tawahina A, El Sarraj Eyad , Vostanis P.(2008) Exposure to war trauma and PTSD among parents and children in the Gaza Strip. *European Child & Adolescent Psychiatry*, 17, 191-196.
- Thabet AA, Abu Tawahina A, El Sarraj Eyad , Vostanis P.(2008) The relationship between siege of Gaza Strip, Anger and psychological symptoms. *Arab psy net E Journal*, 20, 174-184.
- Thabet AA, Abu Tawahina A, El Sarraj Eyad , Vostanis P.(2009) Seige and quality of life of Palestinians in the Gaza Strip. Strip, Anger and psychological . *Arab psy net E Journal*, 20, 157-164.

- Taal, LA,. Faber, AW. (1997) Burn injuries, pain and distress: exploring the role of stress symptomatology. *Burns*. 23, 288-290.
- Taal, LA,. Faber, AW. (1998) Post-traumatic stress, pain and anxiety in adult burn victims. *Burns*. 23, 545-549.
- Tebble, N. J. & Price, P. (2004) Anxiety and self-Consciousness in patients with minor facial. *Journal of Advanced Nursing*, 47 (4), 417-426.
- Terr, L. C. (1981). Psychic trauma in children: Observations following the Chowchilla school-bus kidnapping. *American Journal of Psychiatry*, 138, 14–19.
- Terr, L. C. (1983). Chowchilla revisited: The effects of psychic trauma four years after a school bus kidnapping. *American Journal of Psychiatry*, 140, 1543–1550.
- The Merk Manuals Department. (2006). *Burns*, 18th edition, 2592-2597.
- Thombs, B.D. & Bresnick, M.G. (2007). Symptoms of Depression predict change in physical health after burn injury. *Burn*. 33, 292-298.
- Tiongi, W. (2012). *burns: prevention, causes and treatment*. Nova Science Publication. Inc. U.S.1sted.
- Van Loey N, Van Son MJ. (2003). Psychopathology and psychological problems in patients with burns epidemiology and management. *AM J clin Dermatology*. (4), 245-272.
- Waraich, P, Goldner, E. (2004). Prevalence and incidence studies of mood disorders: A systemic review of the literature. *Canadian Journal of Psychiatry*, 49, 124-138.
- WHO. (2014). *Facts about injuries*. 239-243.
- Wiechaman, SA, Ptacek, JT, Patterson, DR, Gibran NS, Engrar, LE, Heimbach, DM. (2001). Rates, trends of Depression after Burn Injury. *J Burn Care Rehabil*, 22, 417-424.
- Yoder, L. e. a. (2010). The evolution and utility of burn specific health scale: systemic review. *Burns*, 36(8), 1153-1156.

Annexes

Annex 1: Socio Demographic Questionnaire for burn children

عزيزي /تي احد الابوين

تحية طيبة وبعد

نرجو التعاون في اكمال المعلومات المينة ادناه حيث اننا نقوم في MSF بدراسة اثار الحروق على الصحة النفسية للاطفال من منطق اهتمامنا الشديد باطفالنا الاعزاء في قطاع غزة ومعرفة الاثار الشديدة للحرق عليهم ,والتوقيع بالموافقة على اجراء هذه الدراسة.

اسم الطفل _____سبب الحرق _____

مكان الحرق _____درجة الحرق _____تاريخ الحادث

عمر الطفل _____الجنس _____ذكر r انثي

مكان سكنك الحالي

السكن r :مدينة r قرية r معسكر

عدد الأخوة : 4 -----وأقل من 5-7 8 وأكثر

دخل الأسرة الشهري : أقل من 1200 شيكل من 1201-2000 شيكل من 2010-3000 شيكل أكثر من 3010 شيكل

عمل الاب _____

عدد سنوات تعليم الاب _____

عمل الام _____

عدد سنوات تعليم الام _____

الاسم الاب او الام (اختياري) _____التوقيع _____التاريخ _____

Annex 2: The Posttraumatic Stress Disorder Checklist

استبيان كرب ما بعد الرضخ (الصدمة) للحرق

ترجمة د. عبد العزيز ثابت

الاسم: _____ العمر: _____ الجنس: _____

عزيزي/تي أمامك مجموعة من الأسئلة تبين ردود الفعل على الخبرات الصادمة التي تكون قد تعرضت لها من قبل، نرجو الإجابة على كل سؤال ووضح علامة (√) في الخانة الصحيحة. أما بالنسبة للخبرة الصادمة فيجب أن تكون محددا إلى الأحداث التي ذكرتها من قبل.

م	الخبرة الصادمة (الحدث)	أبدا	نادرا	أحيانا	غالبا	دائما
1	هل تعاودك صور و أحداث و ذكريات بما تعرضت له أثناء الحرق.					
2	هل تحلم أحلام مزعجة تذكرك بالحرق					
3	هل ينتابك شعور بأن ما تعرضت له في فترة للحرق سوف يحدث الآن مرة أخرى (أو تلعب بأشياء تذكرك بالحرق					
4	هل تصاب بحالة من الضيق الشديد عند التعرض لأي موقف صعب خارجي أو داخلي من نفسك يذكرك بما تعرضت له أثناء الحرق					
5	هل تصاب بحالة من القلق والعصبية والتوتر (على شكل سرعة في ضربات القلب رعشة في اليدين , عرق غزير (عند تعرضك لأي موقف خارجي صعب أو داخلي من نفسك يذكرك بما تعرضت له أثناء الحرق					
6	هل تتجنب الأفكار , والأحاديث , والإحساسات التي تذكرك بالخبرات الصادمة التي تعرضت لها أثناء الحرق					
7	هل تتجنب الأشخاص و الأماكن والمواقف التي تذكرك بالخبرات الصادمة التي تعرضت لها أثناء الحرق					
8	أصبحت غير قادر على تذكر أشياء مهمة تتعلق بفترة الحرق و ما تعرضت له من مواقف صادمة					
9	منذ تعرضت للصدمة هل قل بشكل واضح اهتمامك بالمشاركة في النشاطات الاجتماعية , والمدرسية , و المشاركات السياسية المختلفة					

					هل تشعر بالغربة و الانفصال عن حولك وأنه ليس لك بهم أي صلة	10
					هل أنت عاجز على حب الآخرين من حولك	11
					هل تشعر بأنه ليس لديك مستقبل مثل أن تكمل تعليمك وتزوج وتعيش حياة طويلة	12
					هل تشكو من صعوبة في النوم أو البقاء نائماً	13
					هل تشعر بالتوتر وتنتابك نوبات من الغضب الشديد	14
					هل لديك صعوبات في التركيز أثناء تأدية واجباتك المدرسية	15
					هل تشعر بأنك دائماً متيقظ ومتوقع للأسوأ وفي حالة انتظار دائم لما سيحدث	16
					هل تجفل و تنتفض بشكل غير طبيعي لسماعك أقل صوت	17

PTSD Checklist

The Posttraumatic Stress Disorder Checklist contains 17 items adapted from the DSM-IV PTSD symptom criteria. The 17 PTSD symptoms are rated by the participant for the previous month on a scale indicating the degree to which the respondent had been bothered by a particular symptom from 1 (not at all) to 5 (extremely).

S		Never	Rarely	Sometimes	Most of the time	Always
1	Painful images or memories of the burn.					
2	Distressing dreams of the burn.					
3	Thoughts of the burn was reoccurring.					
4	Upset by some things which reminded you of the burn.					
5	Avoiding any thoughts or feelings about the event.					
6	Avoiding doing things or going into situations which remind you by the burn.					
7	Found yourself unable to recall important parts of the event.					
8	Difficulty enjoying things.					
9	Distant or cut off from others people.					
10	Unable to have sad or loving feeling.					
11	Found it hard to imagine having along life span fulfilling your goals.					
12	Trouble falling a sleep or staying sleep.					
13	Irritable or had outbursts of anger.					
14	Difficulty in concentration.					
15	On edge been easily distracted or hade to stay.					
16	Jumble easily started.					
17	Physically up set by reminders of the event.					

Annex 3: UCLA PTSD INDEX for DSM IV (Parent Version, Revision I)

Here is a list of problems children sometimes have after very stressful experiences. Please think about your child's stressful experience that you wrote about in Question #14. Then, read each problem on the list carefully. CIRCLE one of the numbers (0, 1, 2, 3, 4 or 5) that tells how often the problem has happened to your child in the past month. Refer to the Rating Sheet (on page 5) to help you decide how often the problem has happened. Note: If you are unsure about how often your child has experienced a particular problem, then try to make your best estimation. Only circle "Don't Know" if you absolutely cannot give an answer. PLEASE BE SURE TO ANSWER ALL QUESTIONS

	None	Little	Some	Much	Most	Don't Know
1 ^{D4} My child watches out for danger or things that he/she is afraid of.	0	1	2	3	4	5
2 ^{B4} When something reminds my child of what happened he/she gets very upset, scared or sad.	0	1	2	3	4	5
3 ^{B1} My child has upsetting thoughts, pictures or sounds of what happened come into his/her mind when he/she does not want them to.	0	1	2	3	4	5
4 ^{D2} My child feels grouchy, angry or mad.	0	1	2	3	4	5
5 ^{B2} My child has dreams about what happened or other bad dreams	0	1	2	3	4	5
6 ^{B3} My child has flashbacks of what happened; he/she feels like he/she is back at the time when the bad thing happened living through it again.	0	1	2	3	4	5
7 ^{C4} My child feels like staying by him/her self and not being with his/her friends.	0	1	2	3	4	5
8 ^{C5} My child feels alone inside and not close to other people.	0	1	2	3	4	5
9 ^{C1} My child tries not to talk about, think about, or have feelings about what happened.	0	1	2	3	4	5
10 ^{C6} My child has trouble feeling happiness or love.	0	1	2	3	4	5
11 ^{C6} My child has trouble feeling sadness or anger.	0	1	2	3	4	5

12^{D5} My child feels jumpy or startles easily, for example, when he/she hears a loud noise or when something surprises him/her.

13^{D1} My child has trouble going to sleep or wakes up often during the night.

14^{AF} My child feels that some part of what happened is his/her fault.

0	1	2	3	4	5
0	1	2	3	4	5
0	1	2	3	4	5

□ 1998 Pynoos, Rodriguez, Steinberg , Stuber & Frederick

15^{C3} My child has trouble remembering important parts of what happened.

16^{D3} My child has trouble concentrating or paying attention.

17^{C2} My child tries to stay away from people, places, or things that make him/her remember what happened.

18^{B5} When something reminds my child of what happened, he/she has strong feelings in his/her body like heart beating fast, headaches, or stomach aches.

19^{C7} My child thinks that he/she will not live a long life.

20^{AF} My child is afraid that the bad thing will happen again.

21^{B1} My child plays games or draws pictures that are like some part of what happened.

None	Little	Some	Much	Most	Don't Know
0	1	2	3	4	5
0	1	2	3	4	5
0	1	2	3	4	5
0	1	2	3	4	5
0	1	2	3	4	5
0	1	2	3	4	5
0	1	2	3	4	5

UCLA PTSD INDEX FOR DSM IV

مقياس كرب ما بعد الصدمة للأُم من 3-7 سنة

عزيزتي الام :أمامك مجموعة من الأسئلة التي تقيس ردود الفعل على الأحداث الصعبة مثل التعرض للحرق التي قد يتعرض لها طفلك .برجاء وضع دائرة حول الإجابة الصحيحة

م	البند	لا	قليلاً	أحياناً	كثيراً	غالباً
1	يترقب دائماً شيء خطير أو أشياء أخرى يخاف منها ممكن تحدث له	0	1	2	3	4
2	عندما يذكر طفلي أي أحد بالحدث الذي واجهته ، يصاب بالقلق ، و التوتر ، و الحزن .	0	1	2	3	4
3	تنتاب أبني /ابنتي أفكار ، أصوات ، صور ، لما حدث له بدون رغبة منه في استرجاعها	0	1	2	3	4
4	يشعر بالغضب الشديد ، التهيج .	0	1	2	3	4
5	يعاني من أحلام مزعجة تتعلق بما تعرض له .	0	1	2	3	4
6	يشعر بأن ما حدث لي سيحدث مرة أخرى الآن ، كما لو أنه يعيش في نفس الحدث مرة أخرى الآن .	0	1	2	3	4
7	يحب أن يكون لوحده و ليس مع أصدقائه .	0	1	2	3	4
8	يشعر طفلي بأنه وحيد و ليس قريباً من أحد	0	1	2	3	4
9	يحاول بالآلا يتحدث ، يفكر ، يشعر بما حدث له .	0	1	2	3	4
10	يعاني من صعوبات في أن يشعر بالسعادة ، أو حب الآخرين .	0	1	2	3	4
11	يعاني من صعوبات في أن يشعر بالحزن و الغضب .	0	1	2	3	4
12	يشعر بأنه يتهيج بسرعة ، أو يتفزز لمجرد سماع صوت عالي ، أو أحد يفاجئه بسرعة .	0	1	2	3	4
13	لديه صعوبة في الذهاب للنوم ، و يصحوا كثيراً في الليل.	0	1	2	3	4
14	يشعر بان ما حدث له هو غلظه منه .	0	1	2	3	4
15	لديه صعوبات في تذكر الأحداث التي تعرض لها .	0	1	2	3	4
16	عنده صعوبة في التركيز و الانتباه .	0	1	2	3	4
17	يتجنب الأشخاص ، الأماكن ، الأشياء التي تذكره بالحدث الصادم .	0	1	2	3	4
18	عندما يذكره أحدهم بما حدث ،يشعر بقشعريرة في جسمي ، و سرعة في ضربات القلب ، وجع في المعدة ، صداع .	0	1	2	3	4
19	يعتقد بأنه لن أعيش لفترة طويلة ، و سيكون عمره قصير .	0	1	2	3	4
20	يخاف من أن أشياء سيئة سوف تحدث له .	0	1	2	3	4

Annex 4: Depression Self-Rating Scale For Children

(Birleson 1978)

Please read these statements and tick the answer that best describes how you have felt during the past week. It is important to answer as honestly as you can. The correct answer is to say how you have really felt.

		Mostly Sometimes	Never		
1.	I look forward to things as much as I used to..	[]	[]	[]	___
2.	I sleep very well.....	[]	[]	[]	___
3.	I feel like crying.....	[]	[]	[]	___
4.	I like to go out to play.....	[]	[]	[]	___
5.	I feel like running away.....	[]	[]	[]	___
6.	I get tummy aches.....	[]	[]	[]	___
7.	I have lots of energy.....	[]	[]	[]	___
8.	I enjoy my food.....	[]	[]	[]	___
9.	I can stick up for myself.....	[]	[]	[]	___
10.	I think life isn't worth living.....	[]	[]	[]	___
11.	I am good at the things I do.....	[]	[]	[]	___
12.	I enjoy the things I do as much as I used to...	[]	[]	[]	___
13.	I like talking with my family.....	[]	[]	[]	___
14.	I have bad dreams..... []	[]	[]	___	___
15.	I feel very lonely.....	[]	[]	[]	___
16.	I am easily cheered up.....	[]	[]	[]	___
17.	I feel so sad I can hardly stand it.....	[]	[]	[]	___
18.	I feel very bored.....	[]	[]	[]	___
			Score		___

Birleson Depression Scale-Questionnaire

ترجمة د. عبد العزيز ثابت

العمر _____ الجنس: ☐ ذكر ☐ أنثى

عزيزي / عزيزتي

أمامك مجموعة من الأسئلة تتعلق بما تشعر/ي به في خلال الأسبوع الماضي من فضلك ضع علامة صح في الخانة الصحيحة.

م.	البند	دائماً	بعض الأحيان	لا
1	ما زلت أنظر للأشياء في حياتي كما تعودت عليها	0	1	2
2	أنام جيداً .	0	1	2
3	أشعر بأنني سوف أبكي .	2	1	0
4	أحب أن أخرج في الشارع للعب .	0	1	2
5	أرغب في الهروب بعيداً .	2	1	0
6	أتمتع بطاقة كبيرة .	2	1	0
7	تصيبني آلام في المعدة .	0	1	2
8	استمتع بالأكل.	0	1	2
9	أستطيع القيام بخدمة نفسي .	0	1	2
10	أشعر بأن الحياة لا تساوي شيئاً .	2	1	0
11	أفعل الأشياء بشكل جيد .	0	1	2
12	استمتع بعمل الأشياء كما كنت في السابق .	0	1	2
13	أحب التحدث مع أهلي ومع الآخرين .	0	1	2
14	أحلم أحلام مزعجة .	2	1	0
15	أشعر بالوحدة الشديدة.	2	1	0
16	من السهولة أن أبتهج	0	1	2
17	أشعر بالتعاسة لدرجة لا تطاق	2	1	0
18	أشعر بالملل.	2	1	0

Annex 5 : The Preschool Children Depression Checklist PCDC

- 1 Seems younger than his/her age
- 2 Does not talk much
- 3 Moves little and/or slowly
- 4 Is constantly on the move
- 5 Tires easily
- 6 Tends to give up in the face of difficulty
- 7 Gets easily frustrated by scolding and failure
- 8 Finds it difficult to enjoy new situations, is afraid of novelty
- 9 Finds it difficult to socialize, s/he feels better in small groups
- 10 Feels rejected by others
- 11 Finds it difficult to leave parents
- 12 Needs reassurance/seeking gratification
- 13 Says he/she feels alone, unloved
- 14 Feels inadequate, incapable
- 15 Seems unable to make up his/her mind
- 16 Is not interested in activities, objects, or situations
- 17 Plays monotonously, repetitively, with descriptive, formal elements
- 18 Spends more time with adults
- 19 Needs support to improve his/her activities
- 20 Is not very curious, does not explore very much
- 21 Needs reassurance to stop playing a game or to go away

- 22 Does not get involved in games easily
- 23 Finds it difficult to express desires and needs or to ask for help
- 24 Cries frequently
- 25 Is anxious, worried
- 26 Thinks about death
- 27 Is moody, grouchy or irritable
- 28 Is sad, morose
- 29 Gets angry—has temper tantrums
- 30 Is timid, closed, embarrassed
- 31 Has somatic complaints
- 32 Has problems with food

The Preschool Children Depression Check list

قائمة الاكتئاب للأطفال- رياض الأطفال

ترجمة د. عبد العزيز ثابت

4	3	2	1	0		م.
دائماً	عادة	بعض الاحيان	نادراً	أبداً		
					يبدو عليه أصغر من سنه	1
					لا يتكلم كثيراً	2
					يتحرك ببطء و قليلاً ما يتحرك	3
					يتحرك باستمرار	4
					يتعب بسهولة	5
					يستسلم بسرعة إذا واجهته مشكلة	6
					من السهل أن يصاب بالإحباط عندما يفشل فيما يطلب منه عمله	7
					يجد صعوبة في التمتع بالمواقف الجديدة و يحاف منها	8
					يجد صعوبة في الاندماج اجتماعياً مع الآخرين و يشعر أفضل إذا كان في مجموعة صغيرة	9
					يشعر أنه غير مرغوب به من الآخرين	10
					يجد صعوبة في ترك الوالدين	11
					يحتاج دائماً للتطمين و التدليل	12
					يقول بأنه يشعر بأنه وحيد و غير محسوب	13
					يشعر بالعجز و أنه ينقص عن الأطفال في سنه	14
					يبدو عليه بأنه لا يستطيع أن يقرر أي شيء	15
					لا يهتم بالنشاطات و الأشياء و الموقف حوله	16
					يلعب بطريقة مكررة و بنفس الألعاب	17
					يقضي وقت أطول مع البالغين	18
					يحتاج للدعم كي يحسن عمله	19
					غير فضولي و لا يستكشف ما حوله	20

					يحتاج للتطمين لوقف اللعب أو الخروج	21
					لا يندمج في الألعاب مع الآخرين بسهولة	22
					يجد صعوبة في التعبير عما يريد و احتياجاته أو طلب المساعدة	23
					يبكي باستمرار	24
					قلق و متوتر	25
					يفكر في الموت	26
					مزاجي و متوتر	27
					حزين و كئيب	28
					تنتابه نوبات من الغضب و من السهل أعضابه	29
					خجول و مرتبك	30
					يشكو من الأم جسدية	31
					لديه مشاكل في الأكل	32

Annex 6: Diagnostic criteria Acute Stress Disorder

308.3 (F43.0):

Exposure to actual or threatened death, serious injury, or sexual violation in one (or more) of the following ways:

1. Directly experiencing the traumatic event(s).
2. Witnessing, in person, the event(s) as it occurred to others.
3. Learning that the event(s) occurred to a close family member or close friend.

Note: In cases of actual or threatened death of a family member or friend, the event(s) must have been violent or accidental.

4. Experiencing repeated or extreme exposure to aversive details of the traumatic event(s) (e.g., first responders collecting human remains, police officers repeatedly exposed to details of child abuse).

Note: This does not apply to exposure through electronic media, television, movies, or pictures, unless this exposure is work related.

- A.** Presence of nine (or more) of the following symptoms from any of the five categories of intrusion, negative mood, dissociation, avoidance, and arousal, beginning or worsening after the traumatic event(s) occurred:

B. Intrusion Symptoms

5. Recurrent, involuntary, and intrusive distressing memories of the traumatic event(s). Note: In children, repetitive play may occur in which themes or aspects of the traumatic event(s) are expressed.
6. Recurrent distressing dreams in which the content and/or affect of the dream are related to the event(s). Note: In children, there may be frightening dreams without recognizable content.

7. Dissociative reactions (e.g., flashbacks) in which the individual feels or acts as if the traumatic event(s) were recurring. (Such reactions may occur on a continuum, with the most extreme expression being a complete loss of awareness of present surroundings.) Note: In children, trauma-specific reenactment may occur in play.
8. Intense or prolonged psychological distress or marked physiological reactions in response to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).

Negative Mood:

9. Persistent inability to experience positive emotions (e.g., inability to experience happiness, satisfaction, or loving feelings).

Dissociative Symptoms:

10. An altered sense of the reality of one's surroundings or oneself (e.g., seeing oneself from another's perspective, being in a daze, time slowing).
11. Inability to remember an important aspect of the traumatic event(s) (typically due to dissociative amnesia and not to other factors such as head injury, alcohol, or drugs).

Avoidance Symptoms:

12. Efforts to avoid distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).
13. Efforts to avoid external reminders (people, places, conversations, activities, objects, situations) that arouse distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).

Arousal Symptoms:

14. Sleep disturbance (e.g., difficulty falling or staying asleep, restless sleep).
15. Irritable behavior and angry outbursts (with little or no provocation), typically expressed as verbal or physical aggression toward people or objects.

Hypervigilance:

- 16. Problems with concentration.
 - 17. Exaggerated startle response.
- D. Duration of the disturbance (symptoms in Criterion B) is 3 days to 1 month after trauma exposure.

Note: Symptoms typically begin immediately after the trauma, but persistence for at least 3 days and up to a month is needed to meet disorder criteria.

- E. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.
- F. The disturbance is not attributable to the physiological effects of a substance (e.g., medication or alcohol) or another medical condition (e.g., mild traumatic brain injury) and is not better explained by brief psychotic disorder.

Annex 7: Diagnostic criteria Post Traumatic Stress Disorder

309.81 (F43.10):

The following criteria apply to adults, adolescents, and children older than 6 years.

A. Exposure to actual or threatened death, serious injury, or sexual violence in one (or more) of the following ways:

1. Directly experiencing the traumatic event(s).
2. Witnessing, in person, the event(s) as it occurred to others.
3. Learning that the traumatic event(s) occurred to a close family member or close friend. In cases of actual or threatened death of a family member or friend, the event(s) must have been violent or accidental.
4. Experiencing repeated or extreme exposure to aversive details of the traumatic event(s) (e.g., first responders collecting human remains; police officers repeatedly -exposed to details of child abuse).

Note: Criterion A4 does not apply to exposure through electronic media, television, movies, or pictures, unless this exposure is work related.

B. Presence of one (or more) of the following intrusion symptoms associated with the traumatic event(s), beginning after the traumatic event(s) occurred:

5. Recurrent, involuntary, and intrusive distressing memories of the traumatic event(s).

Note: In children older than 6 years, repetitive play may occur in which themes or aspects of the traumatic event(s) are expressed.

1. Recurrent distressing dreams in which the content and/or affect of the dream are related to the traumatic event(s).

Note: In children, there may be frightening dreams without recognizable content.

2. Dissociative reactions (e.g., flashbacks) in which the individual feels or acts as if the traumatic event(s) were recurring. (Such reactions may occur on a

continuum, with the most extreme expression being a complete loss of awareness of present surroundings.)

Note: In children, trauma-specific reenactment may occur in play.

3. Intense or prolonged psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).
 4. Marked physiological reactions to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).
- C. Persistent avoidance of stimuli associated with the traumatic event(s), beginning after the traumatic event(s) occurred, as evidenced by one or both of the following:
1. Avoidance of or efforts to avoid distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).
 2. Avoidance of or efforts to avoid external reminders (people, places, conversations, activities, objects, situations) that arouse distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).
- D. Negative alterations in cognitions and mood associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following:
1. Inability to remember an important aspect of the traumatic event(s) (typically due to dissociative amnesia and not to other factors such as head injury, alcohol, or drugs).
 2. Persistent and exaggerated negative beliefs or expectations about oneself, others, or the world (e.g., “I am bad,” “No one can be trusted,” “The world is completely dangerous,” “My whole nervous system is permanently ruined”).
 3. Persistent, distorted cognitions about the cause or consequences of the traumatic event(s) that lead the individual to blame himself/herself or others.

4. Persistent negative emotional state (e.g., fear, horror, anger, guilt, or shame).
 5. Markedly diminished interest or participation in significant activities.
 6. Feelings of detachment or estrangement from others.
 7. Persistent inability to experience positive emotions (e.g., inability to experience happiness, satisfaction, or loving feelings).
- E. Marked alterations in arousal and reactivity associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following:
1. Irritable behavior and angry outbursts (with little or no provocation) typically expressed as verbal or physical aggression toward people or objects.
 2. Reckless or self-destructive behavior.
 3. Hypervigilance.
 4. Exaggerated startle response.
 5. Problems with concentration.
 6. Sleep disturbance (e.g., difficulty falling or staying asleep or restless sleep).
- F. Duration of the disturbance (Criteria B, C, D, and E) is more than 1 month.
- G. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.
- H. The disturbance is not attributable to the physiological effects of a substance (e.g., medication, alcohol) or another medical condition.

Specify whether:

With dissociative symptoms: The individual's symptoms meet the criteria for posttraumatic stress disorder, and in addition, in response to the stressor, the individual experiences persistent or recurrent symptoms of either of the following:

1. Depersonalization: Persistent or recurrent experiences of feeling detached from, and as if one were an outside observer of, one's mental processes or body (e.g., feeling as though one were in a dream; feeling a sense of unreality of self or body or of time moving slowly).
2. Derealization: Persistent or recurrent experiences of unreality of surroundings (e.g., the world around the individual is experienced as unreal, dreamlike, distant, or distorted).

Note: To use this subtype, the dissociative symptoms must not be attributable to the physiological effects of a substance (e.g., blackouts, behavior during alcohol intoxication) or another medical condition (e.g., complex partial seizures).

Specify if:

With delayed expression: If the full diagnostic criteria are not met until at least 6 months after the event (although the onset and expression of some symptoms may be immediate).

Posttraumatic Stress Disorder for Children 6 Years and Younger:

- A. In children 6 years and younger, exposure to actual or threatened death, serious injury, or sexual violence in one (or more) of the following ways:
1. Directly experiencing the traumatic event(s).
 2. Witnessing, in person, the event(s) as it occurred to others, especially primary caregivers.

Note: Witnessing does not include events that are witnessed only in electronic media, television, movies, or pictures.

3. Learning that the traumatic event(s) occurred to a parent or caregiving figure.

- B. Presence of one (or more) of the following intrusion symptoms associated with the traumatic event(s), beginning after the traumatic event(s) occurred:
1. Recurrent, involuntary, and intrusive distressing memories of the traumatic event(s).

Note: Spontaneous and intrusive memories may not necessarily appear distressing and may be expressed as play reenactment.

2. Recurrent distressing dreams in which the content and/or affect of the dream are related to the traumatic event(s).

Note: It may not be possible to ascertain that the frightening content is related to the traumatic event.

3. Dissociative reactions (e.g., flashbacks) in which the child feels or acts as if the traumatic event(s) were recurring. (Such reactions may occur on a continuum, with the most extreme expression being a complete loss of awareness of present surroundings.) Such trauma-specific reenactment may occur in play.
 4. Intense or prolonged psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).
 5. Marked physiological reactions to reminders of the traumatic event(s).
- C. One (or more) of the following symptoms, representing either persistent avoidance of stimuli associated with the traumatic event(s) or negative alterations in cognitions and mood associated with the traumatic event(s), must be present, beginning after the event(s) or worsening after the event(s):

Persistent Avoidance of Stimuli:

1. Avoidance of or efforts to avoid activities, places, or physical reminders that arouse recollections of the traumatic event(s).
2. Avoidance of or efforts to avoid people, conversations, or interpersonal situations that arouse recollections of the traumatic event(s).

Negative Alterations in Cognitions:

3. Substantially increased frequency of negative emotional states (e.g., fear, guilt, sadness, shame, confusion).
4. Markedly diminished interest or participation in significant activities, including constriction of play.

5. Socially withdrawn behavior.
 6. Persistent reduction in expression of positive emotions.
- D. Alterations in arousal and reactivity associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following:
1. Irritable behavior and angry outbursts (with little or no provocation) typically expressed as verbal or physical aggression toward people or objects (including extreme temper tantrums).
 2. Hypervigilance.
 3. Exaggerated startle response.
 4. Problems with concentration.
 5. Sleep disturbance (e.g., difficulty falling or staying asleep or restless sleep).
- E. The duration of the disturbance is more than 1 month.
- F. The disturbance causes clinically significant distress or impairment in relationships with parents, siblings, peers, or other caregivers or with school behavior.
- G. The disturbance is not attributable to the physiological effects of a substance (e.g., medication or alcohol) or another medical condition.

Specify whether:

With dissociative symptoms:

The individual's symptoms meet the criteria for posttraumatic stress disorder, and the individual experiences persistent or recurrent symptoms of either of the following:

1. Depersonalization: Persistent or recurrent experiences of feeling detached from, and as if one were an outside observer of, one's mental processes or body (e.g., feeling as though one were in a dream; feeling a sense of unreality of self or body or of time moving slowly).

2. Derealization: Persistent or recurrent experiences of unreality of surroundings (e.g., the world around the individual is experienced as unreal, dreamlike, distant, or distorted).

Note: To use this subtype, the dissociative symptoms must not be attributable to the physiological effects of a substance (e.g., blackouts) or another medical condition (e.g., complex partial seizures).

Specify if:

With delayed expression: If the full diagnostic criteria are not met until at least 6 months after the event (although the onset and expression of some symptoms may be immediate).

Annex 8: Diagnostic criteria Major Depressive Disorder

296.99 (F34.8):

- A. Five (or more) of the following symptoms have been present during the same 2 week period and represent a change from previous functioning; at least one of the symptoms is either (1) depressed mood or (2) loss of interest or pleasure.

Note: Do not include symptoms that are clearly attributable to another medical condition.

1. Depressed mood most of the day, nearly every day, as indicated by either subjective report (e.g., feels sad, empty, and hopeless) or observation made by others (e.g., appears tearful). (Note: In children and adolescents, can be irritable mood.)
2. Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day (as indicated by either subjective account or observation).
3. Significant weight loss when not dieting or weight gain (e.g., a change of more than 5% of body weight in a month), or decrease or increase in appetite nearly every day. (Note: In children, consider failure to make expected weight gain.)
4. Insomnia or hypersomnia nearly every day.
5. Psychomotor agitation or retardation nearly every day (observable by others, not merely subjective feelings of restlessness or being slowed down).
6. Fatigue or loss of energy nearly every day.
7. Feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day (not merely self-reproach or guilt about being sick).
8. Diminished ability to think or concentrate, or indecisiveness, nearly every day (either by subjective account or as observed by others).

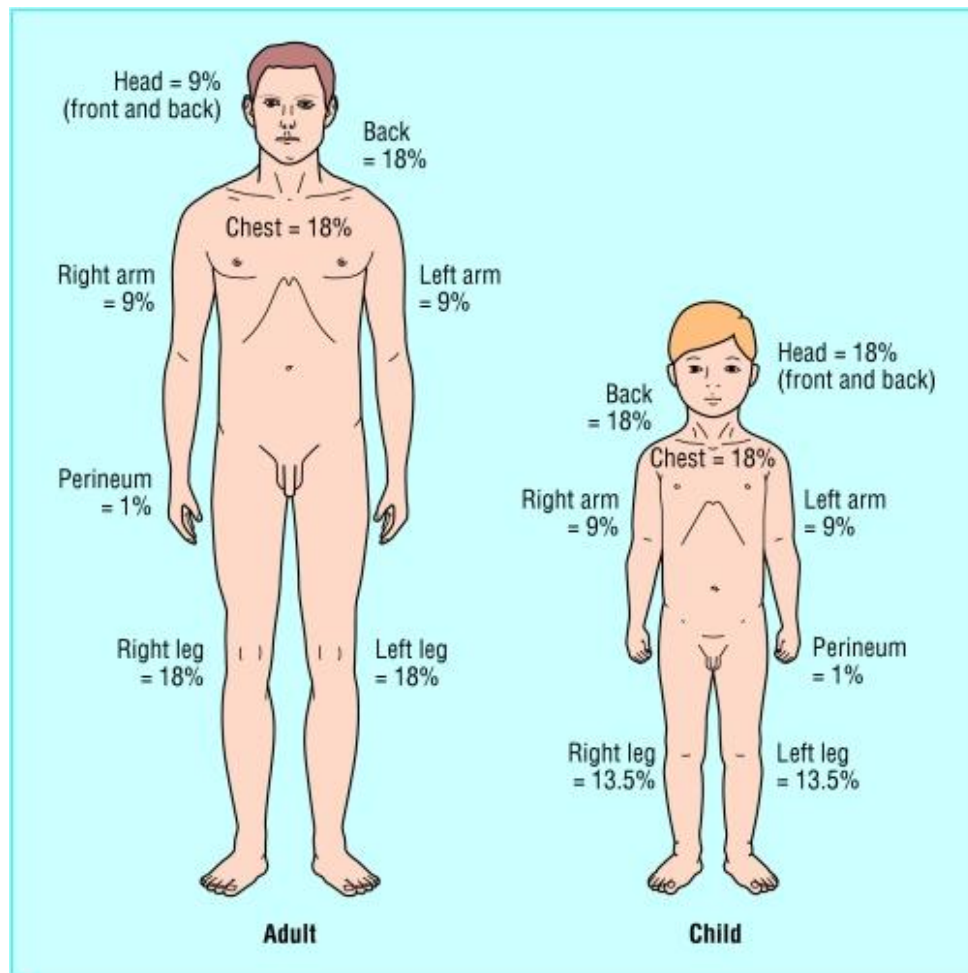
- 9. Recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide.
- B. The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.
- C. The episode is not attributable to the physiological effects of a substance or to another medical condition.

Note: Criteria A–C represent a major depressive episode.

Note: Responses to a significant loss (e.g., bereavement, financial ruin, losses from natural disaster, a serious medical illness or disability) may include the feelings of intense sadness, rumination about the loss, insomnia, poor appetite, and weight loss noted in Criterion A, which may resemble a depressive episode. Although such symptoms may be understandable or considered appropriate to the loss, the presence of a major depressive episode in addition to the normal response to a significant loss should also be carefully considered. This decision inevitably requires the exercise of clinical judgment based on the individual's history and the cultural norms for the expression of distress in the context of loss.

- D. The occurrence of the major depressive episode is not better explained by schizoaffective disorder, schizophrenia, schizophreniform disorder, delusional disorder, or other specified and unspecified schizophrenia spectrum and other psychotic disorders.
- E. There has never been a manic episode or a hypomanic episode.
- F. Note: This exclusion does not apply if all of the manic-like or hypomanic-like episodes are substance-induced or are attributable to the physiological effects of another medical condition.

Annex 9: Wallace rules of nines for percentage of total body surface area estimation



Annex 10: Helsinki Committee for ethical approval



المجلس الفلسطيني للبحوث الصحية
Palestinian Health Research Council

تعزيز النظام الصحي الفلسطيني من خلال مأسسة استخدام المعلومات البحثية في صنع القرار

Developing the Palestinian health system through institutionalizing the use of information in decision making

Helsinki Committee
For Ethical Approval

Date: 02/02/2015

Number: PHRC/HC/07/15

Name: Mohammed Abu Mughaiseeb

الاسم: محمد أبو مغايب

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

نفيدكم علماً بأن اللجنة قد ناقشت مقترح دراستكم حول:-

"Post traumatic stress disorder and depression among children victims of burns in Gaza governorates: comparative study"

The committee has decided to approve the above mentioned research. Approval number PHRC/HC/07/15 in its meeting on 02/02/2015

و قد قررت الموافقة على البحث المذكور عاليه بالرقم والتاريخ المذكوران عاليه

Member

Signature

Chairman

Member

Genral Conditions:-

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

Specific Conditions:-

The subject was approved following the World Medical Association Declaration of Helsinki-Ethical principles for medical research involving human subjects, adopted by the 18th World Medical Association General Assembly, Helsinki, Finland, June 1964 and amended by the 59th WMA General Assembly, Seoul, Korea, October 2008.

E-Mail: pal.phrc@gmail.com

Gaza - Palestine

غزة - فلسطين
شارع النصر - مفترق العيون

Annex 11: Medecins Sans Frontieres approval letter



From
Sandrine VERNADAT
Medical coordinator
Medecins Sans Frontieres (MSF)

To
Al – Quds University
Deanship of Graduate Studies
Community Mental Health

Jerusalem, the 14th of April 2015

Subject: Approval letter

I undersigned Sandrine VERNADAT, Medical Coordinator, certifies that Medecins Sans Frontieres agreed on Dr. Mohammed Abu Mughaiseeb's thesis for which topic is :

**Post traumatic stress disorder and depression among children victims of
burns in Gaza governorate: Comparative study**

Sandrine VERNADAT
Medical Coordinator
Medecins Sans Frontieres (MSF)

A handwritten signature in blue ink is written over a circular purple stamp. The stamp contains the text "MSF" and "Jerusalem" and is surrounded by the words "MEDICINS SANS FRONTIERES".

Annex 12: Arabic abstract

الملخص باللغة العربية

دراسة مقارنة لاضطراب ما بعد الصدمة والاكتئاب عند الاطفال ضحايا الحروق في محافظات غزة

اعداد : محمد ابو مغصيب

اشراف : البروفيسور عبد العزيز موسى ثابت

الحروق في الاطفال هي اصابة خطيرة لهم ولعائلاتهم , والغرض من هذه الدراسة هو لفحص الاعراض ما بعد الصدمة وانتشارها وكذلك اعراض الاكتئاب في هؤلاء الاطفال ضحايا الحروق مقارنة مع عينة ضابطة في محافظات قطاع غزة.

العينة التي تم دراستها تتكون من 67 طفل لديهم حروق تم متابعتهم في عيادتي تأهيل الحروق التابعة لأطباء بلا حدود في قطاع غزة, ولذلك 126 عينة ضابطة.

وكانت النتيجة ان 37 من الاطفال ضحايا الحروق كانوا ذكورا اي بنسبة 19.2 % و 30 كانوا اناث اي 15.5%.

وان 64 من العينة الضابطة كانوا ذكورا (33.3 %) و 62 كانوا اناث (32.1 %) و كانت الاعمار بين 3-14 سنة بمتوسط 5 متوسط سنة.

بينت الدراسة ان معظم حالات الحرق عند الاطفال كانت نتيجة السوائل الساخنة مثل الشاي الساخن، والزيت الساخن، واقل مسبب للحرق هو المواد البلاستيكية.

اما بالنسبة لدرجات الحرق فكان 9 % من الدرجة الاولى و 76 % من الدرجة الثانية و 9 % درجة ثانية وثالثة و 6 % من الدرجة الثالثة.

وان اكثر الاماكن في الجسم اصابة بالحرق الاطراف السفلى 37 % و الجسم العلوي 25 % , واليدين 25 % والوجه والرقبة 6% لكل منهما.

اما بخصوص الاعراض النفسية في الاطفال ضحايا الحروق, فالأكثر انتشارا هي اعراض ما بعد الصدمة في الأطفال 7 سنوات وأكثر, حيث 61.1% كانوا غير قادرين على تذكر الحادث بالضبط و 55.6% كانوا يعانون من بعض الاعراض التي تذكرهم بالحادث و 55.6% كانوا يتجنبوا الاشياء والمواقع التي تذكرهم بحادث الحرق.

اما بخصوص متلازمة ما بعد الصدمة فهناك 6.7% من الاطفال ليس لديهم اعراض و 26.7% كانوا يعانون من مجموعة من الاعراض و 33.3% كان لديهم اعراض ما بعد الصدمة ولكن لم تصل الى درجة المعايير الكاملة لتشخيص مرض ما بعد الصدمة, اما الاطفال الذين كانوا يعانون من المعايير الكاملة لما بعد الصدمة فشكوا 33.3%.

اما بخصوص الاطفال ما قبل المدرسة اي من 3-6 سنوات , 13.5% ليس لديهم اعراض ما بعد الصدمة و 26.9% كان لديهم بعض الاعراض و 36.5% م كان لديهم اعراض غير مكتملة المعايير التشخيصية و 23.1% كان لديه كامل المعايير لمرض ما بعد الصدمة.

اما في ما يخص الاكتئاب في الاطفال المصابين بالحرق مقارنة مع العينة الضابطة, فان اكثر الاعراض شيوعا للاكتئاب حسب ما تم ذكره من قبل الامهات للأطفال من 3-6 سنوات فكانت: (يحتاج الطفل الى المساندة في نشاطاته, يشعر انه منبوذ وغير محبوب, يحتاج الى تطمين وتهئية, قلق مطرب, وسريع الغضب ومتقلب المزاج).

اما الاكتئاب في الاطفال ذوي 7 سنوات وأكثر ف 47.1% يعانون من الكسل وقلة الطاقة, و 35.3% ليس لديهم نظرة مستقبلية, 29.4% يحب العزلة ولا يريد الخروج, 29.4% لديهم احساس بالهرب. وكان متوسط نتائج الاعراض الاكتئابية في الاطفال المصابين بالحرق 70 (الانحراف المعياري = 8.8), اما العينة الضابطة فكان المتوسط 38.74 (الانحراف المعياري = 17.7) و هذا يدل ان هناك فرق مهم جدا في انتشار الاكتئاب في اطفال ضحايا الحرق والعينة الضابطة (درجة الهمية $t=12.01$ $p=0.001$).

وهذه الدراسة تثبت بشكل واضح ان الاعراض النفسية في الاطفال الذين تعرضوا الى اصابة الحروق (الاكتئاب , القلق , واعراض ما بعد الاصابة) كثيرة وحاسمة مقارنة بالأطفال من العينة الضابطة.

و هد الدراسة تعطينا معلومات مهمة عن مدى انتشار الاعراض النفسية في الاطفال ضحايا الحروق في قطاع غزة والدين تم الكشف عليهم في عيادات اطباء بلا حدود .

وهذا ينسجم مع الدراسات التي اجريت في هذا المجال وتؤكد ان الاعراض النفسية المرضية هي في الحقيقة عالية في اطفالنا الاعزاء ضحايا اصابات الحروق, مما يستوجب على القائمين في المراكز الصحية التيقظ والكشف عنها, اضافة الى الاصابة العضوية وهذا يحسن عملية التاهيل والشفاء و جودة الحياة لضحايا الحرق.