Deanship of Graduate Studies

Al-Quds University

The relationship between posttraumatic stress disorder and posttraumatic growth among nurses in Gaza Strip

Nader Ashraf Shamia

M.P.H Thesis

Jerusalem – Palestine

1433/2012

The relationship between posttraumatic stress disorder and posttraumatic growth among nurses in Gaza Strip

Prepared by:

Nader Ashraf Shamia
B.Sc. Nursing, Palestine College of Nursing

Supervisor:

Dr. Abdel Aziz Mousa Thabet, MD, PhD
Associate Professor of Psychiatry
School of Public Health

A thesis submitted in partial fulfillment of requirement
for the degree of
master of community mental health
School of Public Health – Gaza, Al-Quds University

1433/2012

Al-Quds University
Deanship of Graduate Studies
School of Public Health

Thesis approval

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Prepared by: Nader Ashraf Shamia
Registration No: 20912429

Supervisor: Dr. Abdel Aziz Mousa Thabet, MD, PhD
Associate Professor of Psychiatry, School of Public Health

Master degrees thesis submitted and accepted, Date:

The names and signatures of the examining committee member are as follows:

1. **Head of Committee: Dr. Abdel Aziz Thabet Signature----------**
2. **Internal Examiner: Dr. Itaf Abdalla Abed Signature----------**
3. **External Examiner: Dr. Mohamed W. Elhelou Signature----------**

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بسم الله الرحمن الرحيم

" قُلْ إِنَّ صَلاَتِي وَ نُسُكِي وَمَحْيَايَ وَمَمَاتِي لِلّهِ رَبِّ

الْعَالَمِينَ، لاَ شَرِيكَ لَهُ وَبِذَلِكَ أُمِرْتُ وَأَنَا أَوَّلُ الْمُسْلِمِينَ"

صدق الله العظيم

سورة الأنعام [162]

Dedication

I dedicate this work to the Palestinians who are still making life possible to face the Israeli aggression and violation against their civil and political rights, and to my father and, mother and my wife for holding the excitement and energy to finish this work.

Declaration

I certify that this thesis submitted for the degree of Master in community mental health, is the result of my own research, except where otherwise acknowledged, and that this thesis (or any part of the same) has not been submitted for a higher degree to any other university or institution.

Signed:----------

Nader Shamia

Date:

Acknowledgements

I would like to express my sincere gratitude to my respected teacher and my academic supervisor, Dr. Abdel Aziz Thabet, Associated professor of psychiatry , AL Quds University, for his guidance, supervision, and encouragement in carrying out this research work . He has been constant source of inspiration in all stages of this work. I am highly indebted to him for his advice and continuous guidance.

Special deep thanks and acknowledge go to all my teachers in the school of public health who gave me support and guidance .

I would like to thank several people who helped me and provided helpful recommendation and suggestion during the process of writing this work.

I would like to thank my wife for being always available, particularly for supporting me over the past two years. I thank my family for holding the excitement and energy I needed to finish this work.

I also wish to thank my friends Mr. Noureldeen Salah, and colleagues who gave me helpful and grounded support during the study period .

I would like to acknowledge the effort of the nurses for their help during data collection and participate in this study.

Finally, I would like to express my sincere thanks and appreciation to the hidden hands who assisted me throughout the study period, this study would not have been done without their support .

Abstract

Aim: The aim of the study was to examine types of traumatic events and the relationship between posttraumatic stress disorder and posttraumatic growth among nurses in Gaza Strip.

Method: The researcher used descriptive analytic study design, using revised tools such as socio-demographic status questionnaire, traumatic events checklist, posttraumatic stress disorder checklist, and posttraumatic growth inventory.

Sample: The study sample selected by using stratified cluster random sample, which consisted of 274 nurses, who are working in "MOH 216 (79%), military medical services 14 (5%), UNRWA 27 (10%), were private sectors 17 (6%)", Whereas the males were 143 (52.7%) and the females 131 (47.3%).

Results: Nurses reported a mean number of 8.76 traumatic events. The prevalence of trauma among nurses was; 23.4%(64) have mild trauma, 43.1%(118) have moderate trauma, and 33.6%(92) have severe trauma. The most frequently reported traumatic events of nurses were "seeing pictures of death and injured people" 94.1%, "seeing dead people while they are in work" 78.4%, "seeing demolishing of your neighbors home by tanks" 63.5%.

The mean PTSD items were 22.66, and 19.7% of sample met the criterion for a diagnosis of PTSD. Where mean of the intrusion 8.03, the avoidance is 8.39, the hyperarousal 6.47.

Nurses reported a mean PTGI score of 48.1, which considered moderate to great degree (M=48.1, total range 0–84), mostly in the domain of spiritual change 76.7% , and personal strength 61.8%. Top three most frequently reported growth experiences were "I believe more strongly in God" (82.6%), "I understand spiritual matters better" (70.3%), and "I discovered that I am stronger than I thought I was" (67.1%).

There was statistically significant relationship between posttraumatic stress disorder and posttraumatic growth, traumatic events, intrusion, and avoidance.

There was no statistically significant difference among the means of posttraumatic growth according to age (p =0.298), gender (p =0.604), social status (p =0.088), place of residence (p =0.557), educational level (p =0.107), income (p =0.200), place of work (p =0.280), years of experience (p =0.394), and training courses (p =0.066).

List of Abbreviations

ASD	**Acute Stress Disorder**
DSM	**Diagnostic and Statistical Manual of Mental Disorders**
GCMHP	**Gaza Community Mental Health Program**
GS	**Gaza Strip**
MMS	**Military Medical Services**
MOH	**Ministry of Health**
NGOS	**Nongovernmental Organization**
OCHA	**Office for the Coordination of Humanitarian Affairs**
PA	**Palestinian Authority**
PCBS	**Palestinian Central Bureau of Statistics**
PCOH	**Palestinian Council of Health**
PTG	**Posttraumatic Growth**
PTGI	**Posttraumatic Growth Inventory**
PTSD	**Posttraumatic Stress Disorder**
UNRWA	**United Nations Relief & Works Agency**
US	**United State**
WB	**West Bank**

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Chapter One
Introduction

1.1 Introduction

People in Gaza are living under difficult circumstances, dealing on a daily basis with the indicated violence of Israel. Since the siege of the Gaza Strip upon Hamas takeover in June 2007, restrictions on entry of goods in and out of Gaza has brought about a major humanitarian crisis, unprecedented levels of unemployment and aid dependency.

According to a 2007 report by the Palestinian Central Bureau of Statistics and the National Coalition for the Global Call to Action against Poverty-Palestine, and based on income data, 79.4% of households in the Gaza Strip were found to have an income lower than the national poverty line of US$3 per day. The unemployment rate is estimated by a recent UNDP survey to have increased from 36%, prior to the Israeli operations, to 43%. The survey also estimated that poverty among the unemployed has increased from 56% to 66% in the aftermath of military operations (PCBS, 2007).

Office for the Coordination of Humanitarian Affairs (OCHA, 2009) indicates that since the first week of January 2009, 75% of Gaza's population has been cut off from electricity and fuel shortages are found throughout the Gaza strip. On 27 December, 2008 the Israeli Forces launched large-scale air-strikes on the Gaza Strip. After nearly three weeks of daily bombardment, air-strikes and ground troop incursions by Israeli forces into Gaza, over 1,200 individuals from Gaza have died. Hundreds of homes in Gaza have been destroyed, and many more have suffered damage. Internal displacement is high, with more than 90,000 individuals displaced. More than 40,000 Palestinians resided in UNRWA shelters while an estimated 50,000 resided with family and friends (OCHA, 2009).

The health care professionals / providers, such as emergency personnel, social workers, nurses, physicians, and psychologists, who are particularly vulnerable to developing stress reaction due to high emotional burden of working with clients distressed by their exposure to threatening events which consider as secondary traumatic stress. The medical services providers especially nurses perceive the pain of the persons and have to cope with their own reactions in some way. All of these factors may exhaust the man and affect the life style. According to these stressful life events or traumatic events, the Palestinian nurses may develop negative or positive outcomes.

PTSD is a chronic disorder marked by intrusive recollections of the traumatic event, as well as avoidance manifested in behaviors such as withdrawal, psychic numbing, and loss of interest in previously enjoyed activities, in addition to a range of hyperarousal symptoms such as concentration and sleep difficulties, startle reactions, irritability, hostility, and outbursts of rage (Dekel, 2007).

Posttraumatic growth refers to the development of a positive outlook following trauma (Tedeschi & Calhoun, 1996, 2004). Positive changes may include relating to others, new possibilities, personal strength, spiritual change, and appreciation for life (Tedeschi & Calhoun, 2004).

The researcher believes that the Palestinian people live under difficult conditions and circumstances. Some of them deal with daily stressors and pressures. All of these factors affect on the coping styles and mechanisms. The nurses who live in Gaza, considered one of the most vulnerable groups, because they are marginalized, and the services providers groups are deprived from the support as well. Additionally, the nurses used to work in the departments deal with patients suffering from major wounds, and emergency cases. In fact, trauma is an important occupational hazard for nurses as the effects accumulate and may change how the nurses view themselves and their world. Although researchers have extensively studied the negative outcomes of traumatic events, there is growing evidence indicating that these events can also lead to positive outcomes. So the researcher will emphasize on the positive outcome and determine the relationship between posttraumatic stress disorder and posttraumatic growth among nurses in Gaza Strip

1.2 The problem statement

Trauma generally is an important occupational hazard for nurses as the effects accumulate and may change how the nurses view themselves and their world. Although researchers have extensively studied the negative outcomes of traumatic events, there is growing evidence indicating that these events can also lead to positive outcomes. This construing of benefits from traumatic events has been labeled posttraumatic growth (PTG) (Tedeschi & Calhoun, 1995). The effects of trauma and support systems need to be investigated as nurses who are overburdened with work and stress and their own trauma have little resources left to care for and comfort others. As well as the traumatic events lead to negative consequences such as impaired social relations, weak work performance, low

academic achievement and especially impair the performance of the health professionals in the health centers.

1.3 Justifications of the research

Nobody can deny the bad and difficult situations that the Palestinian people live in the last decades especially the last few years. Additionally the unemployment, poverty, security instability, internal clashes, and the last war on Gaza contribute negatively in the bad circumstances surrounding the people. In spite of all these strong and difficult circumstances that may lead to psychological disorders such as PTSD, anxiety, and depression (Thabet et al., 2008). But you can find people who are able to deal with these circumstances, surrounding them, in proper way that support them to be resilient people and others may develop a positive outlook following trauma such as relating to others, new possibilities, personal strength, spiritual change, and appreciation for life (Tedeschi & Calhoun, 2004). Several researchers emphasize on negative outcome of trauma but in this study the researcher will emphasize on the positive outcome and determine the relationship between posttraumatic stress disorder and posttraumatic growth among nurses in Gaza Strip. Finally the researcher will take the lead in searching the posttraumatic growth and its relation with PTSD, especially that no researcher studied this topic as the researcher know.

1.4 Aim of the study

The overall aim of the study is to examine types of traumatic events and the relationship between posttraumatic stress disorder and posttraumatic growth among nurses in Gaza Strip.

1.5 Objectives of the study

The objectives of this study are:

1) To find types and severity of traumatic events among nurses in Gaza Strip.
2) To find rate of posttraumatic growth among nurses in Gaza Strip.
3) To explore rate of posttraumatic stress disorder among nurses in Gaza Strip.
4) To investigate the relationship between posttraumatic stress disorder and posttraumatic growth among nurses in Gaza Strip.
5) To investigate the relationship between posttraumatic growth and socio-demographics data among nurses in Gaza Strip.

1.6 Research questions

To achieve the aim, the study wishes to answer the following research questions:

1) What is the type and severity of traumatic events among nurses in Gaza Strip?
2) What is the rate of posttraumatic growth among nurses in Gaza Strip?
3) What is the rate of posttraumatic stress disorder among nurses in Gaza Strip?
4) What is the relationship between posttraumatic stress disorder and posttraumatic growth among nurses in Gaza Strip?
5) What are the most factors that form the posttraumatic growth among nurses in Gaza Strip?
6) What is the relationship between posttraumatic growth and socio-demographics data among nurses in Gaza Strip?

1.7 Operational and conceptual definition:

1.7.1 Trauma

Trauma is generally defined as an exposure to a situation in which a person is confronted with an event that involves actual or threatened death or serious injury, or a threat to self or others' physical well-being (American Psychiatric Association, 1999). The operational definition of trauma means the scores of the trauma that the nurses get in traumatic events checklist.

1.7.2 Posttraumatic stress disorder

Posttraumatic stress disorder (PTSD) is characterized by a set of symptoms such as re-experiencing symptoms, distressing recollections, persistent avoidance, and hyperarousal in response to exposure to one or more traumatic events (Kaplan & Sadock, 2007). The operational definition of posttraumatic stress disorder means the scores of the posttraumatic stress disorder that the nurses get in posttraumatic stress disorder checklist. If the nurses get fifty scores and higher, they have PTSD according to Blanchard (1996).

1.7.3 Posttraumatic growth

Posttraumatic growth refers to the development of a positive outlook following trauma (Tedeschi & Calhoun, 1996, 2004). Positive changes may include relating to others, new possibilities, personal strength, spiritual change, and appreciation for life (Tedeschi & Calhoun, 2004). The operational definition of posttraumatic growth means the scores of the posttraumatic growth that the nurses get in posttraumatic growth inventory.

1.7.4 Nursing

A nurse is a healthcare providers who, in collaboration with other members of a health care team, is responsible for treatment, safety, and recovery of acutely or chronically ill individuals; health promotion and maintenance within families, communities and populations; and, treatment of life-threatening emergencies in a wide range of health care settings. Nurses perform a wide range of clinical and non-clinical functions necessary to the delivery of health care, and may also be involved in medical and nursing research.

1.7.4.1 Nursing in Palestine

The nursing profession has grown up significantly in the past recent years in Palestine. It has become an extremely important component in the health care system, taking the fact that nurses represent the majorities group among all health care professionals. Therefore, the increased awareness of the Palestinian nurses, together with the feasibility to promoting and developing the nursing profession, has seen in the latest year. The nursing population in Palestine is young. The majority (66.8%) was less than 37 years old. In WB, 73.8% of nursing personal were females. While in GS, females constituted 44.8%. However, the overall male female ratio was 1:1.7 (PCOH, 1997). The total number of employed nurses in Palestine is 5910, out of which 2524 are working in MOH (42.7%), 1602 in NGOS (27.1%), 944 in UNRWA (16%) and 840 in military Medical Services (14.2%) (MOH, 2003). More nurses were employed by the public sector in GS (68%) than in the WB (40.3%). The local and international NGOS employed about 45.2% of the nursing population in the West Bank and 9.8% in GS. The UNRWA employed 6.8% of the West Bank nursing personnel and 16.9% of those in GS. This is related to the fact that there are more refugees residing in GS than in the WB (MOH, 2003).

In general, the majority (59.9%) of nursing personnel were practicing in secondary health care services, 30.9% were in primary health care and 9.2% were in nursing education. At least 62.7% of the WB nursing personnel were practicing in secondary health care and 26.9% in primary health care services, while GS, 55% were in secondary health care and 38% in primary health care. The tertiary services employed only a small portion (5.8%) of the total nursing population. This indicated that these services are limited in Palestine, thus minimizing job opportunities in that level of health care. The ratio of nurses per 5.000 populations was (1.3), this ratio is very low in Palestine compared with required ratio (2).

The neighboring countries have higher ratios so, the nurse per 5.000 population ratio in Palestine should be increased (PCOH, 1997).

1.7.5 Gaza Strip

Gaza Strip is a narrow piece of land lying on the coast of the Mediterranean sea. Its position on the crossroads from Africa to Asia made it a target for occupiers and conquerors over the centuries. The last of these was Israel who occupied the Gaza strip from Egyptians in 1967. Gaza Strip is very crowded place with area 365 sq. Km and constitute 6.1% of total area of Palestinian territory land. In last year of 2010 the population number is to be 1.6 million mainly concentrated in the cities, small village, and eight refugee camps that contain two thirds of the population of Gaza Strip (MOH, 2010). In Gaza Strip, the population density is 3,808 inhabitants/km2 that comprises the following main five governorates: North of Gaza, Gaza City, Mid-Zone, Khan Younis, and Rafah (MOH, 2006). Eighty percent of the population in Gaza falls below the poverty line of US$2 per day (up from 30 percent in 2000) and the unemployment level stands at approximately 50 percent. In addition, people in Gaza have been subject to military occupation, causing significant psychological trauma, particularly for children. The West Bank is an area of land between Israel and Jordan, with total 5860 square kilometers. With a population of over 3 million, and nearly half of the population under the age of 14, growth rates are high. The West Bank and Gaza together constitute Palestine, which is administered by the Palestinian Authority (PA). Most of the population is Muslim, and common Palestinian values include rootedness to the land, strong family bonds, social identity from family and community, and a holistic outlook on life. Refugees account for 73.1% of Gaza Strip and 30.2% of West Bank populations (1.67 million) (PCBS, 2006) (Annex 13).

Chapter Two

Conceptual framework & literature review

2.1 Part 1: Theoretical framework

In this chapter the researcher presents the conceptual framework which consists of two parts. The first part concerns with theoretical framework, definitions and theories of trauma, posttraumatic stress disorder and posttraumatic growth. Whereas the second part reviewed previous studies concerning the variables. Also, the researcher tried to explore the relations between variables as the researcher expected; as shown in the following figure number (2.1). The diagram shows that, nurses who are exposed and experienced trauma may develop PTSD or PTG, the researcher will examine types and severity of traumatic events among nurses, the relationship between posttraumatic stress disorder and posttraumatic growth, and the relationship between posttraumatic growth and socio-demographics data such as age, sex, social status, place of residence, place of work, educational level, and income.

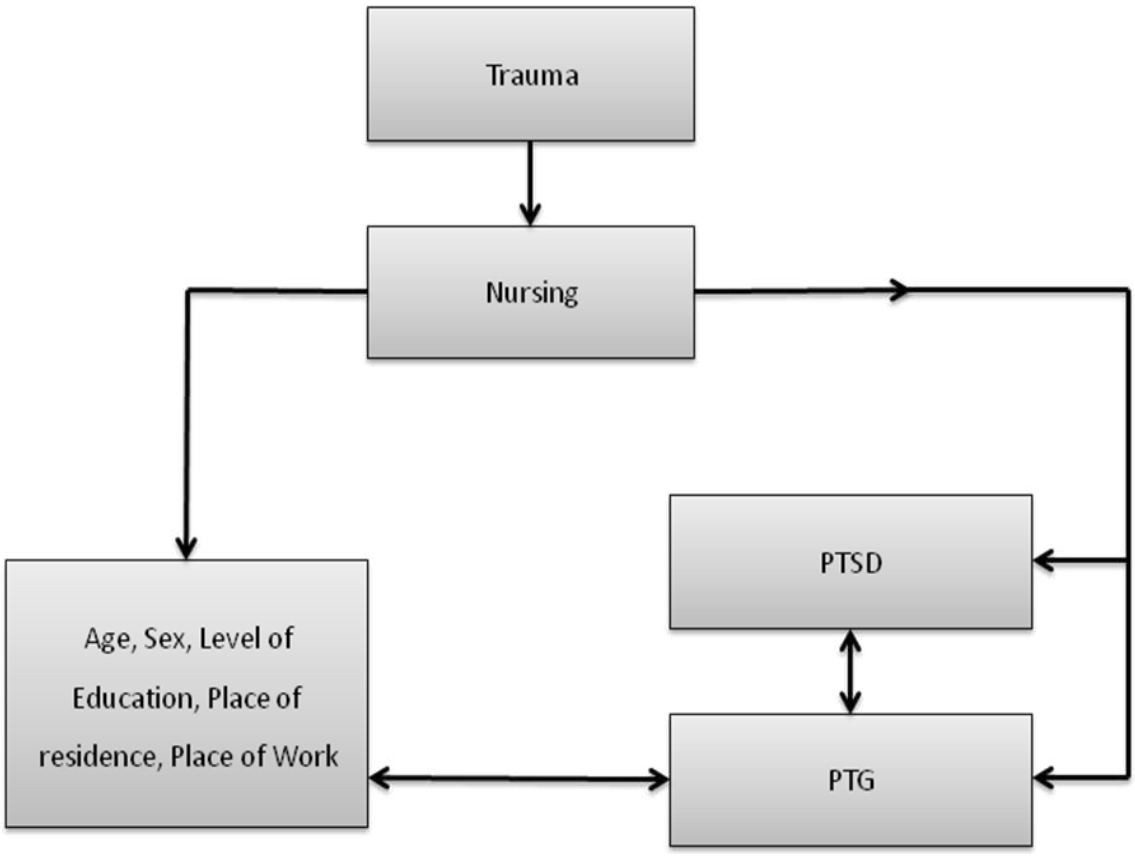

Figure (2.1): diagram of conceptual framework

2.2 Definition of trauma

The DSM-IV TR defines a traumatic event as one in which both of the following were present:

1. The person experienced, witnessed or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others.
2. The person's response involved intense fear, helplessness or horror. Note: in children, this may be expressed instead by disorganized or agitated behavior (DSM-IV TR, 2000).

Trauma is generally defined as an exposure to a situation in which a person is confronted with an event that involves actual or threatened death or serious injury, or a threat to self or others' physical well-being (American Psychiatric Association, 2000). Indeed, a traumatic event confronts individuals with extreme stress and requires coping with a new, unexpected, and unfamiliar situation (American Psychiatric Association, 2000).

Trauma is a psychologically distressing event that is outside the range of usual human experience. And that induces an abnormally intense and prolonged stress response often involves a sense of fear, terror and helplessness (Perry, 2006).

Traumatic events typically involve threats to one's life or body integrity or a close encounter with violence and death, which commonly lead to reactions to of "intense fear, helplessness, loss of control, and threat of annihilation" (Herman, 1992).

As a result of "shattered" assumptions regarding the world and themselves, individuals who have experienced a traumatic event tend to perceive their world as less safe, have lower self-worth, and see less meaning in the world when compared to individuals who have not experienced trauma (Janoff-Bulman, 1992).

2.2.1 Traumatic stress

It is the stress resulting from exposure to, or witnessing of events that are severe and/or life threatening. The extent of traumatic stress experiences varies by duration of exposure and number of exposures. Additionally, the amount of stress incurred will vary according to the availability of resources and coping skills (Terr, 1990).

Terr (1991) divides childhood trauma into two basic types and defines the findings that can be used to characterize each of these types.

Type I trauma: it includes full, detailed memories, "omens," and misperceptions.

Type II trauma: it includes denial and numbing, self-hypnosis and dissociation, and rage.

Crossover conditions often occur after sudden, shocking deaths or accidents that leave children handicapped. In these instances, characteristics of both type I and type II childhood traumas exist side by side. There may be considerable sadness.

2.2.2 Trauma victims

They are two types of trauma victims:

2.2.2.1 Primary trauma victims: individuals who are directly exposed to trauma.

2.2.2.2 Secondary victims: individuals who are indirectly exposed to trauma. These include relatives and loved ones, members of the immediate community or surrounding area, and of course may include relief workers and persons who respond to the incident, and people who experience the trauma through the media (Perry, 2006).

2.2.3 The impact of trauma

Recently, people believed that children were not affected by trauma because they were "too young to remember or understand" what had happened to them. It is now clear that exposure to previous traumatic events can affect all aspects of development - physical, emotional, social, psychological and cognitive - even in babies. It is also known that every child who is exposed to a previous traumatic events will experience and respond to it in his or her own way, depending on their age, developmental stage, the type of the previous traumatic events and the social environment surrounding the child (Fitzgerald Rice & Groves, 2005).

Experience the effects of trauma in varying ways may include some or all of the following:

- Disrupted attachment relationships
- Rapid behavioral regressions i.e. behaviors that are too young for their age.
- Failure to achieve developmental competencies or milestones.
- Anticipatory behavior and traumatic expectations e.g. a fear response with a loud noise.
- Lack of capacity for emotional self-regulation i.e. an inability to calm themselves or control emotions.
- Aggressive behavior against self and others
- Disrupted sleep, eating, and self-care
- Multiple somatic problems, from upset tummies to headaches
- Self-hatred and self-blame
- Feelings of low self worth and hopelessness.

- Poor social skills
- Tend to be withdrawn, or to bully other children
- Apparent lack of awareness of danger and resulting self endangering behaviors.
- Avoidance and controlling behaviors

2.2.4 Types of trauma

There are different types of trauma:

Simple: This type of trauma is usually caused by a single incident. The incident is usually one that involves life threatening events and/or events that have the potential to cause serious injury. Examples: car accident, fire cyclone, and shooting.

Complex: This type of trauma is usually longer in duration and involves multiple incidents. The incidents are usually ones that involve interpersonal violence or violation and as a result they are almost always associated with a sense of shame and stigma. Examples:' All forms of child abuse, bullying, experiences of war, Imprisonment (Meichenbaum, 1994).

2.2.5 Risk factors that increase vulnerability to trauma

Not all potentially previous traumatic events lead to lasting emotional and psychological damage. Some people rebound quickly from even the most tragic and shocking experiences. Others are devastated by experiences that, on the surface, appear to be less upsetting. A number of risk factors make people susceptible to emotional and psychological trauma. People are more likely to be traumatized by a stressful experience if they're already under a heavy stress load or have recently suffered a series of losses. People are also more likely to be traumatized by a new situation if they've been traumatized before - especially if the earlier trauma occurred in childhood (De Silva, 1999).

2.3 Trauma theories

There are many theories which may explain the trauma:

2.3.1 Psychological trauma

To understand what trauma does we have to understand what it is. Lenore Terr, a child psychiatrist who did the first longitudinal study of traumatized children writes, "psychic trauma occurs when a sudden, unexpected, overwhelming intense emotional blow or a series of blows assaults the person from outside. Traumatic events are external, but they quickly become incorporated into the mind" (Terr, 1990). Van der Kolk makes a similar

point about the complicated nature of trauma when he says, "Traumatization occurs when both internal and external resources are inadequate to cope with external threat" (Van der Kolk, 1989). Both clinicians make the point that it is not the trauma itself that does the damage. It is how the individual's mind and body reacts in its own unique way to the traumatic experience in combination with the unique response of the individual's social group. Children are traumatized whenever they fear for their lives or for the lives of someone they love. A traumatic experience impacts the entire person - the way we think, the way we learn, the way we remember things, the way we feel about ourselves, the way we feel about other people, and the way we make sense of the world are all profoundly altered by traumatic experience (Bloom, 1999).

2.3.2 Evolutions's legacy Theory

It is impossible to fully understand human behavior and the human response to trauma without grasping key insights about the way our evolution has affected us. The fight-or-flight response described below is a part of our mammalian heritage, and continues to profoundly impact, at a physiological level, our response to all stresses, even those caused by our sophisticated social environments. We are born with a number of innate emotions that are also part of our mammalian heritage and that produce patterned and predictable responses in all of our organs, including our brain. This means that overwhelming emotions can do damage to our bodies as well as our psyches. As a species we survived largely because we developed as social animals for mutual protection and this social nature of human beings is grounded in our need to attach to other human beings from cradle to grave. Children who suffer disrupted attachments may suffer from damage to all of their developmental systems, including their brains and we are particularly ill-suited to having the people we are attached to also be the people who are violating us. Our very complex brains and powerful memories distinguish us as the most intelligent of all animals, and yet as we will see, it is this very intelligence that leaves us vulnerable to the effects of trauma such as flashbacks, body memories, post-traumatic nightmares and behavioral reenactments. The social nature of our species is guaranteed by an innate sense of reciprocity that can be observed even among primates. But this same sense of "fair play" leads not only to the evolution of justice systems, but also to the need for revenge. The result is that you cannot hurt anyone, most importantly children, without setting the stage for revenge that will be exacted either upon themselves, upon others, or both. Finally, we are physiologically designed to function best as an integrated whole, just like the

computers that we now build. The fragmentation that accompanies traumatic experience degrades this integration and impedes maximum performance in a variety of ways. Human brains function best when they are adequately stimulated but simultaneously protected from overwhelming stress. This explains our need for order, for safety, for adequate protection (Terr, 1990).

2.3.3 The fight-or-flight response theory

We are animals and like other animals, we are biologically equipped to protect ourselves from harm as best we can. The basic internal protective mechanism is called the fight-or-flight reaction. Whenever we perceive that we are in danger our bodies make a massive response that affects all of our organ systems. This change in every area of basic function is so dramatic that in many ways, we are not the same people when we are terrified as when we are calm. Each episode of danger connects to every other episode of danger in our minds, so that the more danger we are exposed to, the more sensitive we are to danger. With each experience of fight-or-flight, our mind forms a network of connections that get triggered with every new threatening experience. If children are exposed to danger repeatedly, their bodies become unusually sensitive so that even minor threats can trigger off this sequence of physical, emotional, and cognitive responses. They can do nothing to control this reaction - it is a biological, built-in response, a protective device that only goes wrong if we are exposed to too much danger and too little protection in childhood or as adults. The real nature of the fight-or-flight response means that if we hope to help traumatized people, then we must create safe environments to help counteract the long-term effects of chronic stress (Seligman, 1992).

2.3.4 Learned helplessness theory

If a person is able to Master degrees the situation of danger by successfully running away, winning the fight or getting help, the risk of long-term physical changes are lessened. But in many situations considered to be traumatic, the victim is helpless and it is this helplessness that is such a problem for human beings. As a species, we cannot tolerate helplessness - it goes against our instinct for survival. We know from animal experiments, that helplessness can cause changes in the animals' ability to recognize and escape from danger so that once the animal becomes accustomed to trauma, it fails to try and escape from danger. This has been called "learned helplessness". Apparently, there are detrimental changes in the basic neurochemistry that allows the animal to self motivate out

of dangerous situations. Change only occurs when the experimenter actively intervenes and pulls the animal out of the cage. At first, the animal runs back in, but after sufficient trials, it finally catches on and learns how to escape from the terror once again. The animals' behavior improves significantly, but they remain vulnerable to stress. As in human experience, animals show individual variation in their responses. Some animals are very resistant to developing "learned helplessness" and others are very vulnerable. We know that people can learn to be helpless too, that if a person is subjected to a sufficient number of experiences teaching him or her that nothing they do will affect the outcome, people give up trying. This means that interventions designed to help people overcome traumatizing experiences must focus on Master degrees and empowerment while avoiding further experiences of helplessness (Seligman, 1992).

2.3.5 Loss of "volume control" theory

The experience of overwhelming terror destabilizes our internal system of arousal - the internal "volume control" dial that we normally have over all our emotions, especially fear. Usually, we respond to a stimulus based on the level of threat that the stimulus represents. People who have been traumatized lose this capacity to "modulate arousal". They tend to stay irritable, jumpy, and on-edge. Instead of being able to adjust their "volume control", the person is reduced to only an "on-or-off' switch, losing all control over the amount of arousal they experience to any stimulus, even one as un threatening as a crying child. Children are born with only an on-or-off switch. Gradually, over the course of development and with the responsive and protective care of adults, the child's brain develops the ability to modulate the level of arousal based on the importance or relevance of the stimulus. This is part of the reason why the capacity of adults to soothe frightened children is so essential to their development. They cannot soothe themselves until they have been soothed by adults. Children who are exposed to repeated experiences of overwhelming arousal do not have the kind of safety and protection that they need for normal brain development. They may never develop normal modulation of arousal. As a result they are chronically irritable, angry, unable to manage aggression, impulsive, and anxious. Children - and the adults they become - who experience this level of anxiety will understandably do anything they can to establish some level of self-soothing and self-control. Under such circumstances, people frequently turn to substances, like drugs or alcohol, or behaviors like sex or eating or even engagement in violence, all of which help them to calm down, at least temporarily. If you have never been able to really control your

feelings, and you discover that alcohol gives you some sense of control over your internal states, it is only logical that you will turn to alcohol for comfort. The experience of control over helplessness will count for much more than anyone's warnings about the long-term consequences of alcohol abuse. The implication of these findings for intervention strategies is that we need to understand that many of the behaviors that are socially objectionable and even destructive are also the individual's only method of coping with overwhelming and uncontrollable emotions. If they are to stop using these coping skills, then they must be offered better substitutes, most importantly, healthy and sustaining human relationships. Blaming and punishment is thus counterproductive to the goals that we hope to achieve - they just tend to make things worse (Alford et al., 1988).

2.3.6 Thinking under stress - action not thought

Our capacity to think clearly is also severely impaired when we are under stress. When we perceive that we are in danger, we are physiologically geared to take action, not to ponder and deliberate. In many situations of acute danger it is better that we respond immediately without taking the time for complicated mental processing, that we respond almost reflexively to save our lives or to protect those we love. When stressed, we cannot think clearly, we cannot consider the long-range consequences of our behavior, we cannot weigh all of the possible options before making a decision, we cannot take the time to obtain all the necessary information that goes into making good decisions. Our decisions tend to be based on impulse and are based on an experienced need to self-protect. As a consequence these decisions are inflexible, oversimplified, directed towards action, and often are very poorly constructed (Janis, 1982). In such situations people demonstrate poor judgment and poor impulse control. The mind is geared towards action and often the action taken will be violent. Many victims have long-term problems with various aspects of thinking. An intolerance of mistakes, denial of personal difficulties, anger as a problem-solving strategy, hyper vigilance, and absolutistic thinking are other problematic thought patterns that have been identified (Alford et al., 1988).

In formulating intervention strategies, this means that every effort should be made to reduce stress whenever good decisions are sought. It also means that we need to look at the growing sources of social stress that are inflicted on individuals and families at home, in the workplace, and in the community and evaluate what kinds of buffers can be put into place that help attenuate the effects of these stressors.

2.3.7 Remembering under stress

Our way of remembering things, processing new memories, and accessing old memories is also dramatically changed when we are under stress. Still, there is a growing body of evidence indicating that there are actually two different memory systems in the brain - one for normal learning and remembering that is based on words and another that is largely nonverbal (Van der Kolk, 1996). Our verbally based memory system is vulnerable to high levels of stress. Under normal conditions, the two kinds of memory function in an integrated way. Our verbal and nonverbal memories are thus usually intertwined and complexly interrelated. What we consider our "normal" memory is based on words. From the time we are born we develop new categories of information, and all new information gets placed into an established category, like a filing cabinet in our minds. We talk in words, of course, but we also think with words. The person we identify as "me" is the person who thinks and has language. When we need to recall something, we go into the appropriate category and retrieve the information we need. But under conditions of extreme stress, our memory works in a different way. When we are overwhelmed with fear, we lose the capacity for speech we lose the capacity to put words to our experience. Without words, the mind shifts to a mode of thinking that is characterized by visual, auditory, olfactory, and kinesthetic images, physical sensations, and strong feelings. This system of processing information may be adequate under conditions of serious danger. But the powerful images, feelings, and sensations do not just "go away". They are deeply imprinted, more strongly in fact, than normal everyday memories. The neuroscientist Joseph LeDoux (1992) has called this "emotional memory" and has shown that this kind of memory can be difficult or impossible to erase, although we can learn to override some of our responses. This "engraving" of trauma has been noted by many researchers studying various survivor groups (Van der Kolk, 1996). Problems may arise later because the memory of the events that occurred under severe stress are not put into words and are not remembered in the normal way we remember other things. Instead, the memories remain "frozen in time" in the form of images, body sensations like smells, touch, tastes, and even pain, and strong emotions. A flashback is a sudden intrusive re-experiencing of a fragment of one of those traumatic, universalized memories. During a flashback, people become overwhelmed with the same emotions that they felt at the time of the trauma. Flashbacks are likely to occur when people are upset, stressed, frightened, or aroused or when triggered by any association to the previous traumatic events. Their minds can become flooded with the images, emotions, and physical sensations associated with the trauma and

once again. But the verbal memory system may be turned off because of the arousal of fear, so they cannot articulate their experience and the nonverbal memory may be the only memory a person has of the previous traumatic events. At the time of the trauma they had become trapped in "speechless terror" and their capacity for speech and memory were separated. As a result, they developed what has become known as "amnesia" for the previous traumatic events - the memory is there, but there are no words attached to it so it cannot be either talked about or even thought about. Instead, the memory presents itself as some form of nonverbal behavior and sometimes as a behavioral reenactment of a previous event. Even thinking of flashbacks as "memories" is inaccurate and misleading. When someone experiences a flashback, they do not remember the experience, they relive it. Often the flashback is forgotten as quickly as it is happens because the two memory systems are so disconnected from each other. Over time, as people try to limit situations that promote hyperarousa1 and flashbacks, limit relationships which trigger emotions, and employ behaviors designed to control emotional responses, they may become progressively numb to all emotions, and feel depressed, alienated, empty, and even dead. In this state, it takes greater and greater stimulation to feel a sense of being alive and they will often engage in all kinds of risk-taking behaviors since that is the only time they feel "inside" themselves once again. If we cannot remember an experience we cannot learn from it. This is one of the most devastating aspects of prolonged stress. The implicit functioning of the brain, life-saving under the immediate conditions of danger, becomes life threatening when the internal fragmentation that is the normal response to overwhelming trauma, is not healed. The picture becomes even more complicated for children who are exposed to repeated experiences of unprotected stress. Their bodies, brains, and minds are still developing. We are only beginning to understand memory, traumatic memory, and how these memory systems develop and influence each other (Perry, 1993; Schwarz & Perry, 1994). We do know that children who are traumatized also experience flashbacks that have no words. For healing to occur, we know that people often need to put the experience into a narrative, give it words, and share it with themselves and others. Words allow us to put things into a time sequence - past, present, future. Without words, the traumatic past is experienced as being in the ever present "Now". Words allow us to put the past more safely in the past where it belongs. Since a child's capacity for verbalization is just developing, their ability to put their traumatic experience into words is particularly difficult. In cases of childhood terror, language functions are often compromised. Instead, children frequently act-out their memories in behavior instead of

words (James, 1994). They show us what happened even when they cannot tell us. We call this automatic behavioral reliving of trauma, "traumatic reenactment". The implications of this important information about memory and trauma are extensive. It means that environments designed to intervene in the lives of suffering people must provide an abundance of opportunities for people to talk, and talk and talk about their experiences, their past lives, their conflicts, their feelings. It means that programs that focus on nonverbal expression - a description that includes art, music, movement, and theatre programs as well as sports - are vital adjuncts to any community healing efforts and should be funded, not eliminated, in the schools. It means that the arts can play central role in community healing, serving as a "bridge across the black hole of trauma" (Bloom, 1996).

2.3.8 Emotions and trauma – dissociation

We don't usually think about it, but it is possible to die of fright or to die of a broken heart. Every vital organ system is closely tied in through the autonomic nervous system, with our emotional system. In fact, however, people rarely die from emotional upsets. A fundamental reason for such rarity, despite the extent of fearful circumstances that children face, is the built-in safety valve that we call dissociation. Dissociation is defined as a disruption in the usually integrated functions of consciousness, memory, identity, or perception of the environment. Dissociation helps us do more than one thing at once. We can go on autopilot and automatically complete tasks that we have previously learned well, while we are focused on something else. This increase in efficiency may help explain why we evolved the ability. Traumatized people make special use of this capacity. There are different ways that people dissociate. Fainting is an extreme form of simply stopping consciousness. Psychogenic fainting is the brain's way of saying, I can't handle this . We are able to cut off all our emotions but that usually happens only in extreme cases of repetitive and almost unendurable trauma. More commonly we cut-off or diminish specific emotional responses, based on the danger the emotion may present to continued functioning. Our emotions are intimately tied to the expression of emotion through our facial expressions, our tone of voice, our gestures, so that we easily give away what we may be consciously trying to hide. If you grow up in a violent home, where every time you express anger you get beaten, it is best that you never show anger. If you grow up in a home or a culture that says that little boys who cry are wimps who should be taught a lesson , then it is a good idea to learn to never feel sadness, therefore minimizing the danger of tears. If any sign of pleasure or laughter is met with hostility

and abuse, then it is best that you never feel joy. In this way, children from destructive situations learn how not to feel, they learn to dissociate their emotions from their conscious experience and their nonverbal expression of that emotion and in doing so, they can possibly stay safer than if they show what they feel. That does not mean that the emotion actually goes away. It does not. Emotions are built-in, part of our evolutionary, biological heritage and we cannot eliminate them, we can only transmute them. There is an abundance of evidence from various sources that unexpressed emotions may be very damaging to one's mental and physical health (Pennebaker, 1997).

2.3.9 Endorphins and stress -addiction to trauma

These magical substances called endorphins are a part of normal, everyday functioning, but they are especially important during times of stress. Again, if we look at evolution, this makes sense. Not only do endorphins calm anxiety, improve our mood, and decrease aggression, but they also are great analgesics since they are related to morphine and heroin. Therefore, in times of stress, they provide enough pain relief that we are not disabled by injuries that would otherwise prevent us from escaping the danger. If people are only exposed to rare episodes of overwhelming stress, then they are less likely to show alterations in this biochemical system. Far more problematic are those people who are exposed to repeated experiences of prolonged stress. These people, often children, are exposed to repeatedly high levels of circulating endorphins. One hypothesis is that people can become "addicted" to their own internal endorphins and as a result only feel calm when they are under stress while feeling fearful, irritable and hyperaroused when the stress is relieved, much like someone who is withdrawing from heroin. This has been called "addiction to trauma" (Van der Kolk & Greenberg, 1987).

If this cycle is in place, then it helps us to understand many of the perplexing symptoms that have been incomprehensible without this information. Stress-addicted children will be those children in the classroom who cannot tolerate a calm atmosphere but must keep antagonizing everyone else until the stress level is high enough for them to achieve some degree of internal equilibrium again. Violence is exciting and stressful and repeated violent acting-out, gang behavior, fighting, bullying, and many forms of criminal activity have the additional side effect of producing high levels of stress in people who have grown addicted to such risk-taking behavior. This also helps to explain self-mutilation in its many forms - these children and adults have learned that

inflicting harm on the body will induce the release of endorphins that will provide some comfort, at least temporarily. These are children, who grow to be adults, unable to trust or be comforted by other people - in fact other people have been the fundamental source of the stress. Instead, they must fall back on whatever resources they can muster within themselves, resources that they can control, to achieve any kind of equilibrium. As adults, under stress, people who have been brutalized as children may again resort to behaviors that help induce some kind of alteration in the opioid system. These behaviors can include self-mutilation, risk taking behavior, compulsive sexuality, involvement in violent activity, bingeing and purging, and of course, drug addiction. This recognition of the importance of addiction to trauma implies that intervention strategies must focus on helping people to "detox" from this behavioral form of addiction by providing environments that insist on the establishment and maintenance of safety. Physiological stability cannot be achieved as long as the person is on an emotional roller coaster of stimulus and response (Bloom, 1999).

2.3.10 Trauma-bonding

Even more ominous for repeatedly traumatized people is their pronounced tendency to use highly abnormal and dangerous relationships as their normative idea of what relationships are supposed to be (Herman, 1992; James, 1994). Trauma-bonding is a relationship based on terror and the twisting of normal attachment behavior into something perverse and cruel. People who are terrorized, whether as adult victims of torture, or domestic violence or child victims of family abuse, experience their abuser as being in total control of life and death. The perpetrator is the source of the pain and terror, but he is also the source of relief from that pain. He is the source of threat but he is also the source of hope.

This means that people who have been traumatized need to learn to create relationships that are not based on terror and the abuse of power, even though abusive power feels normal and right. In such cases, people often need direct relationship coaching and the direct experience of engaging in relationships that are not abusive and do not permit abusive and punitive behavior.

2.3.11 Trauma and the body

Victims of chronic trauma, abuse and neglect often suffer from a multitude of physical disorders not directly related to whatever injuries they have suffered. There is now a science of stress-related disorders that details how stress impacts negatively on the body in

a number of ways, producing short-term and long-term physical consequences (Sarno, 1998). A recent study by the Center for Disease Control (Felitti et al., 1998) surveyed almost 14,000 adults in a health maintenance organization, asking participants about their adverse childhood experiences divided into categories that included physical, sexual and emotional abuse, witnessing violence against one's mother, living as a child with a household member who was either imprisoned, mentally ill, suicidal, or a substance abuser. There was a direct relationship between the number of categories of adverse childhood experience and adult diseases including ischemic heart disease, cancer, chronic lung disease, skeletal fractures, and liver disease. The seven categories of adverse childhood experiences were strongly interrelated and persons with multiple categories of childhood exposure were likely to have multiple health risk factors later in life (Felitti et al., 1998).

2.3.12 Victim to victimizer

When we understand the effects of trauma it is easier to grasp how someone could be victimized and turn away from the victim role and towards the victimizer role instead. A victim is both helpless and powerless, and as we have seen, helplessness is a noxious human experience. Human beings will do anything to avoid feeling powerless. If you have been victimized, one of the possible outcomes is to assume the power of the one who has hurt you by becoming someone who terrorizes and abuses others. Such behavior can reduce anxiety while providing a certain excitement and the combination of these two effects can become habit-forming. These effects can also be profoundly culturally influenced. The traditional definition of masculinity does not allow for helplessness - you cannot be a victim and be masculine. In contrast, the traditional definition of femininity not only allows for but encourages, powerlessness and therefore the open possibility of victimization. It should come as no surprise, therefore, that more men would accommodate to the victimizer role and women the victim role (Real, 1997).

2.3.13 Issues of meaning and spirituality

As Ronnie Janoff-Bulman has shown (1992), the experience of trauma shatters - often irrevocably some very basic assumptions about our world, our relationship to others, and our basic sense of identity and place in the world. A sense of meaning and purpose for being alive are shaken. Making sense out of violence, transcending its effects, and transforming the energy of violence into something powerfully good for oneself and the

community describes what Judith Herman has called "a survivor mission" (1992). It is often a mission that encompasses the remainder of one's life. Confrontation with the spiritual, philosophical, and/or religious context - and conflicts - of human experience is impossible to avoid if recovery is to be assured.

2.3.14 Conclusion on theories of trauma

The researcher shows four theories which explained trauma. They are evolutions' legacy theory, the fight-or-flight response theory, learned helplessness theory, and loss of "volume control" theory. These theories explained trauma with different perspectives and overlapped in same time. Where, evolutions' legacy theory postulates that people are born with a number of innate emotions that are a part of mammalian heritage and that produce predictable responses in all human organs, including the brain. This means that overwhelming emotions can do damage to the human body as well as human psych. According to evolutions' legacy theory, humans developed as social animals for mutual protection and this social nature of human beings is grounded in their need to attach to other human beings from cradle to grave, so children who suffer disrupted attachments may suffer from damage to all of their developmental systems, including their brains and we as humans cannot attach to the people who are violating us. Evolutions' legacy theory adds that we are physiologically designed to function best as an integrated whole. The fragmentation that accompanies traumatic experience degrades this integration and impedes maximum performance in a variety of ways. This explains our need for order, for safety, for adequate protection. We notice that this theory explain trauma through biological perspective. Also, the fight-or-flight response theory explain trauma through biological perspective. Where, it postulates that we are not the same people when we are terrified as when we are calm. We are biologically equipped to protect ourselves from harm as best we can by using basic internal protective mechanism called the fight-or-flight reaction. So, whenever we perceive that we are in danger our bodies make a massive response that affects all of our organ systems. With each experience of fight-or-flight, our mind forms a network of connections that get triggered with every new threatening experience. The real nature of the fight-or-flight response means that if we hope to help traumatized people, then we must create safe environments to help counteract the long-term effects of chronic stress. We also notice that the fight-or-flight response is considered a part of our mammalian heritage according to evolutions' legacy theory, which indicates that evolutions' legacy theory and the fight-or-flight response theory are overlapped. But,

learned helplessness theory postulates that in traumatic situations, the victim is helpless and this helplessness can cause changes in human's ability to recognize and escape from danger. So, once the human becomes accustomed to trauma, he or she fails to try and escape from danger, and this has been called "learned helplessness". Learned helplessness theory adds that if a person is subjected to a sufficient number of experiences teaching him or her that nothing they do will affect the outcome, people give up trying. This means that interventions designed to help people overcome traumatizing experiences must focus on Master degrees and empowerment while avoiding further experiences of helplessness. Finally, loss of "volume control" theory postulates that the safety and protection which human needs for normal brain development specially the children, as evolutions' legacy theory postulates too, can't be gained when they are exposed to repeated experiences of overwhelming arousal. Also, they may never develop normal modulation of arousal. As a result they are chronically irritable, angry, unable to manage aggression, impulsive, and anxious, because the experience of overwhelming terror destabilizes our internal system of arousal - the internal "volume control" dial that we normally have over all our emotions, especially fear. So, people who have been traumatized lose the capacity to "modulate arousal", and instead of being able to adjust their "volume control", they tend to stay irritable, jumpy, and on-edge. Also , the theory postulated that the child's brain develops the ability to modulate the level of arousal gradually over the course of development and with the responsive and protective care of adults. The theory adds that people under such circumstances, frequently turn to substances, like drugs or alcohol, or behaviors like sex or eating or even engagement in violence, all of which help them to calm down, at least temporarily. They do that to give them some sense of control over their internal states and over helplessness. If they are to stop using these coping skills, then they must be offered better substitutes, most importantly, and healthy.

We notice that learned helplessness theory and loss of "volume control" theory overlaps in the issue of helplessness, where learned helplessness theory postulates that the victim in traumatic situations is helpless and this helplessness can cause changes in human's ability to recognize and escape from danger, and loss of "volume control" theory postulates that people who have been traumatized lose the capacity to adjust their "volume control", they tend to stay irritable, on-edge, and some of them turn to substances and other bad behavior to give them some sense of control over helplessness. Also, both of evolutions' legacy theory and loss of "volume control" theory stress on the need of the safety and protection

for human beings, and how trauma as overwhelming stress can do damage to the human body as well as human psych.

2.4 Posttraumatic stress disorder (PTSD)

Posttraumatic stress disorder (PTSD) is a disorder that develops after a person sees, or involves in, or hears of an extreme, sudden, un-expected, un-avoidable traumatic event. The person reacts to this experience with intense fear, horror or helplessness, persistently relives the event, and tries to avoid being reminded of it .To make the diagnosis, the symptoms must last for more than a month after the event and must significantly affect important areas of daily life such as family and work. The text revision of the fourth edition of Diagnostic and Statistical Manual Disorders (DSM-IV-TR) defines a disorder that is similar to PTSD called acute stress disorder (ASD), called by the ICD10 a cute stress reaction, which occurs earlier than PTSD (within 4weeks of the event and remits within 2 days to 4 weeks. If symptoms persist after the time a diagnosis of PTSD is warranted.

The events causing both ASD and PTSD are overwhelming enough to affect almost anyone. They can arise from natural or manmade events like natural catastrophes, war, imprisonment, torture, assault, rape, and serious accidents. Persons re-experience the traumatic event in their dreams and their daily thoughts, they are determined to avoid anything that would bring the event to mind, and they undergo a numbing of responsiveness along with a state of hyper-arousal. Other associated symptoms are depression and cognitive difficulties such as poor concentration (El sarraj et al., 2008).

2.4.1 History of posttraumatic stress disorder

Soldier's heart or irritable heart was the name given during the U.S. Civil War to a syndrome similar to PTSD. In the 1900s psychoanalysts, particularly in the United States, applied the diagnosis of traumatic neurosis to the condition. In World War I, the syndrome was called "shell shock ". In World War II veterans and survivors of the atomic bombings in Japan had similar symptoms, called "combat neurosis or operational fatigue". The psychiatric morbidity associated with Vietnam War veterans finally brought the concept of post traumatic stress disorder, as it is currently known (El sarraj et al., 2008).

2.4.2 Epidemiology of posttraumatic stress disorder

The prevalence of PTSD varies according to the exposure to traumatic events of the population studied. General population rates are around 1-3 percent. Among high-risk groups whose members experienced traumatic events, the lifetime prevalence rates range from 5 to 75 percent. About 30 per cent of Vietnam veterans experienced PTSD. Although PTSD can appear at any age, it is most prevalent in young adults, because they tend be more exposed to precipitating situations. Children can also have the disorder. Men and women differ in the types of traumas to which they are exposed and their liability to develop PTSD. The lifetime prevalence is significantly higher in women, and a higher proportion of women go on to develop the disorder. The disorder is most likely to occur in those who are single, divorced, widowed, socially withdrawn, or of low, socioeconomic level. The most important risk factors, however, for this disorder are the severity, duration, and proximity of a person's exposure to the actual trauma. There seems to be a familiar pattern for this disorder, and first-degree biological relatives of persons with a history of depression have an increased risk for developing PTSD following a traumatic event. Reported rates among crime victims are between 19 and 75 percent, and rates as high as 80 per cent have been reported following rape. In Gaza, a city in Palestinian Authority area, one study conducted by the Gaza Community Mental Health Program GCMHP, 1996 reported prevalence rates of PTSD among ex- political prisoners were 30 per cent (El sarraj et al., 2008).

2.4.3 Co-morbidity of posttraumatic stress disorder

Co-morbidity rates are high among clients with PTSD, about two thirds having at least two other disorders. Common co-morbid disorders include mood disorders (depressive or bipolar disorders), substance-related disorders, other anxiety disorders and sometimes psychotic manifestations. Co-morbid disorders make persons more vulnerable to developing PTSD and vise versa (El sarraj et al., 2008).

2.4.4 Diagnosis of posttraumatic stress disorder

The DSM-IV-TR diagnostic criteria for PTSD specify that the symptoms of experiencing, avoidance, and hyper arousal must have lasted more than one month. For patients whose symptoms have been present less than one month, the appropriate diagnosis may be acute stress disorder ASD.

DSM-IV-TR Diagnostic Criteria for PTSD allow clinicians to specify whether the disorder is acute (if the symptoms have lasted less than 3 months) or chronic (if the symptoms have lasted 3 months) DSM-IV-TR also allows clinicians to specify that the disorder was with delayed onset if the onset of the symptoms was 6 months or more after the stressful event (El sarraj et al., 2008)(Annex 7).

2.5 Psychological processes and posttraumatic stress disorder

PTSD is associated with disturbances in a wide range of psychological processes including memory, attention, cognitive–affective reactions, beliefs, coping strategies, and social support. At present, it appears that what is most likely unique to PTSD, compared to other psychological disorders, are the unusual and inconsistent memory phenomena centered on the event itself and the recruiting of a variety of dissociative responses. In contrast, the findings concerning other processes have much in common with the results of research on depression and other anxiety disorders, with which PTSD is frequently co-morbid. It is clear that the emotions involved in PTSD are not by any means restricted to fear, helplessness, and horror, or to what was actually experienced at the time of the trauma. Beliefs, too, are not restricted to those concerning the event itself but may involve much more general aspects of the person, the social world, and the future (Brewin & Holmes, 2003).

2.5.1 Memory and posttraumatic stress disorder

In PTSD, a number of changes in memory functioning have been identified that are comparable with studies of depressed patients: There tends to be a bias toward enhanced recall of trauma-related material and difficulties in retrieving autobiographical memories of specific incidents (Buckley et al., 2000). More specific to PTSD is a contradictory pattern of recall related to the traumatic material itself, similar to that found in studies of emotion and memory in nonclinical samples: In some studies, high levels of emotion are associated with more vivid and long-lasting memories (e.g., Brown & Kulik, 1977; Conway et al., 1994; Pillemer, 1998; Rubin & Kozin, 1984), while in others, they are associated with memories that are vague, lacking in detail, and error prone (e.g., Koss et al., 1996; Kuehn, 1974; Loftus & Burns, 1982).

The DSM-IV (American Psychiatric Association, 1994) describes PTSD as characterized both by high-frequency, distressing, intrusive memories and by amnesia for the details of the event. Consistent with this are clinical studies and observations reporting that

confusion and forgetting are as typical of trauma memories as is vivid, lasting recall (Herman, 1992; Terr, 1990; van der Kolk & Fisler, 1995). More systematic studies of patients' memories of personally experienced traumatic events confirm that recall tends to improve over the first few weeks (Mechanic et al., 1998), that their content may change (Schwarz et al., 1993; Southwick et al., 1997), and that they tend to be disorganized and contain gaps (Foa et al., 1995; Harvey & Bryant, 1999a,b).

The other notable feature of memory in PTSD is the reliving experiences or ''flashbacks'' to the trauma. Compared to normal autobiographical memory, flashbacks are dominated by sensory detail such as vivid visual images and may include sounds and other sensations. However, these images and sensations are typically disjointed and fragmentary. ''Reliving'' of these memories is reflected in a distortion in the sense of time such that the traumatic events seem to be happening in the present rather than (as in the case of ordinary memories) belonging to the past. Reliving episodes also do not seem to occur as a result of a deliberate search of memory, but are triggered involuntarily by specific reminders that relate in some way to the circumstances of the trauma, such as the sound of a police siren or the smell of smoke, or particular thoughts or images relating to the event. Although flashbacks are routinely described by clinicians and researchers working with traumatized victims (e.g., Bremner et al., 1995; Ehlers & Clark, 2000; Janet, 1904), there has been relatively little research to back up the many informal observations about their nature. In one of the first systematic studies, Reynolds and Brewin (1998) interviewed matched groups of patients suffering from either PTSD or depression, as well as nonclinical controls, and asked them to describe the image or thought related to a stressful event that was most frequently coming to mind. Flashbacks, either on their own or in combination with other images and thoughts, were reported as the most frequent intrusive cognition by 43% of the PTSD patients, 9% of the depressed patients, and none of the non patients. This supports the claim that flashbacks are a distinctive feature of PTSD. More recent research has started to look at other memory processes that are relevant to PTSD. For example, individual differences in working memory capacity (i.e., the ability to hold and manipulate material in focal attention) appear to be related to the ability to prevent unwanted material from intruding and negatively affecting task performance. Healthy individuals with greater working memory capacity are better at suppressing unwanted thoughts when instructed to do so under experimental conditions, whether these thoughts are neutral (Brewin & Beaton, 2002) or obsessional (Brewin & Smart, 2002) in nature. These findings may help

to explain why low intelligence, which is strongly related to working memory capacity, is a risk factor for PTSD (Brewin et al., 2000). Given the demands of psychological therapy, low levels of working memory capacity may also predict a less successful outcome in therapy.

2.5.2 Attention and posttraumatic stress disorder

Studies of attention in PTSD have recently been reviewed by Buckley et al. (2000), who divided the literature into studies of automatic and strategic processing. Two studies have suggested that there is an attentional bias operating very early in processing, as shown by slowed color naming following subliminal presentation of trauma words on a Stroop test (Harvey et al., 1996) and speeded reaction time to trauma words in a dot probe paradigm (Bryant & Harvey, 1997). However, comparable results were not obtained using an auditory recognition task with Vietnam veterans (Trandel & McNally, 1987). Thus, strong conclusions cannot be drawn, and further evidence is needed concerning automatic processing.

In contrast, Buckley et al. argued that the evidence for attentional bias is clearer in studies targeting post-recognition processes, for example using Stroop tasks with supraliminal presentation times (Bryant & Harvey, 1995; Foa et al., 1991; McNally et al., 1996). While attentional bias is clearly important in PTSD, the research does not provide evidence that the effects are unique to PTSD. Rather than using the above paradigms, tasks which look at sustained attention and repeated exposure to threat stimuli may be more relevant to cognitive and exposure treatments which require patients to attend and process their trauma memories for an extended period of time. They may also be more ecologically valid in terms of patients' daily experience of vigilance in environments rich in threat cues. However, the available evidence on whether PTSD is associated with deficits in sustained attention is inconsistent (Vasterling et al., 2002; Yehuda et al., 1995).

2.5.3 Dissociation and posttraumatic stress disorder

''Dissociation'' has sometimes been defined as any kind of temporary breakdown in what we think of as the relatively continuous, interrelated processes of perceiving the world around us, remembering the past, or having a single identity that links our past with our future (Spiegel & Carden, 1991). Mild dissociative reactions are common under stress, for example, being reported by 96% of soldiers undergoing survival training (Morgan et al.,

2001). Dissociative symptoms most commonly encountered in trauma include emotional numbing, derealization, depersonalization, and 'out-of-body' experiences. They are related to the severity of the trauma, fear of death, and feeling helpless (Holman & Silver, 1998; Morris et al., 2000; Reynolds & Brewin, 1999). It has been suggested that such reactions reflect a defensive response related to immobilization (''freezing'') in animals (Nijenhuis et al., 1998). In contrast to fight–flight reactions, in which heart rate normally increases, dissociation has been linked to a decrease in heart rate (Griffin et al., 1997).

When these symptoms occur in the course of a traumatic experience, they are referred to as 'peri-traumatic dissociation.' At least seven prospective studies have assessed peri traumatic dissociation shortly after a trauma and found it to be a good predictor of later PTSD (Ehlers et al., 1998; Engelhard et al., 2003; Holeva & Tarrier, 2001; Koopman et al., 1994; Murray et al., 2002; Shalev et al., 1996; Ursano et al., 1999). Laboratory studies with healthy participants have confirmed that dissociation during exposure to a trauma film is associated with an increase in subsequent intrusive memories of the film (Holmes et al., 2002). In contrast, the presence of dissociative symptoms occurring after rather than during the trauma is not so consistently associated with risk for later PTSD (Brewin et al., 1999; Harvey & Bryant, 1998, 1999b).

2.5.4 Cognitive–affective reactions and posttraumatic stress disorder

A requirement of the PTSD diagnosis according to DSM-IV (American Psychiatric Association, 1994) is to experience intense fear, helplessness, or horror at the time of the trauma. Consistent with this, there is a strong relationship between each of these specific reactions in victims of violent crime and the risk of PTSD 6 months later (Brewin et al., 2000). Of those victims who did not go on to develop PTSD, 44% reported at least one of these reactions at an intense level, compared to 89% of those who did go on to develop PTSD. However, consistent with other studies, a small number of victims who would have met previous diagnostic criteria for PTSD did not report experiencing any of these reactions intensely. Instead, they reported high levels of anger or shame. Other investigators have identified a variety of emotions including shame and anger as sometimes being present during the most intense moments of the traumatic event (Grey et al., 2001; Holmes et al., 2003).

Closely related to helplessness is the idea of 'mental defeat,' defined as ''the perceived loss of all autonomy, a state of giving up in one's own mind all efforts to retain one's

identity as a human being with a will of one's own'' (Ehlers et al., 2000). It is a profound state that, like helplessness, defies categorization as either an emotion or a belief, having some characteristics of both. Trauma victims who experience mental defeat may describe themselves as like an object or as being destroyed, or as ceasing to care whether they lived or died. Mental defeat, then, goes beyond mere helplessness in attacking the person's very identity. Ehlers et al. (2000) studied former political prisoners in East Germany and found that even allowing for the degree of torture experienced, those who still had PTSD years after their imprisonment were characterized by having reacted during the trauma with mental defeat. Whereas some emotions are the direct result of outcomes, others depend on an element of cognitive appraisal (e.g., Weiner, 1986). Traumatic events vary considerably in the time that is available to the victim to appraise what is happening and to generate corresponding emotions. Posttrauma, however, cognitive appraisal of the cause of, responsibility for, and future implications of the trauma will provide numerous opportunities to generate negative emotions (see also Beliefs and PTSD below). There is abundant evidence that feelings of guilt, shame, sadness, betrayal, humiliation, and anger frequently accompany PTSD (Freyd, 1996; Resick & Schnicke, 1992; Reynolds & Brewin, 1999).

Longitudinal studies show that high levels of anger (Ehlers et al., 1998), and more specifically anger with others (Andrews et al., 2000), predict a slower recovery from PTSD. In victims of violent crime, shame is a powerful predictor of how PTSD symptoms develop over time (Andrews et al., 2000). This study provided the first evidence of a mechanism that linked a pre-trauma vulnerability factor, childhood abuse, with a failure to recover from adult traumas. Both the victims who had been abused as children and the victims who felt more shame after being assaulted as adults tended to recover more slowly. In addition, being abused as a child made victims more likely to report experiencing shame. The effect of childhood abuse on recovery was almost wholly mediated by the experience of shame. Recent innovations in the treatment of PTSD have also focused on modifying shame and guilt in addition to fear (Lee et al., 2001).

2.5.5 Beliefs and posttraumatic stress disorder

The significance of beliefs is illustrated by the fact that although threat to life consistently emerges as a powerful predictor in studies of populations as diverse as combat veterans, political prisoners, assault victims, and motor vehicle accident victims (e.g., Dunmore et

al., 2001; Kilpatrick & Resnick, 1993), the subjective perception of threat is often a more influential predictor of distress and even of failure to respond to treatment than more 'objective' indicators (Alvarez-Conrad et al., 2001; Bernat et al., 1998; Girelli et al., 1986). However, in PTSD the beliefs that are believed to be important include much more than threat. A central idea is that traumatic events shatter people's basic beliefs and assumptions (Bolton & Hill, 1996; Horowitz, 1976, 1986; Janoff-Bulman, 1992).

Consistent with this, a general increase in negative beliefs about the self, others, and the world has been found in trauma victims with PTSD compared to victims not suffering from PTSD (Dunmore et al., 1999; Foa et al., 1999). A number of authors have emphasized the potential for trauma to destroy trust and lead to the belief in victims that they have been let down or betrayed, for example by caregivers (Freyd, 1996; Herman, 1992) or superior officers (Shay, 1995). High levels of anger with others reported by PTSD patients are also consistent with a loss of belief in the good intentions of other people (Andrews et al., 2000). Work on torture victims indicates that political activists are not as traumatized by the experience as are nonactivists, even though they may be more severely tortured (Bas et al., 1997). Whereas torture is consonant with the expectations of activists, for nonactivists, it is a violation of implicit beliefs that torture is either not employed or is reserved for enemies of the state. Other research has confirmed the importance of beliefs about the self. PTSD is associated with the belief that trauma has brought about a negative and permanent change in the self and in the likelihood of achieving life goals (Dunmore et al., 1999; Ehlers et al., 2000). In shipping disasters, passengers who attributed the bad things that happened during the sinking to themselves and their actions had more symptoms of PTSD (Joseph et al., 1991; Joseph et al., 1993). A series of studies has found that negative interpretations of the event itself and of why the victim is subsequently experiencing symptoms are more frequent in people who develop PTSD after an assault or a motor vehicle accident, and particularly in those whose symptoms persist (Dunmore et al., 1999; Ehlers et al., 2000; Steil & Ehlers, 2000). In prospective studies, Dunmore et al. (2001) and Ehlers et al. (1998) additionally showed that negative interpretations of symptoms predicted a slower recovery from PTSD. As noted above, negative beliefs do not have to occur during the trauma itself but may represent the outcome of a separate appraisal process that only begins after the danger is past. Were beliefs to have occurred peri-traumatically, however, they could form part of the reexperienced trauma memory and thus be triggered by reminders of the trauma (Grey et al., 2002).

2.5.6 Cognitive coping strategies and posttraumatic stress disorder

There is now extensive evidence that attempts to suppress unwanted thoughts are usually doomed to failure and that afterwards, the thoughts return even more strongly (Wenzlaff & Wegner, 2000), and it has been suggested that the deliberate avoidance of intrusive thoughts and memories will similarly be unhelpful for the majority of trauma victims. The theoretical link between greater avoidance and higher symptom levels has been confirmed in a number of retrospective studies of assault and motor vehicle accident victims (Dunmore et al., 1999; Steil & Ehlers, 2000). Prospective studies have shown that avoidance and thought suppression are related to a slower recovery from PTSD (Dunmore et al., 2001; Ehlers et al., 1998). Other coping strategies that are associated with a greater risk of PTSD include rumination (Ehlers et al., 1998; Murray et al., 2002) and increased use of safety behaviors (Dunmore et al., 2001).

2.5.7 Social support and posttraumatic stress disorder

Of 14 separate risk factors for PTSD investigated in a recent meta-analysis, including trauma severity and gender, social support was shown to have the strongest effect size (Brewin et al., 2000). Although most studies have only considered positive elements such as the perception of emotional and practical support, several recent investigations have also considered negative aspects of support such as indifference or criticism. When both positive and negative support elements are investigated, a negative social environment is a better indicator of PTSD symptomatology than lack of positive support (Ullman & Filipas, 2001; Zoellner et al., 1999). Moreover, negative appraisal of others' support attempts at initial assessment predicted PTSD symptoms 6 and 9 months later (Dunmore et al., 2001). Negative social support, at least in the case of violent crime, appears to be more prevalent for women than for men victims, and in addition, the relationship between negative social support and later PTSD symptoms is stronger for women than for men (Andrews, Brewin, & Rose, in press). Negative social support by partners has also been found to predict a poorer response to treatment for PTSD (Tarrier et al., 1999).

2.6 Early theories of PTSD

Early theories can be divided into three types. Social-cognitive theories primarily focus on the way trauma breaches existing mental structures and on innate mechanisms for reconciling incompatible information with previous beliefs. Conditioning theories deal with learned associations and avoidance behavior. Information-processing theories focus

on the encoding, storage, and recall of fear-inducing events and their associated stimuli and responses. Within their frame of reference, all of them are consistent with much of the available evidence and have provided important insights into PTSD.

2.6.1 Stress response theory

Horowitz (1976, 1986) is a pioneer in the PTSD field due to his long-standing interest in the processing of thoughts, images, and moods related to loss and trauma. His theory has roots in psychodynamically informed observations of normal and abnormal bereavement reactions, and in a long tradition emphasizing people's development of individual assumptive worlds. Horowitz argued that when faced with trauma, people's initial response is outcry at the realization of the trauma. A second response is to try to assimilate the new trauma information with prior knowledge. At this point, many individuals experience a period of information overload during which they are unable to match their thoughts and memories of the trauma with the way that they represented meaning before the trauma. In response to this tension, psychological defense mechanisms are brought into play to avoid memories of the trauma and pace the extent to which it is recalled. For example, the individual may be in denial about the trauma, feel numb, or avoid reminders of it. However, the fundamental psychological need to reconcile new and old information means that trauma memories will actively break into consciousness in the form of intrusions, flashbacks, and nightmares. These consciously experienced trauma memories provide the individual with an opportunity to try to reconcile them with pretrauma representations. It becomes apparent that, according to Horowitz, there are now two opposing processes at work: One to defend the individual by the suppression of trauma information and one to promote the working through of the traumatic material by bringing it to mind. Therefore, the individual oscillates between avoidance and intrusions of the trauma. This oscillation allows the traumatic information to be worked through, and as this happens, the intensity of each phase decreases. In particular, longer term structures in memory representing the self or future goals can be adjusted so that they are consistent with the new data, at which point, trauma processing is considered to be completed. Failure to process the trauma information is proposed to lead to persistent posttraumatic reactions as the information remains in active memory and continues to intrude and be avoided.

Horowitz's work contains numerous important observations and has rightly been very influential. In particular, he was one of the first theorists to emphasize the impact of trauma

on wider beliefs about the self, the world, and the future and to consider how recovery might involve far-reaching cognitive change. Recognizing this broader perspective and its ability to explain the breadth of beliefs and emotions encountered in PTSD, his theory was described as ‘‘social-cognitive’’ by Brewin et al. (1996). Areas not treated in any depth by his theory include the difference between flashbacks and ordinary memories of trauma, individual variations in trauma response, peri-traumatic reactions, the role of environmental factors such as trauma cues and social support, and how to distinguish remission of symptoms due to successful recovery from remission due to successful avoidance (e.g., Litz, 1992).

2.6.2 Theory of shattered assumptions

The origins of this social-cognitive model also lie in the tradition of individual internal models or assumptive worlds that, though they may be illusory, help to sustain people in their everyday lives and motivate them to overcome difficulties and plan for the future. The three common assumptions Janoff-Bulman (1992) regarded as the most significant in influencing response to trauma are that the world is benevolent, the world is meaningful, and the self is worthy. That is, other people are in general well-disposed towards us, there are reliable rules and principles that enable us to predict which behaviors will produce which kinds of outcome, and we ourselves are personally good, moral, and well-meaning. Being attacked by a complete stranger without any provocation, being involved in a serious road traffic accident when we have been obeying the rules of the road, and putting our own survival ahead of anything else when our life is threatened are all situations that have the potential to be traumatic in that they may shatter deeply held and probably unexamined assumptions about how we believe the world and ourselves to be.

Updating of assumptions can take place spontaneously through the reexperiencing and avoidance cycle described by Horowitz (1986). In addition, updating can be made to occur deliberately by reflecting on the trauma. As in stress response theory, the strength of the approach lies more in its description of longer term adjustment after a trauma rather than the specification of how trauma impacts on the individual in the short term or how trauma is represented in memory. The theory of shattered assumptions is important, however, in identifying common themes in schema change, specifying the role of the person’s social and interpersonal context in facilitating or blocking this process, and emphasizing the possibility of positive reframing of the trauma and of posttraumatic growth.

Although the research cited earlier has confirmed the importance of the basic assumptions described by Janoff-Bulman, other assumptions may be even more fundamental. Bolton and Hill (1996) proposed that for people to act in the world, they must have a set of beliefs that the self is sufficiently competent to act, that the world is sufficiently predictable, and that the world provides sufficient satisfaction of needs. Traumatic incidents are highly unpredictable and unpleasant and produce feelings of intense helplessness, thereby challenging these beliefs. Bolton and Hill suggest that in some cases, this produces intense conflict and feelings of unreality, since the experience of the trauma appears to contradict the person's core beliefs, but according to those beliefs the experience cannot really have happened. According to the theory of shattered assumptions, people with the most positive experiences in life, who should therefore hold the most positive assumptions, should be the ones most affected by traumatic events. In fact, as several commentators have noted (e.g., Resick, 2001), the exact opposite is the case, with experience of previous trauma being a major risk factor for developing PTSD (Brewin et al., 2000). This is puzzling, because people who have already been traumatized should have lost at least some of their protective illusions about the world. In discussing this point, Janoff-Bulman (1992) suggested two possible resolutions. The first was that people with the most positive assumptions have the greatest initial distress but recover more easily. This has not been tested empirically. Her other suggestion was that previous trauma would be a risk factor to the extent that the victim had not reestablished a stable and secure inner world. This introduces a quite new idea, namely, that trauma does not have to shatter illusions when they have been shattered already. Although the nature of this inner world that harbors psychological vulnerability has not been specified, it is clinically useful to place an emphasis on the role of prior beliefs on the processing of trauma and to focus on the deliberate updating of information in recovery (e.g., Grey et al., 2002). This will be discussed in more detail later.

2.6.3 Conditioning theory

This approach sought to apply conditioning theories developed for other anxiety disorders to PTSD. Following Mowrer's (1960) two-factor learning theory, an initial phase of fear acquisition through classical conditioning results in neutral stimuli present in the traumatic situation acquiring fear-eliciting properties through their association with the unconditioned stimulus (in this case, those elements of the traumatic situation that directly arouse fear). Keane et al., (1985) proposed that a wide variety of associated stimuli would

acquire the ability to arouse fear through the processes of stimulus generalization and higher order conditioning. Although repeated exposure to spontaneous memories of the trauma would normally be sufficient to extinguish these associations, extinction would fail to occur if the person attempted to distract themselves or block out the memories, rendering the exposure incomplete. Avoidance of the conditioned stimuli, whether through distraction, blocking of memories, or other behaviors, would be reinforced by a reduction in fear, leading to the maintenance of PTSD.

In their application of conditioning theory to combat veterans, Keane et al. made further suggestions about the origin of specific symptoms. For example, they proposed that amnesia for aspects of the trauma could be due to avoidance of thinking or talking about it, as well as to being in a different mood state at recall than at the time of the trauma. Anger and irritability might reflect behaviors acquired during military training and reinforced during civilian life by the attainment of desired goals or a reduction in anxiety. More recently Orr et al. (2000) have shown that people with PTSD develop conditioned responses more readily to aversive events in general and that these responses are harder to extinguish. Although this could be a result of PTSD, it may also reflect genetic or acquired pre-trauma differences in conditionability.

Whereas the conditioning approach does not clearly distinguish the etiology of PTSD from that of other anxiety disorders, it does provide a powerful explanation of many prominent features of PTSD, particularly the wide range of potential trauma reminders, physiological and emotional arousal elicited by these reminders, and the central role of avoidance in the maintenance of PTSD. It is also compatible with observations of a general increase in conditionability. The theory is less useful when applied to questions concerning the nature of reexperiencing symptoms, effects on attention and declarative memory, the influence of emotions other than fear, and the role of appraisals and coping strategies. Although in a number of cases, a conditioning account could be constructed, the limitations of the underlying theory and the absence of cognitive constructs mean that such an account has a tendency to sound impoverished. For this reason, the conditioning approach now tends to be supplemented by observation and theory drawn from a broader range of research on cognition and emotion (e.g., Pitman et al., 2000).

2.6.4 Information-processing theories

Cognitive theories that have focused mainly on the traumatic event itself rather than on its wider personal and social context have been termed ‘‘information-processing’’ theories (Chemtob et al., 1988; Creamer et al., 1992; Foa et al., 1989; Litz & Keane, 1989). The central idea is that there is something special about the way the traumatic event is represented in memory and that if it is not processed in an appropriate way, psychopathology will result. Like social-cognitive theories, this approach emphasizes the need for information about the event to be integrated within the wider memory system. However, the difficulty in achieving this is attributed more to characteristics of the trauma memory itself than to conflict with preexisting beliefs and assumptions.

Most early theories had their origins in attempts to understand fear conditioning and phobic responding, and particularly in the work of Lang (1979). Lang reformulated behavioristic accounts of fear conditioning that depended on the learning of associations between stimuli and responses within a more comprehensive cognitive framework. He proposed that frightening events were represented within memory as interconnections between nodes in an associative network. A fear memory consisted of interconnections between different nodes representing three types of propositional information: Stimulus information about the traumatic event, such as sights and sounds, information about the person’s emotional and physiological response to the event, and meaning information, primarily about the degree of threat. Thus, cognition and affect were integrated within an overall response program designed to rapidly escape or avoid danger.

Lang suggested that patients with anxiety disorders have unusually coherent and stable fear memories that are easily activated by stimulus elements that may be ambiguous but bear some resemblance to the contents of the memory. When the fear network is activated, the person experiences the same physiological reactions and tends to make meaning judgments that accord with the original memory. Chemtob et al. (1988) proposed an evolutionary perspective on trauma reactions that took account of the persistent reexperiencing and high levels of arousal that distinguish PTSD from specific phobias. They suggested that in individuals with PTSD, the fear network is permanently activated, causing them to function in a ‘‘survival mode’’ that proved adaptive during the traumatic incident.

Foa et al. (1989) put forward an influential version of the fear network approach and suggested that what distinguishes PTSD from other anxiety disorders is that the traumatic

event is of monumental significance and violates formerly held basic concepts of safety. In emphasizing individual perceptions, they explicitly endorsed the need for a theory that went beyond simple conditioning and was able to represent subjective meanings. A traumatic event, they suggested, leads to a kind of representation in memory that is different from one created by an everyday experience in several ways. For example, someone who was attacked in an alley would form associations between the alley node, the fear node, and nodes representing behavioral and physiological responses that were much stronger than the connections between the alley node and other emotion and response nodes, formed when the person had previously walked down alleys in neutral or positive mood states. Now having to walk down an alley would selectively activate the fear network in memory, causing the person to become hyper vigilant (the arousal symptoms of PTSD), to have information in the network enter consciousness (the intrusion symptoms of PTSD), and to attempt to avoid and suppress the intrusions (the avoidance symptoms of PTSD). Foa et al. further suggested that fear networks in PTSD, compared to other anxiety disorders, are characterized by particularly strong response elements, for example, high heart rate. In addition, the overturning of basic assumptions about safety means that there will be a large number of environmental cues that cause the network to be activated. Finally, the network will have a low threshold of activation. For information in the fear network to be integrated with the rest of a person's memories, these overly strong associations would have to be weakened. Rather than being in an alley only activating the fear memory, the strength of the interconnections within the fear memory would have to be reduced so that other nonthreatening memories of being in an alley could also be activated in this situation and no one representation would dominate. In order to reduce the strong associations, the fear network needs to be activated, for example, by imaginal or in vivo exposure, and modified by incorporating information that is incompatible with it. The most potent corrective information is thought to derive from the experience of the habituation of fear, which in therapy may occur either within a clinical session or between sessions. In the modified network, therefore, the various stimulus and meaning elements are associated much more weakly with fear.

According to Foa et al. (1989), PTSD reactions tend to persist when achieving exposure of sufficient length to all the various elements in the fear network is difficult. Under these circumstances, only some associations are weakened, leaving other elements of the fear network to continue being strongly associated with fear. This might come about because

excessive arousal or thinking errors might interfere with attention to and integration of disconfirmatory evidence, and because there might be a strong tendency to avoid reexposure to trauma cues.

The strength of the various fear network models has been that they provided much clearer proposals about how, and using what kind of cognitive architecture, information about a traumatic event is processed, both at the time and afterwards. They offered more adequate explanations of attention and memory processes and of the vulnerability produced by the overturning of assumptions. Most importantly, they led to the development of highly successful, theoretically grounded treatment interventions. Among the limitations of the early fear network models is their difficulty in explaining how a memory can, on the one hand, produce rapid responses such as flashbacks and physiological arousal, but at the same time be disorganized and contain gaps. They did not distinguish between flashbacks and ordinary trauma memories, or account for the wide range of other posttrauma emotions and beliefs that are implicated in risk for PTSD. In addition, the idea that memories can be activated and altered by the addition of contradictory information was inconsistent with a new understanding of fear conditioning arising from animal studies. Several lines of research suggested it was more plausible that old memories remain intact and that fear reactions are inhibited by the creation of new memories (Bouton & Swartzentruber, 1991; Jacobs & Nadel, 1985; Ledoux, 1998).

2.6.5 Anxious apprehension theory

Jones and Barlow (1990) argued that variables implicated in the etiology and maintenance of panic disorder are also involved in PTSD, and that there is a marked similarity between panic attacks and traumatic flashbacks. While recognizing the role of biological vulnerability, the trauma itself, and the experience of intense emotions at the time, their key point is the inclusion of cognitive factors that occur after the trauma and produce a feedback cycle of anxious apprehension. That is, patients with PTSD focus their attention upon and are hyper vigilant for information about 'emotional alarms' and associated stimuli. Although in the face of actual trauma, the alarm is genuine, false alarms can occur subsequently in the absence of danger, as described in Barlow's (1988) model of panic disorder.

In PTSD, the focus of people's anxious apprehension is on cognitive and physiological cues from the time of the actual trauma as they wish to avoid the distress generated by

alarms. The learned alarms generate hyperarousal symptoms, which through their association to cues present at the time of the original trauma (the real alarm) result in a negative feedback loop ensuring successive reexperiencing symptoms. To prevent the triggering of alarms, the person will tend to avoid emotional interceptive information, for example, through emotional numbing, as well as avoid external trauma-related stimuli. Jones and Barlow argued that coping styles and social support can, as in other anxiety disorders, moderate the expression of PTSD. This approach emphasizes the similarity of PTSD to other anxiety disorders and the importance of distorted information processing in PTSD. Consistent with the model, panic symptoms are often reported both during and after trauma and may be a risk factor for later PTSD symptoms (Bryant & Panasetis, 2001; Falsetti & Resnick, 1997). Hackman et al. (2002) have proposed that the content of intrusive memories corresponds to moments that act as warning signals for the traumatic event. While Jones and Barlow's theory draws attention to a potentially important but neglected aspect of PTSD, it does not discuss in detail the role and variety of cognitions and emotions arising from the consequences of the event.

2.7 Recent theories of PTSD

It is interesting that not all recent attempts to develop a theory of PTSD based on traditional assumptions about fear and memory have been successful. For example, Tryon (1999) proposed a theory of PTSD based on a connectionist neural network. This involved making several assumptions, for example, that there would be an association between enhanced memory for the trauma and greater PTSD and between enhanced peri-traumatic dissociation and reduced PTSD. As we have seen, both of these are inconsistent with current empirical evidence. In contrast, there are now several theories with a relatively broad scope developed by clinical researchers actively involved in the treatment of PTSD.

2.7.1 Emotional processing theory

The earlier network theory of Foa et al. (1989) has been elaborated by Foa and Riggs (1993) and Foa and Rothbaum (1998) in several ways in order to take account of accumulating knowledge, particularly with respect to assault and rape victims. One development was to elaborate the relationship between PTSD and knowledge available prior to the trauma, during the trauma, and after the trauma. They proposed that individuals with more rigid pre-trauma views would be more vulnerable to PTSD. These could be rigid positive views about the self as being extremely competent and the world as extremely

safe, which would be contradicted by the event, or rigid negative views about the self as being extremely incompetent and the world as being extremely dangerous, which would be confirmed by the event (Dalgleish, 1999).

Another development was an increased emphasis on negative appraisals of responses and behaviors which could exacerbate perceptions of incompetence. Foa et al. outlined how these appraisals might relate to events that took place at the time of the trauma, to symptoms that developed afterwards, to disruption in daily activities, and to the responses of others. Beliefs that were present before, during, and after the trauma could interact to reinforce the critical negative schemas involving incompetence and danger that they hypothesized underlie chronic PTSD.

Foa & Rothbaum (1998) also elaborated a number of mechanisms thought to be involved in exposure treatment. First, repeated reliving should promote the habituation of fear, reducing the level of fear associated with other elements in the trauma memory as well as countering the belief that such anxiety is permanent. Second, it prevents avoidance of the trauma memory being negatively reinforced. Third, rehearsing the trauma memory in a therapeutic environment incorporates safety information into the trauma memory. Fourth, the trauma can be better discriminated from other potentially threatening events and seen as a specific case rather than as one among many examples of a dangerous world or an incompetent self. Fifth, exposure offers the possibility to experience the self as showing mastery and courage in the face of challenge. Sixth, by reflecting on events in detail, patients may reject previous negative evaluations as being inconsistent with the evidence. Seventh, the severity of the event frequently disrupts the cognitive processes of attention and memory at the time of the trauma and produces dissociative states such as out-of-body experiences. This disruption leads to the formation of a disjointed and fragmented fear structure that is resistant to modification and to trauma narratives that are relatively brief, simplistic, and poorly articulated. Repeated reliving generates a more organized memory record that is easier to integrate with the rest of the memory system. In summary, exposure is thought to have a number of separate effects, some relatively automatic such as reduction in anxiety and change in memory structures, and others more strategic such as positive reappraisals of actions and events.

2.7.2 Ehlers and Clark's cognitive theory

Ehlers and Clark (2000) drew attention to the paradox in PTSD whereby patients feel anxious about the future, even though the trauma lies in the past. They proposed that pathological responses to trauma arise when individuals process the traumatic information in a way that produces a sense of current threat, either an external threat to safety or an internal threat to the self and the future. The two major mechanisms that produce this effect involve negative appraisals of the trauma or its sequelae and the nature of the trauma memory itself.

Expanding on the work of Foa and Rothbaum (1998) and Jones and Barlow (1990), Ehlers and Clark identified a wide range of relevant negative appraisals. Some of these are focused on the traumatic event and signal overgeneralization of danger (e.g., ''Others can see I am a victim'') or negative appraisal of own actions (e.g., ''I deserve that bad things happen to me''). Other appraisals focus on sequelae, such as the PTSD symptom of numbing (''I'll never be able to relate to people again''), other people's reactions (''They think I am too weak to cope on my own''), and life prospects (''My body is ruined''). The different types of appraisal, variously involving danger, violation of standards by self or others, or loss, explain the variety of emotions reported by patients with PTSD.

Among the factors that increase the likelihood of negative appraisals are thought processes during the trauma and prior beliefs and experiences. Ehlers and Clark identified a specific frame of mind they termed 'mental defeat,' discussed previously in Cognitive–affective reactions and PTSD. This reaction, emphasizing the inability of the person to influence their fate, is a risk factor for such self-appraisals as being weak, ineffective, or unable to protect oneself. Prior experiences of traumatization, weakness, or helplessness also increase the risk of appraising oneself as unable to act effectively, as being extremely vulnerable to danger, as being the target of others' hostility, and so on.

Ehlers and Clark's approach to explaining research findings on traumatic memory was to suggest that the memory of the event is poorly elaborated, not given a complete context in time and place, and inadequately integrated into the general database of autobiographical knowledge. This accounts for the difficulty in intentional recall (absence of clearly specified retrieval routes), reexperiencing in the present (absence of a temporal context), the lack of connection with other relevant information, and the easy triggering by physically similar cues. At the same time, consistent with conditioning accounts, they

suggested that strong S–S and S–R associations for traumatic material are formed which help the person to make (sometimes preconscious) predictions about future sources of danger. They also noted that retrieval from associative memory is cue-driven and unintentional, so that the person may be unaware of the triggers for reexperiencing. The strong associations result in perceptual priming, which they define as a reduced perceptual threshold for trauma-related stimuli. Ehlers and Clark proposed a number of peri-traumatic influences that operate at encoding and affect the nature of the trauma memory. One of these involved an important distinction made by cognitive psychologists (e.g., Roediger & McDermott, 1993) between data-driven processing (focused on sensory impressions) and conceptual processing (focused on the meaning of the situation, organizing the information, and placing it in context). Conceptual processing, Ehlers and Clark argued, facilitates integration of the trauma memory with the autobiographical database, whereas data-driven processing leads to strong perceptual priming and a memory that is hard to retrieve intentionally. Other peri-traumatic factors were an inability to establish a self-referential perspective while experiencing the trauma, dissociation, emotional numbing, and lack of cognitive capacity to evaluate aspects of the event accurately.

As well as discussing various ways in which appraisals can interact with the nature of the trauma memory, Ehlers and Clark developed a detailed account of the importance of maladaptive behavioral strategies and cognitive processing styles in maintaining the disorder. Among the behavioral strategies likely to cause PTSD to persist are active attempts at thought suppression, distraction, avoidance of trauma reminders, use of alcohol or medication to control anxiety, abandonment of normal activities, and adoption of safety behaviors to prevent or minimize trauma-related negative outcomes. For example, a person injured in a car crash might adopt the safety behavior of continually clinging on to the seat or the hand brake, or looking in the rear-view mirror, during subsequent journeys. Maladaptive cognitive styles include selective attention to threat cues and persistent use of rumination or dissociative responses.

2.7.3 Conclusion on theories of PTSD

Early theories can be divided into three types. Social-cognitive theories primarily focus on the way trauma breaches existing mental structures and on innate mechanisms for reconciling incompatible information with previous beliefs. Conditioning theories deal with learned associations and avoidance behavior. Information-processing theories focus

on the encoding, storage, and recall of fear-inducing events and their associated stimuli and responses. Within their frame of reference, all of them are consistent with much of the available evidence and have provided important insights into PTSD. Conditioning theory provides a good account of how trauma cues acquire the ability to elicit fear and of the critical role played by avoidance, but is limited by the absence of cognitive elements in explaining many of the symptoms and data concerning PTSD, especially those dealing with beliefs and perceived threat. Social-cognitive theories provide good accounts of the range of emotions and beliefs occasioned by trauma and of the process of long-term adjustment, without clearly differentiating between PTSD and other types of reaction such as depression, nor do they account for the nature of responses to trauma reminders. Information-processing theories offer clearer descriptions of the cognitive architecture by which the traumatic event may be represented, of effects on attention, and of how the overturning of assumptions increases the number of potential trauma reminders, but are less able to account for the importance of emotions other than fear and of beliefs extending beyond issues of danger to the wider social context.

There is a high degree of overlap between the recent models of PTSD. All of them are able to incorporate a wide range of findings on the importance of factors affecting encoding, alterations in memory functioning, appraisals, coping strategies and cognitive styles, importance of prior beliefs and trauma exposure, and so on. The most important areas where they differ are their accounts of how trauma influences memory, the processes whereby changes are brought about in memory, and how these changes are related to recovery. In addition, memory disturbance and appraisal are treated largely as distinct aspects of PTSD in cognitive theory than in emotional processing theory. Whereas Foa et al's emotional processing theory relies on the idea of a single associative network in memory, in which all information is represented in the form of propositions (i.e., logical relationships between concepts), both the others have explicitly considered that different types of memory may be involved.

In Ehlers and Clark's cognitive theory, there is an autobiographical memory system consisting of higher order themes and personal times as well as more specific event-related information. Poor incorporation of the event into the more general part of the autobiographical database is thought to result in a memory that is hard to retrieve intentionally, that is experienced as being without a context, and that is easily triggered by

physically similar cues. There is an associative memory system can process preconscious information, prime the individual to respond to trauma reminders, and initiate reexperiencing directly in response to relevant cues. At present, Ehlers and Clark's cognitive model places more emphasis on the way in which stimuli are processed during trauma (i.e., the data-driven versus conceptual distinction) rather than on the specific way in which the output of these processes is represented in memory.

All theories agree that one of the benefits of reliving is the elaboration and contextualization of the trauma memory, but offer somewhat different explanations for why this process is helpful. Foa and Rothbaum proposed that it enables the trauma memory to be reintegrated with the rest of the memory network, so that the elements of the trauma memory are equally strongly associated with external elements as with each other. Ehlers and Clark suggested that contextualization sites trauma-related information within periods and themes in a preexisting autobiographical database, and that this inhibits retrieval of sensory details and physiological responses in response to reminders of the trauma.

The theories also differ in their account of how psychological treatment works. Emotional processing theory emphasizes the importance of incorporating specific types of disconfirm Tory information into the trauma memory, but does not differentiate at a theoretical level between automatic changes in the trauma memory brought about, for example, by exposure and between-session habituation, and deliberate changes brought about by cognitive reappraisal. In contrast, the Ehlers and Clark model address the bringing about of modifications to the trauma memory and changes in problematic appraisals, for example, discussing the circumstances under which it might be helpful for cognitive restructuring to precede exposure work. Ehlers and Clark's focus on memory processes led them additionally to propose that it might be insufficient to carry out cognitive restructuring on its own and that the agreed reappraisals might have to be incorporated into reliving sessions.

2.8 Posttraumatic growth: Conceptual foundations and empirical evidence

Posttraumatic growth is the experience of positive change that occurs as a result of the struggle with highly challenging life crises. It is manifested in a variety of ways, including an increased appreciation for life in general, more meaningful interpersonal relationships, an increased sense of personal strength. changed priorities, and a richer existential and

spiritual life. Although the term is new, the idea that great good can come from great suffering is ancient. It is proposed a model for understanding the process of posttraumatic growth in which individual characteristics, support and disclosure, and more centrally, significant cognitive processing involving cognitive structures threatened or nullified by the traumatic events, play an important role. It is also suggested that posttraumatic growth mutually interacts with life wisdom and the development of the life narrative, and that it is an ongoing process, not a static outcome (Tedeschi and Calhoun, 2004).

2.8.1 Typical negative reactions to highly stressful events

Although the main focus here is on the possibilities of positive change arising from the challenge of difficult circumstances, it is appropriate to begin with the reminder that difficult circumstances can produce psychological distress, and to briefly review the kinds of negative responses that are quite common in persons exposed to highly stressful events. In doing so, they want the reader to understand that they recognize that traumatic events are not to be viewed simply as precursors to growth. They are profoundly disturbing. Second, it is important to recognize that the psychological processes involved in managing the disturbances are the same general types of processes that also can produce positive changes. People facing major life crises typically experience distressing emotions. Particularly for sets of circumstances that threaten the person's physical well-being, anxiety or specific fears are common. Depending on the intensity, severity, and duration of physical threat or suffering (either direct or vicarious), the anxious responses can persist for a long time after the actual threat is removed. Sadness and depression can be common responses to life crises. Reactions to the loss of a loved one, for example, typically include sadness, yearning for the deceased, and a general wish that things could be different. As data indicate, of course, these responses are typical but not universal (Wortman & Silver, 2001). Guilt, anger, and general irritability are other affective responses commonly observed in persons struggling with significant life problems.

Distressing and sometimes dysfunctional patterns of thinking can be set in motion by major life crises. For sudden and unexpected events, initial reactions of disbelief and the experience of psychological numbness are common. For highly threatening events, repetitive intrusions of thoughts and images of the challenging event are common. Intrusive ruminative thought may be more common than intrusive images, but both tend to be experienced as unpleasant and distressing. When the level of stress is high, a variety of

unpleasant physical reactions can be experienced as well. Specific responses vary across individuals, but they can include prolonged activation of bodily systems that can be experienced in the form of fatigue, muscle tension and aches, gastric symptoms, and general physical discomfort. Finally, although in most sets of circumstances individuals facing even the most traumatic sets of circumstances do not develop psychiatric disorders, exposure to major life crises does indeed increase the risk of developing psychiatric problems (Rubonis & Bickman, 1991).

Finally, it is important to maintain the perspective that major life crises typically engender unpleasant psychological reactions. Posttraumatic growth occurs concomitantly with the attempts to adapt to highly negative sets of circumstances that can engender high levels of psychological distress. For a minority of persons who experience them, major life crises can serve as the catalysts for the development or exacerbation of significant psychiatric difficulties. The main focus of work in psychology, medicine, and related disciplines, has traditionally been on the ways in which traumatic events are precursors to highly distressing and sometimes severe sets of psychological and physical problems. Because the predominant scholarly and clinical work has been done with persons facing very difficult circumstances, and because the focus was on persons who had entered the therapeutic system because of the presence of noticeable psychological difficulties, this ..negative" focus is understandable, and appropriate to the requirements of those contexts (Tedeschi and Calhoun, 2004).

2.8.2 Focusing on the positive aspects or the struggle with trauma

The general understanding that suffering and distress can be possible sources of positive change is thousands of years old. For example, some of the early ideas and writings of the ancient Hebrews. Greeks. And early Christians, as well as some of the teachings of Hinduism, Buddhism, and Islam contain elements of the potentially transformative power of suffering (Tedeschi & Calhoun. 1995). A major theme of Christian traditions, for example, are the narratives about the transformative effect of the execution of Jesus. His suffering is viewed as having the power to transform others. In some Islamic traditions, suffering is seen as instrumental to the purposes of Allah (Bowker, 1970). A central theme of much philosophical inquiry, and the work of novelists, dramatists, and poets, has included attempts to understand and discover the meaning of human suffering (Tedeschi & Calhoun, 1995).

In the 20th century several clinicians and scientists (e.g., Caplan, 1964; Dohrenwend, 1978; Frankl, 1963; Maslow, 1954; Yalom, 1980), writing in the general domain of psychology, addressed the ways in which critical life crises offered possibilities for positive personal change. Maslow (1970), for example, whose most influential work was originally published in the 1950s and 1960s, argued consistently that psychologists should expend much greater efforts in studying "people who are actually healthy," and the better and brighter aspects of human behavior and nature. Caplan, a pioneer in what earlier was called community psychiatry, wrote extensively about the processes whereby individuals encountering major life crises might be helped to cope effectively and, as a consequence, to develop psychologically as a result of what they had experienced. More recent calls for an emphasis on positive psychology (Cowen & Kilmer, 2002; Seligman & Csikszentmihalyi, 2000) represent a continuation of this useful tradition.

2.8.3 Types of trauma and posttraumatic growth

There are now reports in the literature of a very wide array of major life challenges that have acted as catalysts for posttraumatic growth. Many of the earlier research reports mentioned these growth outcomes in passing, but more recent investigations have been more specifically focused on these outcomes. Among the life crises that have produced reports of posttraumatic growth, at least in some form, are college students experiencing negative events (Park et al., 1996), bereavement (Calhoun & Tedeschi, 1989-1990; Edmonds & Hooker, 1992; Hogan et al., 1996; Lehman et al., 1993; Miles & Crandall. 1983; Nerken. 1993; Schwab. 1990). rheumatoid arthritis (Tennen et al., 1992). HIV infection (Bower et al., 1998; Schwartzberg. 1993). cancer (Collins et al., 1990; Cordova et al., 2001), bone marrow transplantation (Andrykowski et al., 1993; Curbow et al., 1993), heart attacks (Affleck et al., 1987; Laerum et al., 1987), coping with the medical problems of children (Abbott & Meredith. 1986; Affleck et al., 1985). transportation accidents (Joseph et al., 1993). house fires (Thompson, 1985). sexual assault and sexual abuse (Burt & Katz. 1987; Draucker, 1992; Frazier et al., 2001; McMilJen et al., 1995; Silver et al., 1983; Yeronen & Kilpatrick. 1983). combat (Elder & Clipp, 1989; Sledge et al., 1980). refugee experiences (Berger & Weiss, in press). and being taken hostage (Cole, 1992; Sank. 1979). It appears that the phenomenon of posttraumatic growth occurs in a wide range of people. facing a wide variety of traumatic circumstances (Tedeschi and Calhoun, 2004).

2.8.4 Posttraumatic growth terminology and related concepts

Tedeschi and Calhoun first used the term posttraumatic growth in print in an article describing the development of an inventory designed to measure such growth (Tedeschi & Calhoun, 1996). Earlier in their work they used terms such as perceived benefits, positive aspects, and the transformation of trauma (e.g., Calhoun & Tedeschi, 1989-1990, 1991; Tedeschi & Calhoun, 1988, 1995; Tedeschi et al., 1984). Many other terms have been used to describe posttraumatic growth. These include stern conversion (Finkel, 1974, 1975), positive psychological changes (Yalom & Lieberman, 1991), perceived benefits or construing benefits (Calhoun & Tedeschi, 1991; McMillen et al., 1995; Tennen et al., 1992), stress-related growth (Park et al., 1996), flourishing (Ryff & Singer, 1998), positive by-products (McMillen et al., 2001), discovery of meaning (Bower et al., 1998), positive emotions (Folkman & Moskowitz, 2000), and thriving (O'Leary & Ickovics, 1995). Taylor and Brown (1988) labeled some similar outcomes as positive illusions. Among those emphasizing these positive changes as coping mechanisms, several terms have been applied, including positive reinterpretation (Scheier et al., 1986), drawing strength from adversity (McCrae, 1984), and transformational coping (Aldwin, 1994; Pargament, 1996).
They favor the term posttraumatic growth because it appears to capture the essentials of this phenomenon better than others in several ways. First, in contrast to what might be suggested by the term stress-related growth, for example, it appears to focus more distinctly on the conditions of major crises rather than lower level stress. Second, in contrast to the terms that emphasize the "illusions" of people who report these changes, there do appear to be veridical transformative life changes that go beyond illusion. Third, in contrast to those terms that emphasize this process as one of many ways to cope with trauma, for those who are reporting these changes, they are experienced as an outcome or an ongoing process, rather than a coping mechanism. Finally, significant posttraumatic growth may require a significant threat or the shattering of fundamental schemas and may at times coexist with significant psychological distress, something the words thriving or flourishing do not connote. To some extent, these are semantic choices. It is clear that in spite of wide variation in such choices, the last 15 years have seen considerable interest in the reports of growth resulting from the struggle with major life crises.

Posttraumatic growth describes the experience of individuals whose development, at least in some areas, has surpassed what was present before the struggle with crises occurred. The individual has not only survived, but has experienced changes that are viewed as

important, and that go beyond what was the previous status quo. Posttraumatic growth is not simply a return to baseline-it is an experience of improvement that for some persons is deeply profound (Tedeschi and Calhoun, 2004).

2.8.4.1 Related concepts

Distinctions should also be made between posttraumatic growth and the concepts of resilience, hardiness, optimism, and sense of coherence. All these concepts describe certain personal characteristics that allow people to manage adversity well. Resilience is usually considered to be an ability to go on with life after hardship and adversity, or to continue living a purposeful life after experiencing hardship and adversity. It has often been studied in children who manage to remain psychologically healthy despite very difficult circumstances (Garmezy, 1985; Rutter, 1987; Werner, 1989). Hardiness (Kobasa, 1979; Kobasa et al., 1985) consists of tendencies toward commitment, control, and challenge in response to life events. Persons high in hardiness are curious and active, believe they can influence events, and expect life to present challenges that can be met with personal development. Optimism involves expectations of positive outcomes to events (Scheier & Carver, 1985). Sense of coherence (Antonovsky, 1987) describes persons who are in the best position to manage stress. Because they can comprehend or understand events. Can manage or cope with them. and find meaning in them.

In contrast, posttraumatic growth refers to a change in people that goes beyond an ability to resist and not be damaged by highly stressful circumstances; it involves a movement beyond pretrauma levels of adaptation. Posttraumatic growth, then has a quality of transformation, or a qualitative change in functioning, unlike the apparently similar concepts of resilience, sense of coherence, optimism, and hardiness (Tedeschi & Calhoun, 1995). Although we are not aware of any direct tests of the relations of hardiness. sense of coherence, and posttraumatic growth. it may be that persons who are highest on these dimensions of coping capacity will report relatively little growth. That is because these people have coping capacities that will allow them to be less challenged by trauma, and we posit that the struggle with the trauma is what is crucial for posttraumatic growth. We have previously suggested the possibility of a general curvilinear relation between psychological fitness and growth that is analogous to the relation between levels of physical fitness and response to physical rigors (Tedeschi & Calhoun. 1995). Those who are already very fit will experience little additional benefit compared with those who are moderately capable.

And persons who have serious physical limitations and weaknesses may have insufficient resources to benefit much at all from rigorous physical activity.

Posttraumatic growth may be a construct that is more applicable to adolescents or adults than to young children. because posttraumatic growth implies an established set of schemas that are changed in the wake of trauma. We might also expect that younger people will report more growth than much older people, as the young may be open to the learning and change of this process to a greater degree than the old. who might have already learned their life lessons. This has been reported in at least one study using a sample with a large age range (Powell et al., 2003).

There is little work with adolescents or children to clarify the action of posttraumatic growth at these ages (Milam et al., 2001). They have begun to develop a measure of posttraumatic growth for children that shows promise in picking up some changes akin to those reported by adults (Cryder et al., 2002).

2.9 The process of posttraumatic growth

Tedeschi and Calhoun consider in detail what processing trauma into growth entails. Figure 2.2 (Calhoun & Tedeschi, 1998) provides a general overview of what they think this process is. Drawing both on empirical work in the area and on their experiences as practicing psychologists, they have proposed that posttraumatic growth involves a variety of elements and they discuss them next. They begin by briefly describing some of the individual characteristics and the styles of managing distressing emotions that may increase the likelihood that individuals will experience posttraumatic growth. Next they suggest that the degree to which individuals engage in self-disclosure about their emotions and about their perspective on their crisis, and how others respond to that self-disclosure, may also play a role in growth. Then they describe how the cognitive processing of the traumatic event, particularly the process of ruminative thought, is related to growth; they argue that how the individual cognitively processes the crisis plays a crucial role in the process of posttraumatic growth. Finally, they suggest that posttraumatic growth can be connected to significant development of wisdom and of the individual's life narrative.

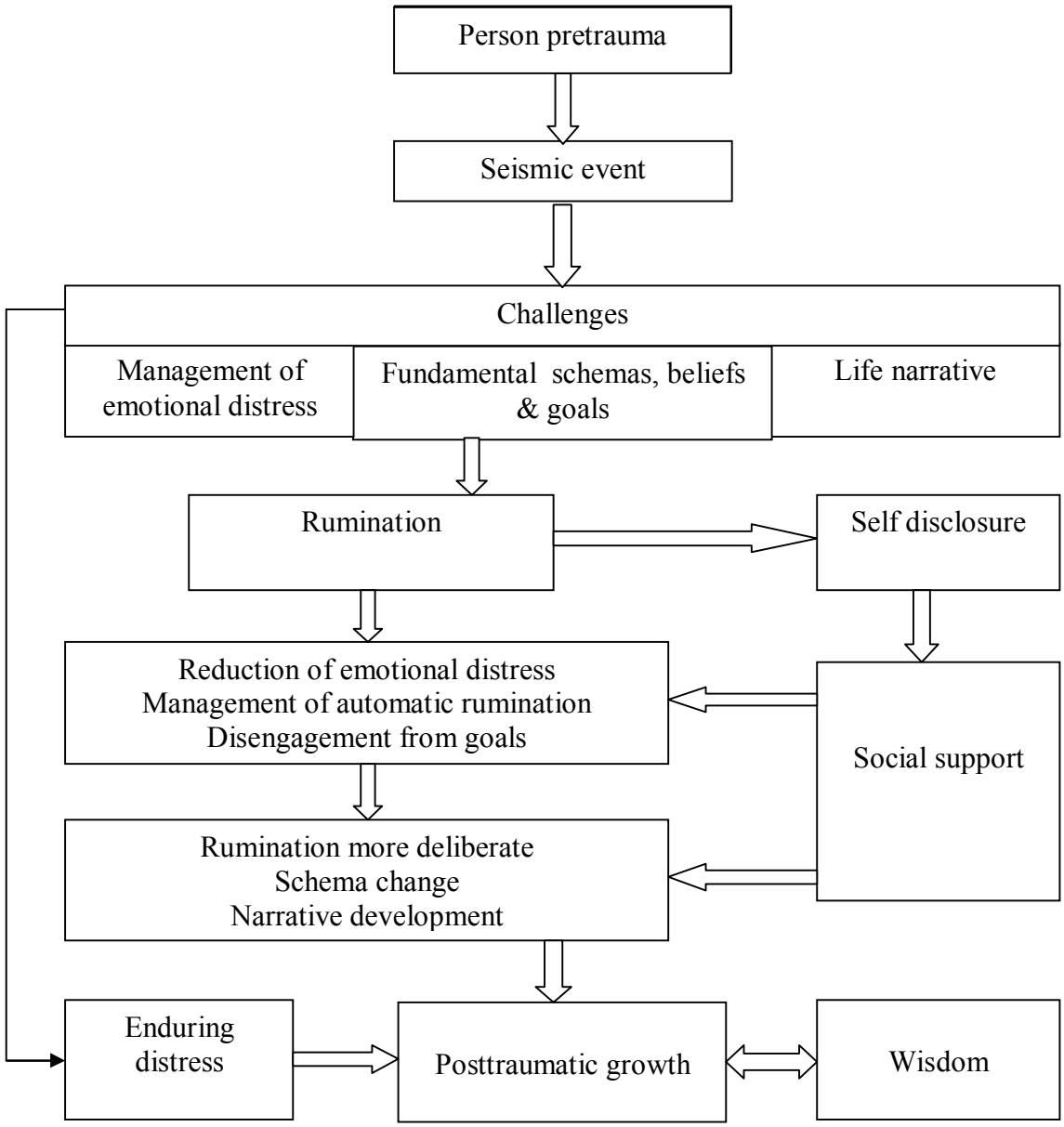

Figure (2.2): A model of posttraumatic growth, cited in Calhoun & Tedeschi, 1998.

2.9.1 Varieties of trauma and levels of posttraumatic growth

As others have suggested (Epstein, 1990; Janoff-Bulman, 1992; Parkes, 1971) Tedeschi and Calhoun (2004) assumed that individuals develop and rely on a general set of beliefs and assumptions about the world, that guide their actions, that help them to understand the causes and reasons for what happens, and that can provide them with a general sense of meaning and purpose. Parkes (1971) called this general constellation the "assumptive world" and indicated that it "includes everything we know or think we know". The assumptive world provides individuals with the general perspectives, or paradigms (Kuhn,

1970) within which they operate. Major life crises can present major challenges to the person's understanding of the world.

Growth, however, does not occur as a direct result of trauma. It is the individual's struggle with the new reality in the aftermath of trauma that is crucial in determining the extent to which posttraumatic growth occurs. they have used the metaphor of an earthquake to describe this process (Calhoun & Tedeschi, 1998). A psychologically seismic event can severely shake, threaten, or reduce to rubble many of the schematic structures that have guided understanding, decision making, and meaningfulness. Psychological crisis can be defined in relation to the extent to which the fundamental components of the assumptive world are challenged, including assumptions about the benevolence, predictability, and controllability of the world; one's safety is challenged, and one's identity and future are challenged (Janoff-Bulman, 1992). The "seismic" set of circumstances severely challenges, contradicts, or may even nullify the way the individual understands why things happen, in terms of proximate causes and reasons, and in terms of more abstract notions involving the general purpose and meaning of the person 's existence. Such threats to the assumptive world are accompanied by significant levels of psychological distress.

Extending our seismic metaphor, cognitive processing and restructuring may be comparable to the physical rebuilding that occurs after an earthquake. The physical structures can be designed to be more resistant to shocks in the future, as the community learns from the earthquake what has withstood the shaking and what has not. Cognitive rebuilding that takes into account the changed reality of one's life after trauma produces schemas that incorporate the trauma and possible events in the future, and that are more resistant to being shattered. These results are experienced as growth (Tedeschi and Calhoun, 2004).

Finally, it is not the trauma itself that is responsible for growth as much as what happens in the aftermath of trauma, it is important that the events are challenging enough to the assumptive world to set in motion the cognitive processing necessary for growth. There are several studies that allow some tentative comparisons between traumatic events and levels of reported growth on the PTGI, with the caveat that of course the sample characteristics also differ in many ways. Some of the lowest reported scores come from a study of criminal victimization in South Africa (Peltzer, 2000), whereas the highest come from a small subsample of college students reporting the highest levels of severity of

trauma (Tedeschi & Calhoun, 1996), although the events themselves varied (PTGI M = 83). Other studies have typically reported intermediate scores; for example, bereaved parents (Polatinsky & Esprey, 2000), World War II bombing victims (Maercker & Langner, 2001), and women with breast cancer (Weiss, 2002).

2.9.2 Individual characteristics

2.9.2.1 Personality characteristics

There appear to be two basic personality qualities that may affect the likelihood that people can make positive use of the aftermath of traumatic events that befall them: extraversion and openness to experience. In their original PTGI validation sample they found some indications that openness to experience and extraversion, as measured by the NEO Personality Inventory (Costa & McCrae, 1992), are modestly related to posttraumatic growth, whereas other Big Five personality dimensions tended not to be related. Scores on all five factors of the PTGI correlated reliably but quite modestly with extraversion (ranging from a correlation of .15 between personal strength and extraversion to a correlation of .28 between extraversion and relating to others). Scores on only two of the PTGI factors correlated reliably with openness (r = .25 both for new possibilities and for personal strength). The specific facets of the NEO that we found to be most strongly related to the PTGI were activity (r = .31), positive emotions (r= .34), and openness to feelings (r= .28). Perhaps persons with these three characteristics will be aware of positive emotions even in adversity, and will be able to process information about these experiences more effectively, producing the schema change reported as posttraumatic growth. Indeed, there is good evidence that positive affect is implicated in this kind of information processing (Aspinwall, 1998).

Especially interesting is the lack of relation between neuroticism and posttraumatic growth. Park (1998) pointed out that positive and negative aspects of adjustment may be independent, and that compared to persons who report only positive change, those who report both positive and negative changes show more growth (Taylor et al., 1991). Of course, only prospective, longitudinal research designs will be able to demonstrate conclusively whether certain pretrauma personality characteristics allow for posttraumatic growth.

Although they have also found a positive relation between optimism and PTGI scores (Tedeschi & Calhoun, 1996), this is also a rather modest correlation (r= .23). This indicates that posttraumatic growth and optimism may well be distinct concepts. The way optimism may be related to posttraumatic growth may again be through the influence it has on cognitive processing. Specifically, optimists may be better able to focus attention and resources on the most important matters, and disengage from uncontrollable or unsolvable problems (Aspinwall et al., 2001). This ability may be especially important in the cognitive processing that occurs in the aftermath of trauma, as it will discuss later.

2.9.2.2 Managing distressing emotions

The person facing a major life crisis must find ways of managing initial distress, which can often be debilitating. This is necessary to allow some degree of constructive cognitive processing to occur, producing schema changes that will contribute to the experience of posttraumatic growth. At the early stages of response to trauma, cognitive processing is more likely to be automatic; that is, there are many occasions for intrusive thoughts and images, and negative intrusive rumination is typically frequent. Eventually, if this process is effective, it leads to disengagement from previous goals and assumptions, as it becomes clear that the old way of living is no longer appropriate in radically changed circumstances. They say "eventually," because this process can take some time. Many people who survive traumatic events report that many months later they can still be struck by a sense of disbelief. To an extent, this process may involve "grief-work" in the sense that the loss involved in the trauma is gradually accepted. This often lengthy process during which distress persists may actually be important for the maximum degree of posttraumatic growth to occur. This distress keeps the cognitive processing active, whereas a rapid resolution is probably an indication that the assumptive world was not severely tested, and could accommodate the traumatic events (Tedeschi & Calhoun, 2004).

2.9.2.3 Support and disclosure

Supportive others can aid in posttraumatic growth by providing a way to craft narratives about the changes that have occurred, and by offering perspectives that can be integrate into schema change (Neimeyer, 2001; Tedeschi & Calhoun, 1996). They have emphasized the important role of mutual support in particular, because the credibility of those who have "been there" can be crucial in determining the degree of willingness trauma survivors have to incorporate new perspectives or schemas (Tedeschi & Calhoun, 1993). Narratives

of trauma and survival are always important in posttraumatic growth, because the development of these narratives forces survivors to confront questions of meaning and how it can be reconstructed (McAdams, 1993; Neimeyer, 2001). In telling these stories to others, the emotional aspects of the events and the survivor are usually revealed, resulting in an intimacy that may be surprising. In bereaved parent support groups we have often heard group members talk about the group being their family, because they have revealed more and been accepted more than in any other personal relationship. The narratives of trauma and growth may also have the effect of spreading the lessons to others through vicarious posttraumatic growth. These stories then transcend individuals, and can challenge whole societies to initiate beneficial changes (Bloom, 1998; Karakasian, 1998; Tedeschi, 1999).

2.9.3 Cognitive processing and growth

O'Leary, Alday, and Ickovics (1998) summarized various models of change that could be useful in understanding the process of posttraumatic growth. Among several of these models there is a common concern with how the usual homeostatic mechanisms of self-regulation can be abruptly altered, and a new pattern of functioning emerges (Aldwin, 1994; Carver & Scheier, 1998; Miller & C'deBaca, 1994). Aldwin and Carver both used dynamic systems models to account for the process of posttraumatic growth. Aldwin (1994), in describing transformational coping, posited that individual differences in coping abilities set some people on a maladaptive spiral, whereas others proceed on an adaptive spiral. This deviation-amplification process fits with their model that some early success in coping is a precursor to later posttraumatic growth. Carver (1998) described a catastrophe model that includes a deviation-reducing mechanism. He predicted that self-confidence in coping and the importance of the events interact to determine the degree to which people engage in coping or give up. When events are very important, people with high confidence persist toward reducing the discrepancy between their circumstances and optimal functioning, and those with low confidence give up. In their conception of posttraumatic growth, there is the additional complication that people who report growth must disengage, or give up, certain goals and basic assumptions, at the same time persisting in an attempt at building new schemas, goals, and meanings. This persistence in cognitive processing should be associated with posttraumatic growth (Tedeschi & Calhoun, 2004).

2.9.4 Rumination or cognitive processing

To some extent this idea that persistent cognitive processing is associated with growth is surprising, given the body of evidence that demonstrates a relation between certain types of rumination and negative affect and depression (e.g., Horowitz, 1986; Lyubomirsky et al., 1998; Nolen-Hoeksema & Morrow, 1991). It has been pointed out that this evidence for the long-term drawbacks to rumination does not seem to square with the idea that it is involved in posttraumatic growth (Updegraff & Taylor, 2001), Because the typical affective experiences of trauma survivors appear to be qualitatively different from what is seen in clinical depression (Robinson & Fleming, 1992), we might expect that depressogenic rumination may be different from that associated with posttraumatic growth. Rumination's perceived relation with negative outcomes also may be due to the now common restrictive use of the term to apply exclusively to negative, self-punitive thinking (e.g., Nolen-Hoeksema et al., 1997).

In contrast, Martin and Tesser (1996) recognized "several varieties of recurrent [event-related] thinking, including making sense, problem solving, reminiscence, and anticipation". They proposed a definition that incorporates the common features of rumination found in previous work and they described rumination as thinking that (a) is conscious; (b) revolves around an instrumental theme; and (c) occurs without a direct cueing from the environment. but is easily and indirectly cued because it is connected with important goals, leading to recurrent thoughts. They categorized modes of ruminative thought as referring to the past, present, or future regarding negative or positive events.

The event-related rumination can involve goal attainment or a discrepancy involving unattained goals or lack of fit between schemas and events that have occurred. In coping with life crises, people are concerned with the negative events with a discrepancy focus. Martin and Tesser (1996) categorized the thinking about the past as working through, the present as current concerns, and the future as worry. To distinguish the type of recurrent negative thinking that has been labeled rumination by many other researchers from the processes referred to by Martin and Tesser, we use the term cognitive processing, but we rely on Martin and Tesser's concepts about rumination in considering the kind of thinking that leads trauma survivors toward growth.

It appears that as survivors reflect on the discrepancy involving unattained goals or schemas and events, they develop the universal character of the trauma narrative-the before

and after the trauma, the trauma as turning point (McAdams, 1993; McAdams et al., 2001; Tedeschi & Calhoun, 1995). A goal was possible then, but not now. A philosophy or belief may have seemed true then, but not now. This is particularly the case when the goals or schemas are high order (they are general or fundamental, related to identity and purpose) and ,appear not only to be unattained, but now because of the trauma, are unattainable. The disengagement from the unattainable goals or the worldview that cannot accommodate the reality of the trauma can allow the trauma survivor to formulate new goals and worldviews that allow a perception that one is moving forward again toward goals in a world that permits this. As Little (1998) pointed out, the sense of movement toward achieving goals is crucial in life satisfaction.

There is probably not a clear distinction between the discrepancy focus involving unattained, and apparently unattainable, goals and the general schemas that represent fundamental assumptions about one's life and the world. Both involve giving up dearly held goals that survivors had assumed they would be able to attain, as when a bereaved parent is forced to give up dreams and expectations for a child's life. We also submit that the presence of posttraumatic growth does not necessarily mean a lessened degree of psychological distress. Virtually everyone reporting posttraumatic growth also acknowledges at least some distress. What they went through cannot be accommodated easily, and losses have been suffered. This "past" temporal orientation, a focus on what has been lost, is related to poorer outcomes (Holman & Silver, 1998), but is also realistically acknowledged by the vast majority of those reporting posttraumatic growth.

Another kind of cognitive activity that seems related to higher levels of distress is regret and repeated consideration of how the trauma could have been avoided (Greenberg, 1995). These "counterfactuals" have a past temporal orientation and appear to be associated with negative effect. In their studies of counterfactual thinking among bereaved parents and patients with spinal cord injuries, Davis and Lehman (1995) found that such thoughts occurred even when causes of the traumatic events were clear and there was evidence of others' roles in causing the trauma. Although this cognitive processing of counterfactuals can persist for years, Davis and Lehman concluded that) counterfactual rumination is ultimately in the service of making sense of events in the light of shattered assumptions. Following this cognitive processing long enough to see these outcomes is the only way that

researchers will be able to understand the convoluted process of cognitive processing involved in posttraumatic growth.

When cognitive processing is followed over time, changes in its quality may become evident. In our clinical work, we believe we observe such changes, but empirical longitudinal studies are needed to confirm this. Initially, trauma survivors typically report intrusive thoughts and images that are highly distressing. There may also be attempts to comprehend and manage the aftermath of trauma (Tedeschi & Calhoun, 1995). This is meaning as comprehensibility that can be distinguished from meaning as significance (Davis et al., 1998; Tedeschi & Calhoun, 1995). Initial revisions of schemas that produce comprehensibility may be an intermediate step to posttraumatic growth. The negative cognitive processes set in motion by major life crises are difficult to distinguish from positive ones, because the destruction wrought by such crises to higher order goals and schemas also allows for schema reconstruction based on new principles, recognition that trauma is a personal reality, and a definition of self as a survivor. For example, a musician we interviewed suffered permanent paralysis and cognitively processed this loss by asking himself "Who am I?" and "What will become of my life?" These disturbing questions also represented an orientation toward the future, producing more healthy processing of the trauma into revised goals and schemas.

Data from recent studies provide some support for the hypothesized relation between cognitive processing and posttraumatic growth. In a study (Tedeschi, Calhoun, & Cooper, 2000) of a group of older adults who reported on experiences with trauma, growth attributed to the struggle with the two events in their lives they described as the most stressful was associated with the frequency of rumination across all traumatic events in their lives ($r = .49$, $p < .01$). Unfortunately, the specific content of this rumination was not obtained from the respondents. In a study of bereaved HIV-positive men, there was a link between deliberate, repetitive cognitive processing and experiences of personal growth (Bower et al., 1998). Similarly et al. (2002) found that college students who used a journaling exercise reported higher scores on the PTGI after 4 weeks if they had been instructed to cognitively process the emotional aspects of the traumas they were coping with: Focusing on facts or emotions alone did not produce posttraumatic growth. These findings fit with our model, in that deliberate cognitive processing is crucial to growth outcomes, and this processing is happening somewhere in the time frame between

intrusive, automatic thinking and posttraumatic growth. In another study, (Calhoun et al., 2000), young adult trauma survivors tended to report greater posttraumatic growth when also reporting greater levels of cognitive processing recalled as occurring soon after the event ($r = .32$, $p < .05$), but not when engaged in continuing processing years after the event. These results are congruent with previous findings that continued and extended searches for meaning, perhaps longer than a decade, bode poorly (Silver et al., 1983; Tait & Silver, 1989).

Calhoun et al. (2000) examined the relation between different types of rumination in bereaved parents who participated in mutual help support groups. Items from various inventories were used to assess five types of cognitive processing in reports about experiences parents recalled as occurring soon after their children's deaths and more recently. Measures of intrusive thinking, both recalled as occurring soon after the child's death and recently, were unrelated to posttraumatic growth. Nonintrusive repetitive thinking recalled as occurring in the immediate aftermath of the child's death was associated with posttraumatic growth ($r = .38$, $p < .05$), but repetitive thinking recently was not. Attempts at deliberate meaning making recalled as occurring soon after the death were related to posttraumatic growth ($r = .48$, $p < 01$), but recent attempts al meaning making were not. Finally, attempts at positive reinterpretation and benefit reminding were related to posttraumatic growth when engaged in recently ($r = .36$, $p < .05$; $r = .44$, $p < .05$, respectively), but not soon after children's deaths.

In addition, these data showed that the different domains of posttraumatic growth measured by the PTGI were differentially related to cognitive processing. For example, personal strength was the only domain related to repetitive thoughts soon after the children's deaths ($r = .48$, $p < .01$), whereas all domains except personal strength were related to attempts to make sense of what had happened soon after the deaths. Appreciation of life was most strongly related to recent attempts at positive reappraisal ($r = .55$, $p < .001$) and benefit reminding ($r= .55$, $p < .001$), with new possibilities somewhat less so ($r = .46$, $p < .01$; $r = .36$, $p < .05$, respectively), and with other domains being unrelated to these kinds of thinking. These data appear to demonstrate that understanding the type of cognitive processing and when it occurs may be crucial to understanding the cognitive routes to posttraumatic growth, and that different aspects of growth may be particularly sensitive to certain kinds of cognitive activity at different periods of time after trauma.

2.9.5 Growth, cognitive processing, and disclosure

The cognitive processing of trauma into growth appears to be aided in many people by self disclosure in supportive social environments. It is unclear whether this disclosure works better if it is written or verbal, because there is evidence that posttraumatic growth can be increased by specific interventions that enhance cognitive processing during journal writing (Ullrich & Lutgendorf, 2002). It may be that the facilitation or discouragement of cognitive processing of emotional material in trauma survivors is the key, and this can happen in direct social contact or through instructions to persons who write personal journals.

Lepore and associates (Lepore & Helgeson, 1998; Lepore et al., 1996) have shown that social constraint (i.e., blocking of self-disclosure of intrusive thoughts) produces a strong relation between these thoughts and depression. Nolen-Hoeksema and Davis (1999) reported, in their study of bereaved persons over 18 months, that people with a ruminative coping style sought out more social support, although they at first were less comfortable talking than nonruminators. However, the ruminators ended up benefitting more from the support, helping them avoid becoming depressed. Reporting on the same data, Nolen Hoeksema and Larson (1999) found that seeking social support produced posttraumatic growth in two of the four waves of interviews over 18 months, and that this may be because many persons sought support but did not find it.

Social support may play a strong role in the development of posttraumatic growth when it remains stable and consistent over time. For example, Heindrich and Ryff (1993) found that greater social integration buffered elderly women with health problems and produced greater sense of well-being. Powell et al. (2003) found differences in posttraumatic growth among persons who experienced the war in Sarajevo. In this study, persons who had fled the country and been in socially stable environments reported more growth than those who endured the entire conflict in the city. A more direct test of the relation between posttraumatic growth and social support is found in a study of breast cancer survivors (Cordova, 1999; Cordova et al., 2001). When friends and family did not wish to hear from cancer patients about their illness, cognitive processing appeared to be inhibited. The less cognitive processing, the less posttraumatic growth was reported by the survivors.

Another study of breast cancer survivors and their husbands also supports the hypothesis that posttraumatic growth is positively influenced by social support. Weiss (2000, 2002)

reported that. The posttraumatic growth of wives was a significant predictor of husbands' posttraumatic growth, and that this was not related to reported degree of marital conflict. General social support was also related to posttraumatic growth, and to acknowledgment of fear among husbands. Weiss suggested that the relation between posttraumatic growth and social support may be due in part to the tolerance of distress that sustains cognitive processing.

Calhoun and Tedeschi have previously emphasized the potential benefits of social support experiences in facilitating posttraumatic growth through mutual support groups, because they provide "discussion of perspective, offering of beliefs, and the use of metaphor to explain experience. All of this is fertile ground for the revision of schemas that is essential to the experience of growth" (Calhoun & Tedeschi, 1999). The only published data they are aware of testing the notion that posttraumatic growth can be actively promoted in groups is a study by Antoni et al. (2001). These researchers looked at perceptions of benefit from experiencing cancer using a 10-week group-based cognitive-behavioral stress management intervention for women with early-stage breast cancer. Women who were low in optimism, in contrast to those high in optimism, had a greater increase in reported benefits from the cancer experience over 3- to 6-month follow-up. Emotional processing was also related to reported perceptions of benefit, but not optimism.

2.9.6 Wisdom and narrative development

Our assumption is that as individuals experience posttraumatic growth, these changes have an ongoing, mutual influence with the development of general wisdom about life and further development of the general framework, the narrative, people have for thinking about their lives. Posttraumatic growth shares some common foundations with what has been described as the "fundamental pragmatics of life" (Baltes & Smith, 1990). Persons who have faced major challenges in their lives may also develop "the ability to balance reflection and action, weigh the known and the unknowns of life, be better able to accept some of the paradoxes of life, and to more openly and satisfactorily address the fundamental questions of human existence" (Calhoun & Tedeschi, 1999).

For persons who have experienced major life crises, their lives are often conceptualized as having a before and after: before and after the loss of the baby, before and after the war, before and after the stock market crash, or before and after the criminal assault, for example (Tedeschi & Calhoun, 1995). The struggle with traumatic events can lead, along

with the possibility of posttraumatic growth, to a revised life story (McAdams, 1993). As the graphic representation of our model of posttraumatic growth suggests (Figure 2:2), the development of the individual's personal life narrative and posttraumatic growth may mutually influence one another (Tedeschi & Calhoun, 2004).

2.10 Domains of posttraumatic growth

The Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996), which measures five domains of growth, was developed to allow quantification of the experience of growth. The items on the scale were developed out of a review of the literature on responses to highly stressful events and from interviews conducted with persons who had experienced spousal loss, physical disabilities, and other life crises. The items were factor-analyzed, producing a 21-item scale with five factors that define the major domains of posttraumatic growth: greater appreciation of life and changed sense of priorities; warmer, more intimate relationships with others; a greater sense of personal strength; recognition of new possibilities or paths for one's life; and spiritual development (Tedeschi & Calhoun, 1996). Their impression is that these items do a good job of covering the reported experiences of posttraumatic growth. They have not seen research that indicates that other types of growth are reported that are not generally represented in this scale. However, it remains to be seen if the five domains hold up in factor analyses of various samples of trauma survivors (Maercker & Langner, 2001).

Appreciation for life: A recent study of Bosnian war refugees, for example, shows a slightly different factor structure in a translated and altered version of the PTGI (Powell et al., 2003). An increased appreciation for life in general, and many smaller aspects of it, along with a changed sense of what is important, is a common element in the experience of many persons who have struggled with major difficulties. As Jordan (2000) put it, "even the smallest joys in life took on a special meaning". Individuals typically report this as a major shift in how they approach and experience their daily lives. This sense of "being so lucky" is not uncommon. A radically changed sense of priorities can accompany the increase in appreciation for what one still has. Atypical change in priorities is an increase in the importance of what before might have been considered the "little things," such as a child's smile and spending time with a toddler, and the recognition of the importance of things formerly taken for granted.

Relating to others: Closer, more intimate, and more meaningful relationships with other people can also be part of the individual's experience of posttraumatic growth. A study of posttraumatic growth in bereaved parents has provided us with some good examples of this change (Calhoun et al., 2000). As one bereaved parent said, "When he died people just came out of the woodwork. ..1 realize that relationships with people are really important now. ..and I cherish my husband a lot more." However, the experience of deeper and more meaningful relationships can occur along with the loss or disappearance of other relationships, because, as one person said "you find out who your real friends are in a situation like this." The experience of an increased sense of compassion, particularly for others who now share the same difficult fate, is another way in which the greater connection to others occurs. As another bereaved parent said, "I've become more empathetic towards anybody in pain and anybody in any kind of grief."

Personal strength: A general sense of increased personal strength, or the recognition of possessing personal strength, is another domain of posttraumatic growth. Another bereaved parent reported that: "I can handle things better. Things that used to be big deals aren't big deals to me anymore. Like big crisis problems, they will either work out or they won 't. Whichever way it goes, you have to deal with it." The identification of strength is often correlated, almost paradoxically, with an increased sense of being vulnerable. Growth in this domain is experienced as a combination of the clear knowledge that bad things can and do happen and the discovery that "if I handled this then I can handle just about anything."

New possibilities: Posttraumatic growth can also be seen in the individual's identification of new possibilities for one's life or of the possibility of taking a new and different path in life. One of the people who talked with us about her personal loss was influenced by her own struggle with grief to become an oncology nurse, where she could try to provide care and comfort to other persons facing suffering and loss.

Spiritual change: Growth in the domain of spiritual and existential matters is another way in which some persons experience positive change in their struggles with stress and loss. As one person said: You think about getting through something like that and it's downright impossible to even conceive of how you ever could. But that's the beauty of the thing. ..it's gonna have to be said because I believe that God got me through it. Five or six years ago I didn't have these beliefs. And I don't know what I would do without Him now. Individuals

who are not religious, or who are actively atheistic, can also experience growth in this domain. There can be a greater engagement with fundamental existential questions and that engagement in itself may be experienced as growth.

Each of the five domains of posttraumatic growth tends to have a paradoxical element to it that represents a special case of the general paradox of this field: that out of loss there is gain. For example, in the situation where people are more limited in what choices they have in life, such as becoming reliant on a wheelchair for mobility, there may be a willingness to explore opportunities never before considered, such as a radical change of vocational paths. At a time when one is vulnerable as never before, there is a sense of strength. Out of spiritual doubt there can emerge a deeper faith. Recognition of these paradoxes engages trauma survivors in dialectical thinking that is similar to that described in the literature on wisdom (Baltes, Staudinger , Maercker, & Smith, 1995) and integrative complexity (Porter & Suedfeld, 1981).

Although perhaps unnecessary, a reminder may be in order. This description of the domains of posttraumatic growth is positive, because the experience of growth is viewed that way. However, the presence of growth does not necessarily signal an end to pain or distress, and usually it is not accompanied by a perspective that views the crisis, loss, or trauma itself as desirable. Many persons facing devastating tragedies do experience growth arising from their struggles. The events themselves, however, are not viewed as desirable-only the good that has come out of having to face them (Tedeschi & Calhoun, 2004).

2.11 Posttraumatic growth and physical functioning

We are aware of only one study that has looked at the relations between posttraumatic growth and physical well-being. Epel, McEwen, and Ickovics (1998) reported that of the five factors of the PTGI, elevations on spiritual growth and appreciation of life were related to quicker cortisol habituation to a laboratory stressor. Similarly, Bower et al. (1998) found that men with HIV were less likely to have rapid declines in CD4 T-cell levels if they cognitively processed their situation into something meaningful. These men also had lower levels of mortality, regardless of health status at the start of the study or health-related behavior. This finding echoes the earlier study of Affleck et al. (1987), who reported lower rates of mortality in heart attack victims who derived benefits from their illness. Much work remains to be done in exploring the links among cognitive processing,

posttraumatic growth, and health-related outcomes, but these studies suggest this may be a promising area for investigation.

2.12 Posttraumatic growth and psychological distress

An important issue addressed in the published research on posttraumatic growth is the degree to which higher levels of growth are associated with lower levels of psychological distress. The quantitative evidence is mixed. Where relations are observed, higher levels of growth tend to be associated with lower levels of distress (Frazier et al., 2001; Park et al., 1996). However, other investigations have found no reliable relation between posttraumatic growth and distress (Cordova et al., 2001; Powell et al., 2003). Further, some studies indicate a significant relation between measures of intrusive thoughts and posttraumatic growth (Calhoun et al., 2000).

How do we reconcile the reports of rumination related to depression and our findings of cognitive processing related to posttraumatic growth'? Posttraumatic growth and distress are essentially separate dimensions, and growth experiences do not put an end to distress in trauma survivors (Calhoun & Tedeschi, 1998; Tedeschi & Calhoun, 1995). These distinctions are seen in a study by Cordova et al. (2001). Matching breast cancer survivors with healthy controls, they found that cancer survivors and controls were no different in levels of depressive symptoms, although the cancer survivors reported more posttraumatic growth. Depression, intrusive thinking, and general personal well-being were all unrelated to posttraumatic growth. Instead, posttraumatic growth was related to perceived threat of the cancer experience and talking with others about it. It appears that in general, there are surprisingly few relations between posttraumatic growth and apparently related variables such as well-being, optimism, and (low) depression, or (low) neuroticism.

Park (1998) suggested that the failure to find a negative relation between growth and distress occurs because some people reporting growth may deny negative aspects of their experiences, whereas others do not (e.g., Taylor et al., 1991), and that domains of posttraumatic growth are conceptually distinct from general emotional adjustment. Continuing levels of manageable distress may actually fuel posttraumatic growth, as suggested in our model (Calhoun & Tedeschi, 1998). The available data suggest that experiencing higher levels of posttraumatic growth is correlated with, and perhaps may result in, reduced levels of psychological distress, but not always.

Is the lack of relation between distress and growth not a limitation of the concept? We think not. As we have indicated, the absence of consistent relations suggests that posttraumatic growth and traditional measures of psychological adjustment are independent. Posttraumatic growth is not the same as an increase in well-being or a decrease in distress. In addition, the impetus for growth is the individual's struggle with a highly distressing set of circumstances that significantly challenges people's understanding of the world and their place in it. The maintenance of growth may also require periodic cognitive and emotional reminders that are not pleasant, of what has been lost, but paradoxically, also of what has been gained. As others have suggested (Yalom & Lieberman, 1991), growth and subjective pain may indeed coexist for some people. The experience of posttraumatic growth may be accompanied by a reduction in distress, but our model does not predict such a relation.

Some studies just cited suggest repetitive thoughts that are difficult to stop are related to posttraumatic growth. Initial deliberate attempts to make meaning and later attempts to interpret the aftermath positively and bring the benefits to mind, may be reliably related to posttraumatic growth. Active disclosure of thoughts and emotions to empathetic others may be important to the development of posttraumatic growth. However, the development of measures of the complicated cognitions associated with posttraumatic growth an the longitudinal examinations of these processes await the attention of researchers focusing on this area.

Understanding the relations among these thought processes and the best outcomes for trauma survivors is important in helping professionals who work with such populations to discern the positive nature of the apparently painful cognitive activity of these persons. Attempts on the part of people in the support networks of trauma survivors to suppress rumination are perceived by survivors as not helpful (Lehman et al., 1986; Lehman & Hemphill, 1990). Similarly, therapeutic interventions with trauma survivors that are focused on rapid distress relief may prevent greater long-term gains (Calhoun & Tedeschi, 1999).

2.13 Posttraumatic growth on the family system level

For the past two decades, in a paradigmatic shift, the focus in the family literature moved from viewing families' functioning through a deficit-based lens to a strength-based perspective (Hawley & DeHaan, 1996; Walsh, 2003). Families' resilience and ability to

thrive in the aftermath of the struggle with adversity has been mostly examined from the perspective of family stress and coping (Patterson, 2002). That families can respond to a traumatic event with systemic growth is consistent with the concepts of positive feedback loops (Nichols & Schwartz, 2008) and deviation amplification mechanisms (Maruyama, 1963) as well as with complexity theory (Warren, Franklin, & Streeter, 1998). These theories postulate that severe events have the potential to set off second-order change processes that produce fundamental shift in a system and lead to a higher level of functioning rather than to homeostasis. Family PTG represents an application of this general principle to the family system.

The conceptualization of family systems growth from crisis originated in Hill's roller coaster model of the late 1940s. Based on the study of families responding to World War II–related crises, the model posited that family functioning might deteriorate, return to pre crisis level, or reach higher levels (Hill, 1949). Hill's early intimations of systemic PTG have only recently been reintroduced with the application of the concept of resilience to systems such as families, organizations, and communities (Waller, 2001; Walsh, 2007). For example, Patterson (2002) advocated adapting to the family as a unit of analysis the individual concepts of resiliency as an ego trait and resilience as the process of successfully overcoming adversity. She suggested that family resiliency denotes "the capacity of a family system to successfully manage their life circumstances" and family resilience refers to "the processes by which families are able to adapt and function competently following exposure to significant adversity or crisis". She further emphasized that a crisis is often a turning point for a family, leading to major changes in structural and dynamic qualities that could represent an improvement in the level of functioning.

During the second half of the 20th century, family stress and coping research focused mainly on deficits and pathology. Despite the theoretical recognition of the potential for family growth (Patterson, 2002) and the fact that clinicians often observed it in practice, there is surprisingly little work to shed light on the existence and process of growth. One of the few exceptions was Stinnett and DeFrain's (1985) qualitative study of family systems, in which 75% of participating families perceived something good coming out of their ordeal of suffering and despair.

2.14 Extension of the concept to social transformation

Traumatic events happen not only to individuals, but also to groups, and through vicarious processes, to whole countries and societies. Therefore, we might also consider how the concept of posttraumatic growth might be applied to social change in the aftermath of widespread trauma. Socially shared schemas can be challenged and changed by traumas that are widely shared, such as war or economic hardship (Bloom, 1998; Tedeschi, 1999). The social narrative can be changed by the struggle with events, just as it is in individuals, creating a discussion about who "we" are in the aftermath of the events, what principles should guide the society, and what meaning the trauma has for the society.

For example, the Great Depression of the 1930s produced new ideas about the responsibility of government to protect individuals from the excesses of capitalism. World War II transformed the combatants' views of their societies and national character, and produced changes to socially shared schemas that are still felt. Such a turning point in the social narrative in Japan marked a change from a strongly militaristic to a more pacifistic culture. In Germany, the Holocaust has had an enduring effect on the youth of the country as they try to identify positively with their nation (Brendler, 1995). The Vietnam War led Americans to reconsider the role of morality and national consensus in making war, and changed views of the trustworthiness of government leaders. The attacks against the World Trade Center in New York, on September II, 200 I, are being seen as a catalyst for social change, although it is too early to tell exactly what those changes might be.

Positive changes can arise out of such events when the individual narratives are shared and integrated into the social narrative in such a way that the events are recognized as turning points. Leadership is also important. The famous and the unknown can emerge as important forces in changing the narratives and the schemas of societies. In South Africa, Desmond Tutu and Nelson Mandela gave powerful moral direction that led to the breakup of apartheid and the establishment of the Truth and Reconciliation Commission. This group allowed for the telling of stories that reinforced changes in individual and social schemas. Candy Lightner, a bereaved mother, started a nation- wide effort in the United States to eliminate drunk driving, resulting in not only legal changes, but socially shared recognition of the dangers of this activity, a stigma about it, and even a new language including such terms as designated driver. With these kinds of determined leaders who wish to transform their own experiences of trauma and the vicariously experienced trauma

of others, there can arise mutual support among those with similar experiences, and in such support there can be important social change.

2.15 Other routes to growth

In the original validation study of the PTGI (Tedeschi & Calhoun, 1996), we found that persons who did not experience any trauma also reported growth, although at lower levels than trauma survivors. Although this may represent a self-enhancing cognitive bias that allows people to claim ongoing self-improvement. these results might also reflect recognition of a maturational process in the young adults in that sample. The domains of growth represented by the PTGI might be experienced to some degree through other processes than massive schema violation through trauma, perhaps by an accumulation of experience over time that produces gradual changes that can't be attributed to single events. Positive experiences might also have a similar effect on the domains of posttraumatic growth, especially if they are extraordinary enough to challenge schemas the way traumatic events do. Peak experiences and similar concepts (Csikszentmihalyi, 1990; Maslow, 1971; Privette & Landsman, 1983) may represent some life-altering event that results in some of the same changes that trauma survivors report. Concepts of positive experiences, such as Maslow' s, do not make clear how and why these experiences might produce changed life perspectives. Following our model, positive life changes initiated by positive events would have to involve significant challenge to schemas and a clear change in the life narrative, and lo accomplish this, positive experiences would need to combine the affective and intellectual in learning this new view of life. Empirical analyses would then be necessary to compare posttraumatic growth with growth in the aftermath of positive experiences to determine whether they produce the same trajectories of change over time, endure for the same periods, or have other similarities.

It should be apparent, however, that personal growth probably has a common core, although it occurs for different reasons. The five domains of the PTGI are probably a good representation of the breadth of growth that people can experience. Whatever the catalyst might be for growth, there are bound to be some biases introduced by the person experiencing the growth, because experience is inherently constructive (Neimeyer & Stewart, 2000).

2.16 Part 2: literature review of the relationship between PTSD and PTG

By reviewing the literature, the researcher have found a lot of studies addressed trauma and its effects, particularly PTSD. But the researcher have found that few researches have studied the relationship between PTSD and PTG in the world. Also, the researcher in the light of his knowledge has not found any study used the same variables of the current study especially in the Gaza Strip or any Arab culture. In addition, the researcher has found shortage in finding a lot of researches about the PTG and its relation with other variables. In the following review, researcher shows the accessible studies to some extent related to the current study directly.

2.16.1 Introduction

Posttraumatic growth refers to the development of a positive outlook following trauma (Tedeschi & Calhoun, 1996, 2004). Positive changes may include relating to others, new possibilities, personal strength, spiritual change, and appreciation for life (Tedeschi & Calhoun, 2004). These positive changes have been found across a wide variety of populations, ranging from college students (Tedeschi & Calhoun, 1995) to elderly caregivers (Farran, 1997), facing a wide variety of ills, including the death of a loved one (Yalom & Lieberman, 1991), disasters (Joseph et al., 1993; McMillen et al., 1997), child abuse (McMillen et al., 1995), and diseases like cancer (e.g., Charles et al., 1996; Collins et al., 1990) and HIV (Schwartzberg, 1994). Furthermore, research has linked PTG with a variety of important health outcomes, including lower levels of second heart attacks (Affleck et al., 1987), symptom reporting (Thompson, 1985), and AIDS related mortality (Bower et al., 1998). These results suggest that PTG can have salutary influences on the adaptation to life's difficulties.

Although stress and trauma can provide a catalyst for growth, the process through which this occurs is unclear. Most scientific models of adaptation to trauma do not easily accommodate PTG. This is because PTG is considered more than just adaptation or being resilient, it is thriving, moving beyond one's original levels of functioning (O'Leary & Ickovicks, 1995).

The nature of a traumatic experience plays a role in subsequent growth. Trauma can shatter assumptions (Janoff-Bulman, 1992), and reduce positive illusions (Taylor & Brown, 1988), to provide a window of realism through which one can concentrate on various existential

matters (i.e., what is most important in life). Thus, the more severe the trauma, the greater the reported PTG (Park et al., 1996; Tedeschi & Calhoun, 1996).

For example, in a study of military veterans, higher combat exposure was significantly and positively related to positive outcomes, such as valuing life more and having a clearer purpose in life (Aldwin et al., 1994). In addition, research indicates a significant association between existential awareness (e.g., awareness of life's fragility) and personal growth (Yalom& Lieberman, 1991). Therefore, the strength of the trauma (i.e., ability to disrupt normal cognitive functioning) and heightened existential awareness are both important aspects of PTG.

Time elapsed since the occurrence of trauma may play a role in PTG. Although PTG can occur immediately after trauma, time may allow for proper rumination of the important issues inherent to PTG. However, whereas some studies have found a positive relationship (Cordova et al., 2001; Park et al., 1996), others have not found this association (Tedeschi & Calhoun, 1996).

In general, women report more PTG than men (e.g., Park et al., 1996; Tedeschi & Calhoun, 1996). However, as these results were among mostly White college students, the generalizability of these findings have yet to be determined.

Religiosity is positively related to PTG (Park et al., 1996; Tedeschi& Calhoun, 1996). Because most religions have developed their own theodicy, one's religious perspective can have a dramatic effect on PTG by providing a framework through which traumas can be appraised. Using trauma to come closer to God can increase one's spirituality, whereas the opposite may occur if one feels betrayed by God through the trauma.

2.16.2 Previous studies

In the study of Kroo and Nagy (2011) The study focuses on the posttrauma adjustment of traumatized war refugees, with a special focus on the possibility of positive transformation. Specific predictors and correlates of posttraumatic growth were examined among 53 Somali refugees, based on research literature and clinical work experience with Somali refugees in Hungary. Posttraumatic growth was assessed with the Posttraumatic Growth Inventory. The results of the study demonstrated significant accounts of posttraumatic growth among Somali refugees, as well as additional areas of positive changes. Hope,

religiosity, negative religious coping, and satisfaction with perceived social support were positively related to reported growth.

And the study of Hall et al. (2010) aimed to examined factors that were related to self-reported PTG, and the relationship between PTG and symptoms of post-traumatic stress (PTS) following the 2006 Israel-Hezbollah. Whereas the sample drawing from a national random sample of Israel, data from 806 terrorism-exposed Israeli adults were analyzed. And the results showed that PTG was associated with being female, lower education, greater recent terrorism exposure, greater loss of psychosocial resources, greater social support, and greater self-efficacy. PTG was a consistent predictor of PTS across hierarchical linear regression models that tested whether demographic, stress, or personal resources moderated the relationship between PTG and PTS. PTG did not relate to PTS differently for people who differed by age, sex, ethnicity, education, religiosity, degree of terrorism exposure, self-efficacy, nonterrorism stressful life events, and loss of psychosocial and economic resources. PTG was not related to well-being for any of these subgroups.

Also, the study of Pietrzak et al. (2010) aimed to examine the prevalence and correlates of psychopathology, mild traumatic brain injury, and related problems in Veterans of Operations Enduring Freedom and Iraqi Freedom (OEF-OIF). While these studies help characterize the deleterious effects of combat, no known study has examined factors that may enhance posttraumatic growth or positive changes experienced as a result of combat in this population. Whereas the sample a total of 272 predominantly older Reservist/National Guard OEF-OIF Veterans completed an anonymous mail survey that assessed combat exposure, psychopathology, psychosocial functioning, social support, and posttraumatic growth. And the results showed that seventy-two percent of the sample endorsed a significant degree of posttraumatic growth in at least one of the areas assessed, the most common of which were changing priorities about what is important in life (52.2%), being able to better appreciate each day (51.1%), and being better able to handle difficulties (48.5%). Hierarchical regression analysis revealed that younger age, greater posttraumatic stress disorder (PTSD) symptoms, and increased perceptions of unit member support and effort/perseverance were significantly associated with posttraumatic growth. Respondents with PTSD scored higher on an overall measure of posttraumatic growth and on items reflecting appreciation of life and personal strength.

While, the study of Lee et al. (2010) the study has documented the impact of combat trauma on psychological functioning but less is known about the measurement of positive changes after military deployments. This study examined the factor structure of the Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996) on a sample of active duty soldiers (n=3537) exposed to combat in Iraq or Afghanistan. Confirmatory factor analyses (CFA) were conducted to test a 5-factor model and a single higher-order factor model. CFA results indicated that both models fit the data equally well and provide support for using both the whole scale and a multidimensional scale.

But, the study of Prati and Pietrantoni (2009) meta-analytic review examines the role of optimism, social support, and coping strategies in contributing to posttraumatic growth. Results from 103 studies showed that all three systems of variables yielded significant effect sizes. Religious coping and positive reappraisal coping produced the largest effect sizes. Social support, seeking social support coping, spirituality, and optimism were moderately related to posttraumatic growth. Acceptance coping yielded the smallest effect sizes. Moderator analyses showed that effect sizes did not differ according to time elapsed since trauma, gender, and type of posttraumatic growth measure (posttraumatic growth vs. benefit finding). Age and gender were significant moderators of religious coping, whereas study design (longitudinal vs. cross-sectional) significantly moderated the effect of positive reappraisal coping.

However, the study of Bellizzi et al. (2009) the study has examined the relationship between race, religiosity, and posttraumatic growth as well as the association between growth and physical and mental health-related quality of life (HRQOL) in breast cancer survivors (N = 802; M age = 57.2). Multivariate analyses revealed that African American breast cancer survivors reported higher levels of posttraumatic growth than White women. However, this relationship was mediated by religiosity. We found an inverse association with growth and mental HRQOL which might be explained by the fact that growth co-occurs with distress and perhaps women in this sample are still struggling with their disease.

While, the study of Gangstad et al. (2009) aimed to examine whether posttraumatic growth (PTG) after stroke is associated with cognitive processing and psychological distress and whether time since stroke moderates relationships between these variables. A sample of

stroke survivors (N=60) completed the Posttraumatic Growth Inventory, the Cognitive Processing of Trauma Scale and the Hospital Anxiety and Depression Scale. The results show that the PTG correlated positively with four indicators of cognitive processing (i.e., positive cognitive restructuring, downward comparison, resolution, and denial) and negatively with depression. Time since stroke moderated a number of these relationships. As length of time since stroke increased, the relationships between PTG and anxiety and depression became more negative and significant, and the relationships between PTG and downward comparisons and resolution became more positive and significant. The findings indicate the possibility of PTG after stroke and suggest that cognitive processing is an important process for engendering such growth.

And the study of Dekel and Nuttman-Shwartz (2009) the study has three aims: (1) to compare the effect of the Qassam attacks in two types of communities: development town and kibbutz; (2) to examine the relationship between posttraumatic stress (PTS) and posttraumatic growth (PTG); and (3) to examine the contribution that level of exposure, cognitive appraisal, and sense of belonging to the country make to PTS and PTG. The sample consisted of 134 residents, 67 living on two kibbutzim and 67 living in the development town of Sderot. Results revealed that the development town residents reported more PTS symptoms and more PTG than did the kibbutz residents, and the association between PTS and PTG was positive. In addition, the findings show that most of the predictors contribute to either PTS or PTG, or predicted them differently.

But, the study of Levine et al. (2009) aimed to examine the interrelationships between resilience (defined by a lack of posttraumatic stress disorder following trauma) and posttraumatic growth. Whereas the sample: Two studies were conducted of Israeli: (a) adolescents exposed to terror (N =2908), and (b) citizens and army personnel following the second Lebanon War (N =588). Across studies the results showed that high levels of resilience were associated with the lowest posttraumatic growth scores. The results imply that although growth and resilience are both salutogenic constructs they are inversely related.

While, the study of Levine et al. (2008) was aimed to examined the components of posttraumatic growth, and the relationship between growth and posttraumatic stress disorder (PTSD). Whereas the sample was from a pooled sample of 4,054 Israeli adolescents exposed to terror of whom 210 (5.5%) met criteria for PTSD. And the results

was that the principal components analysis showed two correlated components of outward and intrapersonal growth. Regression modeling showed that the relationship between the growth and PTSD measures was linear and curvilinear (inverted-U). These results replicated accounting for heterogeneity in PTSD, exposure and subsamples. Collectively, the results imply that posttraumatic growth in adolescence is characterized by two robust components, and is greatest at moderate posttraumatic stress levels.

Also, the study of Schroevers and Teo (2008) aimed to examine the challenge of a cancer diagnosis may eventually lead to the experience of positive psychological changes, also referred to as posttraumatic growth. As most research on posttraumatic growth in cancer patients has been conducted in Western countries, little is known about the experience of such positive psychological changes in non-Western countries. Therefore, the purpose of this cross-sectional study was to investigate the prevalence of posttraumatic growth in a Malaysian sample of cancer patients. Secondly, we examined the association of posttraumatic growth with patients' report of psychological distress and their use of coping strategies. Whereas the sample was 113 cancer patients And the results showed that many patients reported posttraumatic growth, mostly in the domain of appreciation of life. As hypothesized, the experience of posttraumatic growth was not significantly related to the level of psychological distress. Findings indicated that greater use of the coping strategies instrumental support, positive reframing, and humor was associated with more posttraumatic growth.

And the study of Beck et al. (2008) The relationship between posttraumatic growth and posttraumatic stress disorder (PTSD) symptoms, depression, anxiety, and vulnerability, as well as demographic differences in growth was examined in a group of 23 Holocaust survivors. The posttraumatic growth aspect of spiritual change was found to correlate positively and significantly with the PTSD symptom clusters of intrusion, avoidance, and hyperarousal. Numerous demographic variables were also found to relate to posttraumatic growth including survivors' age during the Holocaust; the nature of their Holocaust experiences; and whether they were ever alone, without family, during their Holocaust experiences as well as survivor support group membership.

While, the study of Bayer et al. (2007) aimed to examines the relationship between basic assumptions, posttraumatic growth (PTG), and ambiguity tolerance (AT). It is hypothesized that basic assumptions will mediate the relationship between AT and PTG

and that trauma will have a moderating effect in this model. The sample was a group of 274 university and college students, average age of 23, who either experienced a traumatic event or not, completed the following questionnaires. The results showed that the relationship between AT and PTG is mediated by basic assumptions but only among participants who were not exposed to a traumatic event. Thus, the trauma is a moderating variable in this model. The findings are discussed in terms of a defensive search for meaning following stressful life events, according to the individual's perception of the event.

But, the study of Dekel (2007) aimed to examines distress and growth among wives of former combat veterans and prisoners of war (POWs), and the contribution of their husband's posttraumatic stress disorder (PTSD) and the wives' own attachment style to these outcomes. Two groups of wives participated in the study: 87 wives of former POWS, and 74 wives of control veterans. The wives of POWs reported significantly higher levels of distress and growth than did the wives of the controls. Husbands' PTSD symptomatology, as well as higher levels of avoidance and anxiety dimensions of attachment, contributed positively to distress and to growth.

Also, the study of Erbes et al. (2005) the posttraumatic growth was assessed in a community sample of 95 former prisoners of war studied over a 12 year period. Developmental history, personality, social support, and PTSD measures from two earlier time points were used to predict current scores on the Posttraumatic Growth Inventory (PTGI). They hypothesized positive predictive relationships between PTGI indices and trauma exposure (and corresponding distress levels), positive affect, and social support. Positive Affectivity, Constraint, and two Social Support measures followed a pattern of significant and near-significant positive correlations with PTGI total score, Relationships with Others, and Spiritual Change, suggesting multidirectional relationships among these variables. Prisoners of War trauma exposure correlated with Perceived Strength. Regression analyses significantly predicted PTGI total score, Improved Relationships, and Spiritual Change. The results both lend support to and raise questions about the construct validity of the PTGI.

However, the study of Shaw et al. (2005) A search of the published literature identified 11 empirical studies that reported links between religion, spirituality, and posttraumatic growth. A review of these 11 studies produced three main findings. First, these studies

show that religion and spirituality are usually, although not always, beneficial to people in dealing with the aftermath of trauma. Second, that traumatic experiences can lead to a deepening of religion or spirituality. Third, that positive religious coping, religious openness, readiness to face existential questions, religious participation, and intrinsic religiousness are typically associated with posttraumatic growth.

Finally, the study of Milam et al. (2004) aimed to examine posttraumatic growth (PTG), the construing of benefits from a traumatic event, in a sample of 435 mostly Hispanic adolescents who experienced a major life event within the previous 3 years. Levels of PTG did not differ between experienced negative life events. The relationship between PTG and socio-demographics, substance use, religiosity, and depression was explored. Age and religiosity were positively associated with PTG, whereas substance use was inversely associated with PTG. Only age and substance use remained associated with PTG after adjusting for all other variables in a multiple regression analysis. These results demonstrate the existence of PTG among an adolescent population and suggest that PTG can be related to important health behaviors such as substance use.

2.16.3 Analysis of previous studies

Through reviewing previous studies, the researcher noticed that the studies addressed the issue of PTG, and the relationship between PTSD and PTG used different ways and different variables. Some studies examine the relationship between posttraumatic stress and posttraumatic growth, such as the study of Dekel and Nuttman-Shwartz (2009) which have three aims: (1) to compare the effect of the Qassam attacks in two types of communities: development town and kibbutz; (2) to examine the relationship between posttraumatic stress and posttraumatic growth; and (3) to examine the contribution that level of exposure, cognitive appraisal, and sense of belonging to the country make to PTS and PTG in 134 residents, 67 living on two kibbutzim and 67 living in the development town of Sderot, and the study of Hall et al. (2010) which aimed to examined factors that were related to self-reported PTG, and the relationship between PTG and symptoms of post-traumatic stress (PTS) following the 2006 Israel-Hezbollah, whereas the sample drawing from a national random sample, from 806 terrorism-exposed Israeli adults, also the study of Levine et al. (2008) aimed to examined the components of posttraumatic growth, and the relationship between growth and posttraumatic stress disorder (PTSD), from a pooled sample of 4,054 Israeli adolescents exposed to terror, while the study of

Schroevers and Teo (2008) which aimed to investigate the prevalence of posttraumatic growth in a 113 Malaysian cancer patients, secondly, examined the association of posttraumatic growth with patients' report of psychological distress and their use of coping strategies, until the study of Beck et al. (2008) which aimed to examined the relationship between posttraumatic growth and posttraumatic stress disorder (PTSD) symptoms, depression, anxiety, and vulnerability, as well as demographic differences in growth was examined in a group of 23 Holocaust survivors, and the study of Dekel (2007) aimed to examines distress and growth among wives of former combat veterans and prisoners of war (POWs), and the contribution of their husband's posttraumatic stress disorder (PTSD) and the wives' own attachment style to these outcomes, two groups of wives participated in the study: 87 wives of former POWS, and 74 wives of control veterans, also the study of Hall et al. (2010) reported that PTG was a consistent predictor of PTS, and the study of Dekel and Nuttman-Shwartz (2009) revealed that the development town residents reported more PTS symptoms and more PTG than did the kibbutz residents, and the association between PTS and PTG was positive, also the study of Beck et al. (2008) showed that the posttraumatic growth aspect of spiritual change was found to correlate positively and significantly with the PTSD symptom clusters of intrusion, avoidance, and hyperarousal, and the study of Dekel (2007) showed that the wives of POWs reported significantly higher levels of distress and growth than did the wives of the controls, husbands' PTSD symptomatology, as well as higher levels of avoidance and anxiety dimensions of attachment, contributed positively to distress and to growth, while the study of Levine et al. (2008) showed that the relationship between the growth and PTSD measures was linear and curvilinear (inverted-U), that means posttraumatic growth is greatest at moderate posttraumatic stress levels, but the study of Schroevers and Teo (2008) showed that the experience of posttraumatic growth was not significantly related to the level of psychological distress.

From these group of studies, the researcher found the relationship between PTSD and growth may take three forms: (1) experiencing growth is only possible if PTSD occurs and so a positive relationship is hypothesized, such as the study of Hall et al. (2010), Dekel and Nuttman-Shwartz (2009), Beck et al. (2008), and Dekel (2007); (2) PTSD and growth are separate outcomes that may coexist independently, such as the study of Schroevers and Teo (2008); and (3) the relationship between PTSD and growth follows an inverted-U, low

and high PTSD levels increase growth less than moderate levels of PTSD that correspond to the greatest growth such as the study of Levine et al. (2008).

The researcher found one study addressed the relationship between posttraumatic growth and resilience, the study of Levine et al. (2009) aimed to examine the interrelationships between resilience (defined by a lack of posttraumatic stress disorder following trauma) and posttraumatic growth, from (588) citizens and army personnel following the second Lebanon War, the result showed that high levels of resilience were associated with the lowest posttraumatic growth scores. From this group of study, the researcher found the relationship between growth and resilience are inversely related.

Through reviewing previous studies, the researcher found many studies examined the rate of posttraumatic growth. Some studies reported posttraumatic growth in a moderate to great degree, such as the study of Kroo and Nagy (2011) which found the mean total PTGI score was 68.92 (SD=16.77; M=58.6 for females and M=71 for males); scores ranged from 27 to 101, also the study of Schroevers and Teo (2008) which found cancer patients reported posttraumatic growth in a moderate to great degree (M=73.12, total range 21–105), with a mean item score of 3.48, and the study of Pietrzak et al. (2010) which showed that seventy-two percent of the sample endorsed a significant degree of posttraumatic growth in at least one of the areas assessed. Another studies found the average and the mean of the PTG is moderate, such as the study of Hall et al. (2010) which showed that participants reported a mean level of 8.97 for PTG, which considered moderate degree. While other studies found the average and mean of PTG is mild, such as the study of Milam et al. (2004) which showed that the mean of PTG score was 3.56, indicating that on average, participants experienced mild amounts of positive change since their event.

Through reviewing previous studies, the researcher found many studies examined the domains of posttraumatic growth. Some studies reported that the main results of the PTG domains was the dimension of spiritual change, such as the study of Milam et al. (2004) which founded religiosity is positively related to PTG, also the study of Prati and Pietrantoni (2009) meta-analytic review examines the role of optimism, social support, and coping strategies in contributing to posttraumatic growth, the results showed that religious coping was strongly correlated with growth, as well as the study of Bellizzi et al. (2009) which examined the relationship between race, religiosity, and posttraumatic growth, the

results showed that African American breast cancer survivors reported higher levels of posttraumatic growth than White women, however, this relationship was mediated by religiosity. Another studies found the main results of the PTG domains was the dimension of appreciation of life and personal strength, such as the study of Pietrzak et al. (2010) which showed that seventy-two percent of the sample endorsed a significant degree of posttraumatic growth in at least one of the areas assessed, the most common of which were changing priorities about what is important in life (52.2%), being able to better appreciate each day (51.1%), and being better able to handle difficulties (48.5%), respondents with PTSD scored higher on an overall measure of posttraumatic growth and on items reflecting appreciation of life and personal strength, and study of Schroevers and Teo (2008) which showed that many patients reported posttraumatic growth, mostly in the domain of appreciation of life, in addition to study of Beck et al. (2008) which showed that the Holocaust survivors participating in the study rated an appreciation of life as being the most associated with their Holocaust experience of the five posttraumatic growth domains, the second highest rated growth effect was personal strength, and spiritual change was the lowest ranked posttraumatic growth aspect, which was rated significantly lower than the other four growth aspects.

From these group of studies, the researcher found the main results of the PTG domains was the dimension of spiritual change, appreciation of life and personal strength.

The researcher of the current study have found all of these studies which conducted on PTG, and the relationship between PTSD and PTG in particular, were performed in different western countries, and no one of them were performed in Arabic countries generally or in Gaza Strip particularly, so the researcher of the current study see that it is important to conduct this study as a contribution in this field and to test whether the result of the previous studies can be applied in Gaza Strip or not.

Chapter Three

Methodology

3.1 Introduction

The researcher presents in this chapter description of study design, population, sample, instrument that used in data collection, ethical consideration and limitation of the study.

3.2 Study design

The current study is a descriptive-analytical study, which tries to answer the study questions about examining the types of the traumatic events and the relationship between posttraumatic stress disorder and posttraumatic growth among nurses in Gaza Strip who working in medical health centers. The researcher has selected this method because it would be useful for descriptive and analysis of study variables. This type of study measures the level and the prevalence of the phenomena, which applied on the sample in particular time and place.

3.3 Study population

The study population includes all the nurses in Gaza Strip who are working in MOH, Military medical services, UNRWA, and private sectors that form (2700) nurses according to their employers institutions. The researcher has selected 10% of the study population.

3.4 Study sample

The researcher selected the study sample by using stratified cluster random sample, 274 nurses (MOH 216, Military medical services 14, UNRWA 27, and private sectors 17), Whereas the males were 143 and the females 131, as shown in the following table:

Table 3.1: the distribution of sample according to the employers and gender:

Institution	Number	Percentage (274)	Male	Female
MOH	216	79%	121	95
MMS	14	5%	11	3
UNRWA	27	10%	6	21
Private Sector	17	6%	5	12
Total	**274**	**100%**	**143**	**131**

3.5 Period of the study

The study carried out from April 2011 to July 2011.

3.6 Place of the study

The study conducted on nurses who working in medical centers at random based selection, where as the places are most of the governorates of Gaza Strip.

3.7 Instruments of the study

The researcher used Socio-demographic status questionnaire, Traumatic Events checklist (prepared by the researcher 2010), The Posttraumatic Stress Disorder Checklist (DSM-IV) (Thabet et al., 2007, 2008), Posttraumatic growth inventory (Tedeschi & Calhoun, 1996) (Thabet, 2011). that described in detail in the following section:

3.7.1 Socio-demographic status (developed by the researcher)

This was gathered from nurses by questionnaire includes sex, age, place of residence, social status, educational level, income, place of work, years of experience (Annex 9).

3.7.2 Traumatic events checklist (Thabet et al., 2004, 2009)

This checklist describing the most common traumatic experiences families could have faced in the Gaza Strip during the Gaza War three years ago . The checklist was revised from a version used in earlier research (Thabet et al., 2004, 2009), then the researcher adapted the scale for the nature of traumatic events occurring during the Gaza traumatic events. The scale consisted of 28 items with Yes and No answer. The scale was recorded into mild traumatic events (less than 5 traumatic events), moderate traumatic events (6-10) and severe traumatic events (11 and more traumatic events) (Annex 10).

3.7.3 Posttraumatic stress disorder checklist (DSM-IV), the arabic version (Thabet et al., 2007, 2008)

The checklist contains 17 items adapted from the DSM-IV (APA, 1994) PTSD symptom criteria. Respondents are asked to rate on a 5-point Likert scale (0 = not at all to 4 = extremely) the extent to which symptoms troubled them in the previous month. A total score was provided, as well as subscales scores for intrusion, arousal and avoidance PTSD symptoms. The characteristic symptoms of PTSD resulting from the exposure to extreme traumata included re-experiencing the traumatic event (criterion B), avoidance of stimuli associated with the trauma and numbing of general responsiveness (criterion C), and symptoms of increased arousal (criterion D). The full symptom picture must be present for

more than one month and the disturbance must cause clinically significant distress or impairment in social, occupational, or other important areas of functioning (American Psychiatric Association, 1994). We used the Arabic version of the scale which was widely used in the same area in the last decade (Thabet et al., 2007, 2008) (Annex 11).

3.7.4 Posttraumatic growth inventory, the arabic version (Thabet, 2011)

The PTGI comprises 21 items, with response choices ranging from 0–4 (0= 'I did not experience this change'; 4= 'I experienced this change to a very great degree'). The PTGI measures five domains of growth: (a) relating to others better (seven items, e.g. 'I have a greater sense of closeness with others'), (b) recognizing new possibilities (five items, e.g. 'New opportunities are available which wouldn't have been otherwise'), (c) a greater sense of personal strength (four items, e.g. 'I discovered that I'm stronger than I thought I was'), (d) spiritual change (two items, e.g. 'I have a better understanding of spiritual matters'), and (e) greater appreciation of life (three items, e.g. 'I have a greater appreciation for the value of my own life') (Tedeschi & Calhoun, 1996). This scale was translated and back translated and was validated by Dr. Thabet (Thabet, 2011) (Annex 12).

3.8 Pilot study

Pilot study done prior to the beginning of the data collection to check the appropriateness and validity and reliability of the questionnaire. The pilot study achieved conveniently with 35 employees from the study population and the pilot sample excluded from the study. As result, only one change has occurred in the PTG inventory scale in the first item.

3.8.1 Test of normality for each field:

Table (3.2) shows the results for Kolmogorov-Smirnov test of normality. From Table (3.2), the p-value for each field is greater than 0.05 level of significance, then the distribution for each field is normally distributed.. Consequently, Parametric tests will be used to perform the statistical data analysis.

Table 3.2: Kolmogorov-Smirnov test

Field	Kolmogorov-Smirnov	
	Statistic	P-value
PTSD checklist	0.978	0.689
PTG Inventory	0.958	0.203
All paragraphs of the questionnaire	0.981	0.778

3.8.2 Validity of questionnaire

Validity refers to the degree to which an instrument measures what it is supposed to be measuring. Validity has a number of different aspects and assessment approaches. Statistical validity is used to evaluate instrument validity, which include internal validity and structure validity.

3.8.3 Internal validity

Internal validity of the questionnaire is the first statistical test that used to test the validity of the questionnaire. It is measured by a scouting sample, which consisted of 35 questionnaires through measuring the correlation coefficients between each paragraph in one field and the whole filed.

Table (3.3) clarifies the correlation coefficient for each paragraph of the " PTSD checklist " and the total of the field. The p-values (Sig.) are less than 0.05, so the correlation coefficients of this field are significant at $\alpha = 0.05$, so it can be said that the paragraphs of this field are consistent and valid to be measure what it was set for.

Table 3.3: Correlation coefficient of each paragraph of " PTSD checklist " and the total of this field

No.	Paragraph	Pearson Correlation Coefficient	P-Value (Sig.)
1	Repeated, disturbing memories, thoughts, or images of a stressful experience from the past.	0.765	0.000*
2	Repeated, disturbing dreams of a stressful experience from the past	0.725	0.000*
3	Suddenly acting or feeling as if a stressful experience were happening again (as if you were reliving it)	0.705	0.000*
4	Feeling very upset when something reminded you of a stressful experience from the past	0.8	0.000*
5	Having physical reactions (e.g., heart pounding, trouble breathing, sweating) when something reminded you of a stressful experience from the past	0.743	0.000*
6	Avoiding thinking about or talking about a stressful experience from the past or avoiding having feelings related to it	0.605	0.000*
7	Avoiding activities or situations because they reminded you of a stressful experience from the past	0.4	0.009*
8	Trouble remembering important parts of a stressful experience from the past	0.339	0.023*
9	Loss of interest in activities that you used to enjoy	0.715	0.000*
10	Feeling distant or cut off from other people	0.66	0.000*

11	Feeling emotionally numb or being unable to have loving feelings for those close to you	0.449	0.004*
12	Feeling as if your future will somehow be cut short	0.607	0.000*
13	Trouble falling or staying asleep	0.68	0.000*
14	Feeling irritable or having angry outbursts	0.763	0.000*
15	Having difficulty concentrating	0.592	0.000*
16	Being "super-alert" or watchful or on guard	0.65	0.000*
17	Feeling jumpy or easily startled	0.579	0.000*

* Correlation is significant at the 0.05 level

Table (3.4) clarifies the correlation coefficient for each paragraph of the " PTG Inventory " and the total of the field. The p-values (Sig.) are less than 0.05, so the correlation coefficients of this field are significant at $\alpha = 0.05$, so it can be said that the paragraphs of this field are consistent and valid to be measure what it was set for.

Table 3.4: Correlation coefficient of each paragraph of " PTG Inventory " and the total of this field

No.	Paragraph	Pearson Correlation Coefficient	P-Value (Sig.)
1.	My aims in life changed in comparison with before the war.	0.171	0.163
2.	I appreciate the value of my life more	.622	0.000*
3.	I developed new interests	.634	0.000*
4.	I have more self-confidence	.735	0.000*
5.	I understand spiritual matters better	.807	0.000*
6.	I know that I can count more on people when I am in trouble	.435	0.005*
7.	I established a new path for my life	.530	0.001*
8.	I feel closer to others	.681	0.000*
9.	I am more willing to express my feelings	.767	0.000*
10.	I know that I can deal with problems better	.704	0.000*
11.	I can do more good with my life	.779	0.000*
12.	I accept better the way things turn out	.795	0.000*
13.	I appreciate each new day more	.780	0.000*
14.	I have new opportunities which would not have been available otherwise	.744	0.000*
15.	I have more compassion for others	.689	0.000*
16.	I try to have the best relationships to others	.722	0.000*
17.	I try more to change things which need changing	.731	0.000*
18.	I believe more strongly in God	.687	0.000*
19.	I discovered that I am stronger than I thought I was	.735	0.000*

20.	I learned a lot about how wonderful people are	.640	0.000*
21.	I accept more that I need other people	.676	0.000*

* Correlation is significant at the 0.05 level

3.8.4 Structure validity of the questionnaire

Structure validity is the second statistical test that used to test the validity of the questionnaire structure by testing the validity of each field and the validity of the whole questionnaire. It measures the correlation coefficient between one filed and all the fields of the questionnaire that have the same level of liker scale.

Table (3.5) clarifies the correlation coefficient for each filed and the whole questionnaire. The p-values (Sig.) are less than 0.05, so the correlation coefficients of all the fields are significant at $\alpha = 0.05$, so it can be said that the fields are valid to be measured what it was set for to achieve the main aim of the study.

Table 3.5: Correlation coefficient of each field and the whole of questionnaire

No.	Field	Pearson Correlation Coefficient	P-Value (Sig.)
1.	PTSD checklist	.617	0.001*
2.	PTG Inventory	.807	0.001*

* Correlation is significant at the 0.05 level

3.8.5 Reliability of the research

The reliability of an instrument is the degree of consistency which measures the attribute; it is supposed to be measuring (Polit & Hunger, 1985). The less variation an instrument produces in repeated measurements of an attribute, the higher its reliability. Reliability can be equated with the stability, consistency, or dependability of a measuring tool. The test is repeated to the same sample of people on two occasions and then compares the scores obtained by computing a reliability coefficient (Polit & Hunger, 1985).

3.8.6 Cronbach's coefficient alpha

This method is used to measure the reliability of the questionnaire between each field and the mean of the whole fields of the questionnaire. The normal range of Cronbach's coefficient alpha value between 0.0 and + 1.0, and the higher values reflects a higher degree of internal consistency. The Cronbach's coefficient alpha was calculated for each field of the questionnaire.

Table (3.6) shows the values of Cronbach's Alpha for each filed of the questionnaire and the entire questionnaire. For the fields, values of Cronbach's Alpha were in the range from 0.912 and 0.948. This range is considered high; the result ensures the reliability of each field of the questionnaire. Cronbach's Alpha equals 0.892 for the entire questionnaire which indicates an excellent reliability of the entire questionnaire.

Table 3.6: Cronbach's Alpha for each filed of the questionnaire and the entire questionnaire

No.	Field	Cronbach's Alpha
1.	PTSD checklist	0.912
2.	PTG Inventory	0.948
	All paragraphs of the questionnaire	0.892

The Thereby, it can be said that the researcher proved that the questionnaire was valid, reliable, and ready for distribution for the population sample.

3.9 Data collection

Data collection was a major step in the process of the research. The researcher collected data through the distribution of questionnaires on MOH, military medical services, UNRWA, and private sectors in all areas of Gaza Strip (North Gaza, Gaza, Middle zone, Khan younis, and Rafah). The data collectors explained the purpose of this study for the nurses and give them the questionnaire by hand and return it back after filling it. After that, the researcher analyzed the questionnaires.

3.10 Data entry and analysis

The collected data was processed and analyzed under the supervision of the academic supervisor and the statisticians. Data was entered by the statistical Package for Social Sciences (SPSS) software version 13 computer program for the data entry and analysis. This statistical program has a variety of options that is optimal for use in thus studies. Were data can be entered, labeled, coded and recorded as different variables, while the researcher used other statistical analysis that clarifying the differences between the groups such as frequencies, t- independent test, comparing means, one way A NOVA, and chi-square that also denoted the differences between the groups and within the groups of the study variables.

3.11 Eligibility criteria

3.11.1 Inclusion criteria

The inclusion criteria of the study is that the nurse should be Palestinian who resides in Gaza Strip and work in MOH, MMS, UNRWA, and private sectors.

3.11.2 Exclusion criteria

The nurses who do not work in any organization.

3.12 Ethical consideration

1. An official letter of approval to conduct the study is obtained from the Helsinki Committee in the Gaza Strip (Annex 1)
2. Also an official approval letter from MOH, MMS, private sector and UNRWA to conduct the study in the health centers (Annex 2,3,4,5,6)
3. Participants will be given full explanation both verbally and written about the purpose and the nature of the study and the assurance about the confidentiality of the information will be maintained at all, as well as the researcher explained that the participation is optional.

3.13 Limitation of the study

There are a number of limitations are predicted to apply the study

1. The difficulty in obtaining nurses numbers who working in different sides.
2. The rare of literature review in PTG because it is new topic.
3. Cut off from electricity and fuel shortages.

Chapter Four
Results

4.1 Introduction

In this chapter the researcher will present the main findings of the study, including the characteristics of the sample, the type and severity of previous traumatic events, the rate of posttraumatic growth, the rate of posttraumatic stress disorder, the relationship between posttraumatic stress disorder and posttraumatic growth, the most factors that form the posttraumatic growth, and the relationship between posttraumatic growth and socio-demographics data among nurses.

4.2 Characteristics of the sample

The sample distribution according to socio-demographic variables such as age, gender, place of residence, social status, educational level, income, place of work, years of experience, and training courses in mental health.

The following table (4.1) shows the number and percent of nurses according to:

Age

Table No.(4.1) showed that 52.4%(142) of the sample are " Less than 30 years old" , 22.1% (60) of the sample are "30 – less than 40 years old" and 25.5%(69) of the sample are " 40 years and older "

Gender

Table No.(4.1) showed that 52.7%(144) of the sample are Males, and 47.3%(129) of the sample are Females.

Social status

Table No.(4.1) showed that 17.0%(46) of the sample are single, 81.5%(221) are married, and 1.5%(4) are other.

Place of residence

Table No.(4.1) showed that 30.0%(82) of the sample are Living in Gaza north, 28.2%(77) of the sample are Living in the Gaza, 21.2%(58) of the sample are Living in Middle area, 8.8%(24) of the sample are Living in Khanyounis, and 11.7%(32) of the sample are Living in Rafah.

Educational level

Table No.(4.1) showed that 28.8%(78) of the sample are " Practical nursing " holders, 9.6% (26) of the sample are " Diploma " holders, 58.3%(158) of the sample are " BA " holders, and 3.3%(9) of the sample are " Master " holders.

Income

Table No.(4.1) showed that 14.9%(40) of the sample there income is less than 1500 NIS **,** 37.3**%(**100) of the sample there income is 1501 to 2500 NIS **,** 41.0**%(**110) of the sample there income is 2501 to 3500 NIS and 6.7%(18) of the sample there income is more than 3501 NIS**.**

Place of work

Table No.(4.1) showed that 5.1%(14) of the sample are working in MMS, 9.9%(27) of the sample are working in UNRUA, 6.2%(17) of the sample are working in Private Sector, and 78.8%(216) of the sample are working in MOH.

Years of experience

Table No.(4.1) showed that 48.3%(131) of the sample have experience " Less than 7 years", 26.6%(72) of the sample have experience "7 – Less than 15 year ", and 25.1%(68) of the sample have experience " 15 years and higher " .

Have you received training courses in mental health and dealing with trauma

Table No.(4.1) showed that 19.9%(54) of the sample go with "Yes ", and 80.1%(218) go with "No".

Table (4.1): Distribution of the sample according to socio-demographics

Age	Frequency	Percent
Less than 30 years	142	52.4
30 – less than 40 years	60	22.1
40 years and Older	69	25.5
Gender		
Male	144	52.7
Female	129	47.3
Social status		
Single	46	17.0
Married	221	81.5
Other	4	1.5
Place of residence		
Gaza north	82	30.0
Gaza	77	28.2
Middle area	58	21.2
Khanyounis	24	8.8
Rafah	32	11.7
Educational level		
Practical nursing	78	28.8
Diploma	26	9.6
BA	158	58.3

Master	9	3.3
PHD	-	-
Income		
less than 1500 NIS	40	14.9
1501 to 2500 NIS	100	37.3
2501 to 3500 NIS	110	41.0
more than 3501 NIS	18	6.7
Place of work		
MMS	14	5.1
UNRUA	27	9.9
Private Sector	17	6.2
MOH	216	78.8
Years of experience		
Less than 7 year	131	48.3
7 – Less than 15 year	72	26.6
15 years and higher	68	25.1
Have you received training courses in mental health and dealing with trauma		
Yes	54	19.9
No	218	80.1

4.3 Frequencies of traumatic events of the study sample

The following table (4.2) described the most traumatic events and its frequency among study sample. The highest traumatic events of study sample, 94.1 % were " seeing pictures of death and injured people", followed by "seeing dead people while they are in work" 78.4 %, then "seeing demolishing of your neighbors home by tanks" 63.5%. While the least percent of traumatic events were "having acquired infectious disease while they are in work" 4.0 %, then "having been exposed to rocket or shots or missiles" 7.7 %, and "having been exposed to chronic disease" 8.8%.

Table (4.2): Frequency and percent of traumatic events scale

#	Items of traumatic events	Yes		No	
		N	%	N	%
1	Have you seen pictures of death and injured people	255	94.1	16	5.9
2	Have you ever seen dead people while you are in your work	214	78.4	59	21.6
3	Have you seen demolishing of your neighbors home by tanks	172	63.5	99	36.5
4	Have you seen demolishing of your home from tanks	154	56.6	118	43.4
5	Have you been exposed to detaining	145	52.9	129	47.1
6	Have you ever lost loved one while you are in you work	137	50.2	136	49.8
7	Have you been exposed to leave your home with your family	137	50.0	137	50.0
8	Have you been exposed to detaining while you are in you work	115	42.1	158	57.9
9	Have you been exposed to shot from the Israelis forces	113	41.5	159	58.5

10	Have you seen the injury of your friend from the shots or shrapnel	99	36.4	173	63.6
11	Have your family member exposed chronic disease	98	36.2	173	63.8
12	Have you ever seen death close friend in front of you while you are in you work	83	30.4	190	69.6
13	Have you been exposed to humiliating from the Israelis force	71	26.2	200	73.8
14	Have you been exposed to water, food or going to WC deprivation	70	25.5	204	74.5
15	Have you seen injury of your family members	66	24.2	207	75.8
16	Have you seen death of your friend in front of you	65	23.8	208	76.2
17	Have you been exposed to any accident such as burn, falling down from high building or car accident	57	21.0	214	79.0
18	Have you seen death of your family members	51	18.7	222	81.3
19	Have you seen demolishing of your home from the army planes	47	17.5	221	82.5
20	Have you been exposed to threatening	41	15.0	232	85.0
21	Have you been exposed to be used as human armor	38	13.9	235	86.1
22	Have you been exposed to humiliating you while you are performing your job	36	13.1	238	86.9
23	Have you ever lost any job before	30	11.1	241	88.9
24	Have you been exposed to phosphorus burning	27	9.9	247	90.1
25	Have you been exposed to sharpens or rockets while you are in you work	24	8.8	248	91.2
26	Have you ever been exposed to chronic disease	24	8.8	250	91.2
27	Have you been exposed to rocket or shots or missiles	21	7.7	252	92.3
28	Have you ever acquired infectious disease while you are in you work	11	4.0	263	96.0

4.4 Types and severity of traumatic events among nurses

Table No.(4.3) showed that 23.4%(64) of the sample have mild trauma, 43.1%(118) of the sample have moderate trauma and 33.6%(92) of the sample have severe trauma.

Table (4.3): Types and severity of traumatic events among nurses

Type of trauma	Frequency	Percent	Mean	S.D
Mild trauma	64	23.4	3.28	1.49
Moderate trauma	118	43.1	7.83	1.45
Sever trauma	92	33.6	13.77	2.79
Total	274	100.0	8.76	4.46

the score was used mild=0-5, moderate=6-10, sever=11+.

4.5 Frequencies of posttraumatic growth of the study sample

The following table (4.4) described that the PTGI mean sum scores among nurses is (48.1), which considered moderate to great degree (M=48.1, total range 0–84). And 20.3% of the study sample answer Always, 28.5% answer Often, and 24.7% answer sometimes. whereas the highest answers of the sample according to posttraumatic growth were as the following; 82.6% of the sample believe strongly in God and 70.3% understand spiritual

matters better, as well as 67.1% discovered that they are stronger than they thought themselves.

Table (4.4): Frequency and percent for posttraumatic growth inventory

#	Items	Always		Often		Sometimes		Rare		Never		%
		N	%	N	%	N	%	N	%	N	%	
1	I believe more strongly in God	167	61.9	56	20.7	21	7.8	14	5.2	12	4.4	82.6
2	I understand spiritual matters better	90	34.4	90	34.4	42	16.0	23	8.8	17	6.5	70.3
3	I discovered that I am stronger than I thought I was	86	32.0	84	31.2	49	18.2	28	10.4	22	8.2	67.1
4	I have more self-confidence	59	22.6	97	37.2	64	24.5	17	6.5	24	9.2	64.4
5	I try to have the best relationships to others	59	21.8	96	35.4	71	26.2	28	10.3	17	6.3	64.0
6	I try more to change things which need changing	55	20.6	101	37.8	62	23.2	30	11.2	19	7.1	63.4
7	I know that I can deal with problems better	47	17.5	103	38.4	66	24.6	37	13.8	15	5.6	62.1
8	I accept more that I need other people	54	19.9	76	27.9	81	29.8	40	14.7	21	7.7	59.4
9	I learned a lot about how wonderful people are	61	22.7	75	27.9	65	24.2	38	14.1	30	11.2	59.2
10	I have more compassion for others	59	21.6	75	27.5	73	26.7	38	13.9	28	10.3	59.1
11	I developed new interests	42	15.7	90	33.6	73	27.2	38	14.2	25	9.3	58.0
12	I appreciate each new day more	49	18.2	81	30.1	67	24.9	44	16.4	28	10.4	57.3
13	I feel closer to others	41	15.1	74	27.3	95	35.1	42	15.5	19	7.0	57.0
14	I appreciate the value of my life more	53	19.5	78	28.7	67	24.6	39	14.3	35	12.9	56.9
15	I can do more good with my life	44	16.4	81	30.2	68	25.4	44	16.4	31	11.6	55.9
16	I accept better the way things turn out	32	12.1	77	29.1	84	31.7	37	14.0	35	13.2	53.2
17	I am more willing to express my feelings	37	13.8	67	24.9	66	24.5	53	19.7	46	17.1	49.6
18	I know that I can count more on people when I am in trouble	31	11.5	57	21.2	89	33.1	53	19.7	39	14.5	48.9
19	I have new opportunities which would not have been available otherwise	34	12.6	62	23.0	67	24.9	57	21.2	49	18.2	47.7
20	I established a new path for my life	31	11.5	58	21.5	68	25.2	48	17.8	65	24.1	44.6
21	My aims in life changed in comparison with before the war.	14	5.1	29	10.7	58	21.3	72	26.5	99	36.4	30.4
	All paragraphs of the filed	1145	20.3	1607	28.5	1396	24.7	820	14.5	676	12.0	

4.6 Domains of posttraumatic growth of the study sample

The following table (4.5) described that the main results of the PTG domains was as follows; the domain of spiritual change was 76.7% , the personal strength was 61.8%. relating to others was 56.79%, new possibilities was 53.84%, and the last domain was appreciation of life 48.19%.

Table (4.5): Means and percent of domains of PTG

Domains of PTG	Mean	%
Spiritual change	3.07	76.74
Personal strength	2.47	61.85
Relating to others	2.27	56.79
New possibilities	2.15	53.84
Appreciation of life	1.93	48.19

Table (4.6): Frequency and percent for posttraumatic stress disorder scale

#	Items	Always		Often		Sometimes		Rare		Never	
		N	%	N	%	N	%	N	%	N	%
1	Repeated, disturbing memories, thoughts, or images of a stressful experience from the past.	40	14.6	55	20.1	113	41.2	41	15	25	9.1
13	Repeated, disturbing dreams of a stressful experience from the past	10	3.7	15	5.5	72	26.6	85	31.4	89	32.8
7	Suddenly acting or feeling as if a stressful experience were happening again (as if you were reliving it)	17	6.3	40	14.7	83	30.5	59	21.7	73	26.8
2	Feeling very upset when something reminded you of a stressful experience from the past	20	7.3	47	17.2	101	36.9	52	19	54	19.7
9	Feeling jumpy or easily startled	26	9.5	29	10.6	77	28.2	61	22.3	80	29.3
6	Having physical reactions (e.g., heart pounding, trouble breathing, sweating) when something reminded you of a stressful experience from the past	19	7	49	18	71	26.1	50	18.4	83	30.5
3	Avoiding thinking about or talking about a stressful experience from the past or avoiding having feelings related to it	18	6.6	52	19.2	83	30.6	57	21	61	22.5
5	Avoiding activities or situations because they reminded you of a stressful experience from the past	19	7	51	18.7	77	28.2	51	18.7	75	27.5
14	Trouble remembering important parts of a stressful experience from the past	7	2.6	23	8.5	65	23.9	68	25	109	40.1
12	Loss of interest in activities that you used to enjoy	9	3.3	30	11.1	60	22.2	73	27	98	36.3
15	Feeling distant or cut off from other people	4	1.5	29	10.7	47	17.3	56	20.7	135	49.8

17	Feeling emotionally numb or being unable to have loving feelings for those close to you	2	0.8	12	4.5	38	14.3	44	16.6	169	63.8
16	Feeling as if your future will somehow be cut short	11	4.1	11	4.1	48	18	37	13.9	160	59.9
10	Trouble falling or staying asleep	19	7	24	8.9	67	24.7	64	23.6	97	35.8
8	Feeling irritable or having angry outbursts	14	5.2	46	17	79	29.2	59	21.8	73	26.9
11	Having difficulty concentrating	10	3.7	29	10.7	67	24.6	74	27.2	92	33.8
4	Being "super-alert" or watchful or on guard	21	7.7	48	17.6	75	27.5	64	23.4	65	23.8
	All paragraphs of the filed	266	5.8	590	12.8	1223	26.5	995	21.6	1538	33.3

4.6.1 The mean of intrusion, avoidance, and hyper-arousal

Table No.(4.6.1) showed the mean of the subscales of PTSD, where as the mean of the intrusion is 8.029, the mean of Avoidance is 8.399, and the mean of the hyperarousal is 6.472

Table (4.6.1): Mean of intrusion, avoidance, and hyper-arousal

Sub-Scale of PTSD	Mean
Intrusion	8.029
Avoidance	8.399
Hyper-arousal	6.472

4.7 The rate of posttraumatic stress disorder among nurses

Table No.(4.7) showed that 80.3%of the sample are not have PTSD, and 19.7% of the sample are have PTSD.

Table (4.7):Diagnosis of PTSD

Diagnosis of PTSD	Frequency	Percent
No PTSD	220	80.3
PTSD	54	19.7
Total	274	100.0

4.8 Relationship between Social status and traumatic events

The researcher used ANOVA to test if there is a differences between traumatic events and Social status, and the results shown in table No.(4.7) which illustrate that the value of Test = 0.653 and the p-value = 0.521 which is greater than 0.05, so we fail to reject the null hypothesis that means there is a no differences between traumatic events and Social status.

Table (4.8): Relationship between social status and traumatic events

ANOVA

Total trauma

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	26.273	2	13.137	653	.521
Within Groups	5391.542	268	20.118		
Total	5417.815	270			

4.9 Relationship between place of residence and traumatic events

The researcher used ANOVA to test if there is a differences between traumatic events and Place of residence, and the results shown in table No.(4.8) which illustrate that the value of Test = 1.058 and the p-value = 0.378 which is greater than 0.05, so we fail to reject the null hypothesis that means there is a no differences between traumatic events and Place of residence.

Table (4.9):Relationship between place of residence and traumatic events

ANOVA

Total trauma

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	84.389	4	21.097	1.058	.378
Within Groups	5342.608	268	19.935		
Total	5426.996	272			

4.10 Relationship between educational level and traumatic events

We used ANOVA to test if there is a differences between traumatic and educational level, and the results shown in table No.(4.9) which illustrate that the value of Test = 1.774 and the p-value = 0.152 which is greater than 0.05, so we fail to reject the null hypothesis that means there is a no differences between traumatic and educational level.

Table (4.10):Relationship between educational level and traumatic events

ANOVA

Total trauma

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	104.751	3	34.917	1.774	.152
Within Groups	5253.884	267	19.677		
Total	5358.635	270			

4.11 Relationship between income and traumatic events

The researcher used ANOVA to test if there is a differences between traumatic and income, and the results shown in table No.(4.10) which illustrate that the value of Test = 5.552 and the p-value = 0.001 which is less than 0.05, so we reject the null hypothesis that means there is a differences between traumatic and income.

Table (4.11): Relationship between income and traumatic events

ANOVA

Total trauma

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	314.433	3	104.811	5.552	.001
Within Groups	4984.239	264	18.880		
Total	5298.672	267			

Table (4.11.1):Relationship between income and traumatic events

multiple comparaisons

Dependent Variable: Total Trauma

(I) income	(J) income	Mean Difference (1-J)	Std. Error	Siq	95% Confidence Interval	
					Lower Bound	Upper Bound
less than 1500 NIS	1501 to 2500 NIS	-.1750	.81289	1.000	-2.3359	1.9859
	2501 to 3500 NIS	-.2932	.80226	1.000	-2.4258	1.8395
	more than 3501 NIS	-4.5083*	1.23323	.002	-7.7866	-1.2300
1501 to 2500 NIS	less than 1500 NIS	.1750	.81289	1.000	-1.9859	2.3359
	2501 to 3500 NIS	-.1182	.60036	1.000	-1.7141	1.4777
	more than 3501 NIS	-4.3333*	1.11251	.001	-7.2907	-1.3760
2501 to 3500 NIS	less than 1500 NIS	.2932	.80226	1.000	-1.8395	2.4258
	1501 to 2500 NIS	.1182	.60036	1.000	-1.4777	1.7141
	more than 3501 NIS	-4.2152*	1.10476	.001	-7.1519	-1.2784
more than 3501NIS	less than 1500 NIS	4.5083*	1.23323	.002	1.2300	7.7866
	1501 to 2500 NIS	4.3333*	1.11251	.001	1.3760	7.2907
	2501 to 3500 NIS	4.2152*	1.10475	.001	1.2784	7.1519

* The mean difference is significant at the .05 level

4.12 Relationship between training courses and traumatic events

The researcher used Independent Samples T-Test to test if there is a differences between traumatic and courses, and the results shown in table No.(4.12) which illustrate that the

value of Test = 3.088 and the p-value = 0.002 which is less than 0.05, so we reject the null hypothesis that means there is a differences between traumatic and courses.

Table (4.12):Relationship between training courses and traumatic events

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig.(2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Total trauma Equal variances Assumed	1.418	.235	3.088	280	.002	2.0681	.66973	74958	3.38668
Equal variances not assumed			2.816	73.506	.006	2.0681	.73434	60477	3.53149

4.13 Relationship between age and posttraumatic growth

The researcher used ANOVA to test if there is a differences between age and posttraumatic growth, and the results shown in table No.(4.13) which illustrate that the value of Test = 1.217 and the p-value = 0.298 which is greater than 0.05, so we fail to reject the null hypothesis that means there is a no differences between the age and posttraumatic growth.

Table (4.13): Relationship between age and posttraumatic growth

ANOVA

PTG

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.563	2	.781	1.217	.298
Within Groups	172.037	268	.642		
Total	173.600	270			

4.14 Relationship between gender and posttraumatic growth

The researcher used Independent Samples T-Test to test if there is a differences between Gender and posttraumatic growth, and the results shown in table No.(4.13) which illustrate that the value of T-Test = 0.520 and the p-value = 0.604 which is greater than 0.05, so we fail to reject the null hypothesis that means there is a no differences between the gender and posttraumatic growth.

Table (4.14): Relationship between gender and posttraumatic growth

independent samples test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig.(2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Total trauma Equal variances Assumed	.215	.644	.520	271	.604	.05057	.09732	-.14102	.24216
Equal variances not assumed			.522	270.506	.602	.05057	.09696	-.14031	.24145

4.15 Relationship between social status and posttraumatic growth

The researcher used ANOVA to test if there is a differences between social status and posttraumatic growth, and the results shown in table No.(4.14) which illustrate that the value of Test = 2.456 and the p-value = 0.088 which is greater than 0.05, so we fail to reject the null hypothesis that means there is a no differences between the social status and posttraumatic growth.

Table (4.15): Relationship between social status and posttraumatic growth

ANOVA

PTG

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.085	2	1.542	2.456	.088
Within Groups	168.296	268	.628		
Total	171.380	270			

4.16 Relationship between place of residence and posttraumatic growth

The researcher used ANOVA to test if there is a differences between place of residence and posttraumatic growth, and the results shown in table No.(4.15) which illustrate that the value of Test = 0.753 and the p-value = 0.557 which is greater than 0.05, so fail to reject the null hypothesis that means there is a no differences between the place of residence and posttraumatic growth.

Table (4.16): Relationship between place of residence and posttraumatic growth

ANOVA

PTG

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.944	4	.486	.753	.557
Within Groups	172.868	268	.645		
Total	174.812	272			

4.17: Relationship between the educational level and posttraumatic growth

The researcher used ANOVA to test if there is a differences between educational level and posttraumatic growth, and the results shown in table No.(4.16) which illustrate that the value of Test = 2.053 and the p-value = 0.107 which is greater than 0.05, so fail to reject the null hypothesis that means there is a no differences between the educational level and posttraumatic growth.

Table (4.17): Relationship between the educational level and posttraumatic growth

ANOVA

PTG

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.808	3	1.269	2.053	0.107
Within Groups	165.092	267	.618		
Total	168.840	270			

4.18 Relationship between the income and posttraumatic growth

The researcher used ANOVA to test if there is a differences between income and posttraumatic growth, and the results shown in table No.(4.17) which illustrate that the value of Test = 1.559 and the p-value = 0.200 which is greater than 0.05, so we fail to reject the null hypothesis that means there is a no differences between the income and posttraumatic growth.

Table (4.18): Relationship between the income and posttraumatic growth

ANOVA

PTG

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.022	3	1.007	1.559	0.201
Within Groups	170.579	264	.646		
Total	173.602	267			

4.19: Relationship between place of work and posttraumatic growth

The researcher used ANOVA to test if there is a differences between place of work and posttraumatic growth, and the results shown in table No.(4.18) which illustrate that the value of Test = 1.284 and the p-value = 0.280 which is greater than 0.05, so we fail to reject the null hypothesis that means there is a no differences between the place of work and posttraumatic growth.

Table (4.19):Relationship between place of work and posttraumatic growth

ANOVA

PTG

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.504	3	.835	1.284	0.280
Within Groups	175.490	270	.650		
Total	177.994	273			

4.20: Relationship between years of experience and posttraumatic growth

The researcher used ANOVA to test if there is a differences between years of experience and posttraumatic growth, and the results shown in table No.(4.19) which illustrate that the value of Test = 0.934 and the p-value = 0.394 which is greater than 0.05, so we fail to reject the null hypothesis that means there is a no differences between the years of experience and posttraumatic growth.

Table (4.20): Relationship between years of experience and posttraumatic growth

ANOVA

PTG

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.210	2	.605	.934	.394
Within Groups	173.582	268	.648		
Total	174.793	270			

4.21: Relationship between training courses and posttraumatic growth

The researcher used Independent Samples T-Test to test if there is a differences between training courses and posttraumatic growth, and the results shown in table No.(4.20) which illustrate that the value of T-Test = 1.845 and the p-value = 0.066 which is greater than 0.05, so we fail to reject the null hypothesis that means there is a no differences between the training course and posttraumatic growth.

Table (4.21):Relationship between training courses and posttraumatic growth

independent samples test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig.(2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Total trauma Equal variances Assumed	.000	.982	1.845	270	.66	.22426	.12153	-.01501	.46352
Equal variances not assumed			1.879	83.124	.64	. 22426	.11937	-.01315	.46166

4.22 Relationship between age and PTSD

The researcher used chi-square test to test if there is a relationship between age and PTSD, and the results shown in table No.(4.21) which illustrate that the value of Pearson Chi-Square= 2.589 and the p-value = 0.274 which is greater than 0.05, so we fail to reject the null hypothesis that means there is a no relationship between the age and PTSD.

Table (4.22): Relationship between age and PTSD

PTSD		Age			Chi-Square	p-value
		Less than 30 years	30 – less than 40 years	40 years and Older		
No PTSD	N	109	51	58	2.589	0.274
	%	40.2%	18.8%	21.4%		
PTSD	N	33	9	11		
	%	12.2%	3.3%	4.1%		

4.23 Relationship between gender and PTSD

The researcher used chi-square test to test if there is a relationship between gender and PTSD, and the results shown in table No.(4.22) which illustrate that the value of Pearson Chi-Square= .359 and the p-value = 0.549 which is greater than 0.05, so we fail to reject the null hypothesis that means there is a no relationship between the gender and PTSD.

Table (4.23): Relationship between gender and PTSD

PTSD		Gender		Chi-Square	p-value
		Male	Female		
No PTSD	N	118	102	.359	0.549
	%	43.2%	37.4%		
PTSD	N	26	27		
	%	9.5%	9.9%		

4.24 Relationship between social status and PTSD

The researcher used chi-square test to test if there is a relationship between social status and PTSD, and the results shown in table No.(4.23) which illustrate that the value of Pearson Chi-Square= 8.864 and the p-value = 0.012 which is less than 0.05, so we reject the null hypothesis that means there is a relationship between the social status and PTSD.

Table (4.24):Relationship between social status and PTSD

PTSD		Social status			Chi-Square	p-value
		Single	Married	Other		
No PTSD	N	30	184	4	8.864	0.012*
	%	11.1%	67.9%	1.5%		
PTSD	N	16	37	0		
	%	5.9%	13.7%	0.0%		

* Correlation is statistically significant at 0.05 level

4.25 Relationship between place of residence and PTSD

The researcher used chi-square test to test if there is a relationship between place of residence and PTSD, and the results shown in table No.(4.24) which illustrate that the value of Pearson Chi-Square= 9.174 and the p-value = 0.057 which is greater than 0.05, so we fail to reject the null hypothesis that means there is a no relationship between the place of residence and PTSD.

Table (4.25): Relationship between place of residence and PTSD

PTSD		Place of residence					Chi-Square	p-value
		Gaza north	Gaza	Middle area	Khanyounis	Rafah		
No PTSD	N	68	62	52	16	22	9.174	0.057
	%	24.9%	22.7%	19.0%	5.9%	8.1%		
PTSD	N	14	15	6	8	10		
	%	5.1%	5.5%	2.2%	2.9%	3.7%		

4.26 Relationship between educational level and PTSD

The researcher used chi-square test to test if there is a relationship between educational level and PTSD, and the results shown in table No.(4.25) which illustrate that the value of Pearson Chi-Square= 3.914 and the p-value = 0.271 which is greater than 0.05, so we fail to reject the null hypothesis that means there is a no relationship between the educational level and PTSD.

Table (4.26): Relationship between educational level and PTSD

PTSD		Educational level				Chi-Square	p-value
		Practical nursing	Diploma	BA	Master		
No PTSD	N	60	23	126	9	3.914	0.271
	%	22.1%	8.5%	46.5%	3.3%		
PTSD	N	18	3	32	0		
	%	6.6%	1.1%	11.8%	0.0%		

4.27 Relationship between income and PTSD

The researcher used chi-square test to test if there is a relationship between income and PTSD, and the results shown in table No.(4.26) which illustrate that the value of Pearson Chi-Square= 1.559 and the p-value = 0.669 which is greater than 0.05, so we fail to reject the null hypothesis that means there is a no relationship between the income and PTSD.

Table (4.27): Relationship between income and PTSD

PTSD		Income				Chi-Square	p-value
		less than 1500 NIS	1501 to 2500 NIS	2501 to 3500 NIS	more than 3501 NIS		
No PTSD	N	30	80	92	15	1.559	0.669
	%	11.2%	29.9%	34.3%	5.6%		
PTSD	N	10	20	18	3		
	%	3.7%	7.5%	6.7%	1.1%		

4.28 Relationship between place of work and PTSD

The researcher used chi-square test to test if there is a relationship between place of work and PTSD, and the results shown in table No.(4.27) which illustrate that the value of Pearson Chi-Square= 4.438 and the p-value = 0.218 which is greater than 0.05, so we fail to reject the null hypothesis that means there is a no relationship between the place of work and PTSD.

Table (4.28): Relationship between place of work and PTSD

PTSD		Place of work				Chi-Square	p-value
		MMS	UNRUA	PS	MOH		
No PTSD	N	12	24	16	168	4.438	0.218
	%	4.4%	8.8%	5.8%	61.3%		
PTSD	N	2	3	1	48		
	%	0.7%	1.1%	0.4%	17.5%		

4.29 Relationship between years of experience and PTSD

The researcher used chi-square test to test if there is a relationship between years of experience and PTSD, and the results shown in table No.(4.28) which illustrate that the value of Pearson Chi-Square= 4.412 and the p-value = 0.110 which is greater than 0.05, so we fail to reject the null hypothesis that means there is a no relationship between the years of experience and PTSD.

Table (4.29): Relationship between years of experience and PTS

PTSD		Years of Experience			Chi-Square	p-value
		Less than 7 year	7 – Less than 15 year	15 years and higher		
No PTSD	N	99	63	56	4.412	0.110
	%	36.5%	23.2%	20.7%		
PTSD	N	32	9	12		
	%	11.8%	3.3%	4.4%		

4.30 Relationship between training courses and PTSD

The researcher used chi-square test to test if there is a relationship between training courses and PTSD, and the results shown in table No.(4.29) which illustrate that the value of Pearson Chi-Square= 0.221 and the p-value = 0.342 which is greater than 0.05, so we fail to reject the null hypothesis that means there is a no relationship between the training courses and PTSD.

Table (4.30): Relationship between training courses and PTSD

PTSD		training courses		Chi-Square	p-value
		NO	Yes		
No PTSD	N	178	41	0.221	0.342
	%	65.4%	15.1%		
PTSD	N	40	13		
	%	14.7%	4.8%		

4.31: The correlation coefficient between trauma, posttraumatic growth, PTSD, intrusion, avoidance, and hyper arousal

Table (4.31) showed that the correlation coefficient between posttraumatic growth and PTSD equals 0.185 and the p-value (Sig.) equals 0.011. The p-value (Sig.) is less than 0.05, so the correlation coefficient is statistically significant at $\alpha = 0.05$. We conclude there exists a significant relationship between posttraumatic growth and PTSD.

Table (4.31) showed that the correlation coefficient between posttraumatic growth and traumatic equals 0.225 and the p-value (Sig.) equals 0.001. The p-value (Sig.) is less than 0.05, so the correlation coefficient is statistically significant at $\alpha = 0.05$. We conclude there exists a significant relationship between posttraumatic growth and traumatic.

Table (4.31) showed that the correlation coefficient between posttraumatic growth and intrusion equals 0.212 and the p-value (Sig.) equals 0.002. The p-value (Sig.) is less than 0.05, so the correlation coefficient is statistically significant at $\alpha = 0.05$. We conclude there exists a significant relationship between posttraumatic growth and intrusion.

Table (4.31) showed that the correlation coefficient between posttraumatic growth and avoidance equals 0.137 and the p-value (Sig.) equals 0.050. The p-value (Sig.) is less than 0.05, so the correlation coefficient is statistically significant at $\alpha = 0.05$. We conclude there exists a significant relationship between posttraumatic growth and avoidance.

Table (4.31) showed that the correlation coefficient between posttraumatic growth and hyper arousal equals 0.041 and the p-value (Sig.) equals 0.554. The p-value (Sig.) is greater than 0.05, so the correlation coefficient is not statistically significant at $\alpha = 0.05$. We conclude there exists no significant relationship between posttraumatic growth and hyper arousal.

Table (4.31) showed that the correlation coefficient between PTSD and traumatic equals 0.249 and the p-value (Sig.) equals 0.000. The p-value (Sig.) is less than 0.05, so the correlation coefficient is statistically significant at $\alpha = 0.05$. We conclude there exists a significant relationship between PTSD and traumatic.

Table (4.31) showed that the correlation coefficient between PTSD and intrusion equals 0.865 and the p-value (Sig.) equals 0.000. The p-value (Sig.) is less than 0.05, so the correlation coefficient is statistically significant at $\alpha = 0.05$. We conclude there exists a significant relationship between PTSD and intrusion.

Table (4.31) showed that the correlation coefficient between PTSD and avoidance equals 0.888 and the p-value (Sig.) equals 0.000. The p-value (Sig.) is less than 0.05, so the

correlation coefficient is statistically significant at α = 0.05. We conclude there exists a significant relationship between PTSD and avoidance.

Table (4.31) showed that the correlation coefficient between PTSD and hyper arousal equals 0.849 and the p-value (Sig.) equals 0.000. The p-value (Sig.) is less than 0.05, so the correlation coefficient is statistically significant at α = 0.05. We conclude there exists a significant relationship between PTSD and hyper arousal.

Table (4.31): The correlation coefficient between trauma, posttraumatic growth, PTSD, intrusion, avoidance, and hyper arousal

correlations

	Total Trauma	Intrusion	Avoidance	Hyperarousal	PTG	PTSD
Total traum Pearson Correla	1	.323*	.218*	.207*	.225*	.294*
Sig. (2-tailed)	.	.000	.000	.001	.001	.000
N	274	268	253	258	220	235
Intrusion Pearson Correla	.323*	1	.651*	.610*	.212*	.865*
Sig. (2-tailed)	.000	.	.000	.000	.002	.000
N	268	268	249	252	216	235
Avoidance Pearson Correla	.218*	.651*	1	.618*	.137*	.888*
Sig. (2-tailed)	.000	.000	.	.000	.050	.000
N	253	249	253	239	206	235
hyperarous Pearson Correla	.207*	.610*	.618*	1	.041	.849*
Sig. (2-tailed)	.001	.000	.000	.	.554	.000
N	258	252	239	258	208	235
PTG Pearson Correla	.225*	.212*	.137*	.014	1	.185*
Sig. (2-tailed)	.001	.002	.050	554	.	.011
N	220	216	206	208	220	191
PTSD Pearson Correla	.294*	.865*	.888*	.849*	.185*	1
Sig. (2-tailed)	.000	.000	.000	.000	.011	.
N	235	235	235	235	191	235

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

Chapter Five

Discussion and recommendations

5.1 Introduction

This chapter introduces the main results that have been reached in chapter four and its discussion on the light of the previous studies. Furthermore, it's important here to clarify the results and its relation with other studies that may be helpful in supporting our finding. However, the researcher will put on the handsome of implication and recommendations regarding trauma, PTSD, and PTG. That is likely to be taken in consideration in the application of further building. Also, recommendations for further researches are provided on the basis of the results of the current study.

5.2 The main results

The study has been applied on nurses in Gaza Strip who meet the selection criteria as well as who are working in MOH, UNRWA, MMS, and private sectors. The study consisted of 274 nurses; 52.7%(143) of the sample are males and 47.3%(131) of the sample are females.

The study showed a prevalence of trauma among nurses; 23.4%(64) of the sample have mild trauma, 43.1%(118) of the sample have moderate trauma and 33.6%(92) of the sample have severe trauma. The mean item score of trauma among the nurses is 8.76.

The highest traumatic events of study sample were "seeing pictures of death and injured people" 94.1 %, followed by "seeing dead people while they are in work" 78.4 %, then "seeing demolishing of your neighbors home by tanks" 63.5%. While the least percent of traumatic events were "having acquired infectious disease while they are in work" 4.0 %, then "having been exposed to rocket or shots or missiles" 7.7 %, and "having been exposed to chronic disease" 8.8%.

In this study 80.3% of the sample do not have PTSD, and 19.7% of the sample have PTSD, the mean sum score of PTSD among the sample is 22.66. whereas the mean of the intrusion is 8.029, the mean of Avoidance is 8.399, and the mean of the hyperarousal is 6.472

It is very interesting that the PTGI mean sum scores among nurses is (48.1), which considered moderate to great degree (M=48.1, total range 0–84). And 20.3% of the study sample answer Always, 28.5% answer Often, and 24.7% answer sometimes.

The main results of the PTG domains was as follows; the dimension of spiritual change was 76.7% and the personal strength was 61.8%. whereas the answers of the sample were as the following; the researcher found 82.6% of the sample believe strongly in God and 70.3% understand spiritual matters better, as well as 67.1% discovered that they are stronger than they thought themselves.

There is a significant relationship between posttraumatic growth and traumatic events, PTSD, intrusion, and avoidance. But there is no significant relationship between posttraumatic growth and hyper arousal.

There is a significant relationship between PTSD and posttraumatic growth, traumatic events, intrusion, avoidance, and hyper arousal.

There is a statistically significant difference among the means of previous traumatic events according to income (p-value =0.001), and training courses (p-value =0.002). But there is no statistically significant difference among the means of previous traumatic events according to Social status (p-value =0.521), place of residence (p-value =0.378), and educational level (p-value =0.152).

There is no statistically significant difference among the means of posttraumatic growth according to age (p-value =0.298), gender (p-value =0.604), social status (p-value =0.088), place of residence (p-value =0.557), educational level (p-value =0.107), income (p-value =0.200), Place of work (p-value =0.280), years of experience (p-value =0.394), and training course (p-value =0.066).

There is a statistically significant relationship between the PTSD and social status (p-value = 0.012). But there is no statistically significant relationship between the PTSD and age (p-value =0.274), gender (p-value =0.549), place of residence (p-value =0.057), educational level (p-value =0.271), income (p-value =0.669), place of work (p-value =0.218), years of experience (p-value = 0.110), and training courses (p-value = 0.342).

5.3 Discussion

The researcher will discuss findings in a manner of answering the research questions.

Types and severity of traumatic events among nurses in Gaza Strip

The study showed a prevalence of trauma among nurses; 23.4%(64) of the sample have mild trauma, 43.1%(118) of the sample have moderate trauma and 33.6%(92) of the sample have severe trauma. The mean item score of trauma among the nurses is 8.76. The highest traumatic events of study sample were "seeing pictures of death and injured people" 94.1 %, followed by "seeing dead people while they are in work" 78.4 %, then "seeing demolishing of your neighbors home by tanks" 63.5%. While the least percent of traumatic events were "having acquired infectious disease while they are in work" 4.0 %, then "having been exposed to rocket or shots or missiles" 7.7 %, and "having been exposed to chronic disease" 8.8%.

This study results consistent with study of Thabet et al. (2009) which showed that the Palestinians reported similar frequencies of traumatic events. the most common traumatic events were, watching mutilated bodies and wounded people on TV (97.1%), hearing sonic sounds of jetfighters (94.7%), and witnessing signs of shelling on the ground (93.2%), Subjects reported a mean number of 7.7 traumatic events. Another study of Thabet et al. (2008) showed that the most frequently reported traumatic events of children were, watching mutilated bodies and wounded people on TV (98.5%), witnessing signs of shelling on the ground (94.9%), and hearing shelling of the area by artillery (92.9%). Children experienced a mean number of eight traumatic events. Parents reported similar frequencies of traumatic events to their children. The most common traumatic events were, watching mutilated bodies and wounded people on TV (98.5%), witnessing the signs of shelling on the ground (95%), hearing sonic sounds of jetfighters (94%), and witnessing bombardment of other homes by airplanes and helicopters (93%). Parents reported a mean number of 8.5 traumatic events.

And some studies not consistent with our study such as the study of Abu Laila (2009) that found high rate of traumatic events more than the researcher found. The result showed that Ambulance drivers experienced a wide range of traumatic events (Mean = 16.2) more than the control group (Mean = 10.5). No one of ambulance drivers had few traumatic experiences, 5.2% reported moderate traumatic events, 94.8% reported had many traumatic

events. While 11.6% of the control reported traumatic events, 32.1% reported moderate traumatic events, and 56.3% reported many traumatic events. The most common traumatic events ambulance drivers were; witnessing demolition of houses by rockets planes 99%, carrying dead bodies 98%, witnessing martyrs bodies distorted 98%, witnessing house demolition by tanks shells 94%, and exposed to shooting from soldiers 94%. While the most common type of traumatic events control group exposed were; witnessing demolition of houses by rockets planes 96%, witnessing martyrs bodies distorted 85%, witnessing shooting of others 78%, witnessing house demolition by tanks shells 77%, and witnessing beating of others 72%. And other studies found the rate of traumatic events less than the researcher found, such as the study of Matter (2010) showed that 26.6% of study sample have mild traumatic events due to work on emergency department, while 67.8% of study sample have moderate traumatic events, and 5.6% of study sample have sever traumatic events. And the study of EL Majdalawi (2004) found that 19.4% of study sample exposed to mild traumatic events ,72.4% moderate, and 7.9% of study sample exposed to sever trauma.

From these group of studies, the researcher found some of the studies showed, most of the sample has severe trauma. And other studies showed, most of the sample has moderate trauma. While this study shows the most percentage of trauma is severe. Whereas the percentage of the severe trauma is 33.6%, which considered high.

The researcher believes that the nurses, rather than they live in Gaza, that is considered one of the most hot areas in the world, they live under major stress, traumas, occupation, unemployment and poverty, that is why they considered as vulnerable group to develop severe trauma. As well as the nurses used to work in the departments deal with patients suffering from major wounds, deaths, emergency cases, which reflected on the well-being of the nurses. So the researcher thinks that the high percentage of severe trauma among the nurses who are working in the medical centers is expected.

Posttraumatic growth among nurses in Gaza Strip

It is very interesting that the PTGI mean scores among nurses is (48.1), which considered moderate to great degree (M=48.1, total range 0–84). Whereas the answers of the sample were as the following; the researcher found 82.6% of the sample believe strongly in God and 70.3% understand spiritual matters better, as well as 67.1% discovered that they are

stronger than they thought themselves. And 20.3% of the study sample answer Always, 28.5% answer Often, and 24.7% answer sometimes.

This study consistents with study of Schroevers and Teo (2008) which found cancer patients reported posttraumatic growth in a moderate to great degree (M=73.12, total range 21–105), with a mean item score of 3.48. Also the study of Pietrzak et al. (2010) show that seventy-two percent of the sample endorsed a significant degree of posttraumatic growth in at least one of the areas assessed. While other studies measuring posttraumatic growth in cancer patients in the US (on average 1 or 2 years after diagnosis) reported PTGI mean scores of 58.4 (Sears et al., 2003), 64.1 (Cordova et al., 2001), and 64.7 (Widows et al., 2005). In a heterogeneous cancer sample of Chinese cancer survivors (at least 5 years after diagnosis), Ho et al. (2004) reported a mean PTGI score of 70.0, which is more similar to the mean score that the researcher found. Also the study of Kroo and Nagy (2011), mean total PTGI score was 68.92 (SD=16.77; M=58.6 for females and M=71 for males); scores ranged from 27 to 101. The mean score for the PTGI items was 3.43 (SD=.74) on a 6-point scale (0–5), indicating that the average answer was between ‘‘I experienced this change moderately’’ and ‘‘I experienced this change greatly.’’

Another studies found the average and the mean of the PTG is moderate. The study of Hall et al. (2010) participants reported a mean level of 8.97 for PTG, which considered moderate degree. And other study of Feder et al. (2008) has found a moderate degree of PTG, particularly greater appreciation of life and personal strength in 30 former Vietnam prisoners of war.

While other studies found the average and mean of PTG is mild (Milam et al., 2004) the mean PTG score was 3.56, indicating that on average, participants experienced mild amounts of positive change since their event.

Some studies talk about positive changes in general such as the study of Sears et al. (2003) that found 83% of women with early-stage breast cancer report positive consequences from their cancer experience. And the study of Bayer et al. (2007) the results show a significant difference between the two groups, participants in the trauma group reported higher growth levels than those in the no-trauma group.

When a crisis is chronic and the threat is ongoing, as was the case during the Al Aqsa Intifada, and another war against Gaza in a series of wars. When PTG is measured in

people who are able to take action to overcome a threat, as was the case with the settlers resisting forced evacuation from Gaza (Hall et al., 2008), PTG may serve its theorized protective function. Further for people exposed to the pressure of ongoing life threat, there may be little chance of entering the resolution phase—one relatively free from pathology—that Calhoun and Tedeschi (2006) theorize occurs. In certain circumstances, and coping with ongoing war may be such a circumstance, PTG may represent retrospective reattribution where people try to justify their pain by stating that they have grown through their exposure to adversity (McFarland and Alvaro, 2000). (Wilson and Ross, 2001) also suggested that individuals may derogate past selves through a process of self enhancement to maintain positive views of their current selves. Certainly, studies have shown that people may find it adaptive to seek positive illusions following major life stress (Taylor and Brown, 1988).

Some studies agree with the researcher's study regarding the necessity passing through traumatic events to develop and increase the PTG. The researcher thinks that moderate to great percentage, refer to the traumatic events that they had been experienced and passed through. The PTG does not grow randomly, but it needs a basic experiences to found and establish it. Most nurses deal with patients suffering from traumatic events, which considered as indirect trauma, and they could develop coping and adaptive skills through these experiences to develop PTG. Furthermore, they themselves live under the same circumstances in Gaza that has ongoing trauma.

Posttraumatic stress disorder among nurses in Gaza Strip

In this study 19.7% of the sample have PTSD, and the mean of PTSD among the sample is 22.66. whereas the mean of the intrusion is 8.029, the mean of avoidance is 8.399, and the mean of the hyperarousal is 6.472

The prevalence of PTSD varies according to the exposure to traumatic events of the population studied. According to the National Institute of Mental Health, general population rates are around 1-3 percent which not agree with the researcher's study. Among high-risk groups whose members experienced traumatic events, the lifetime prevalence rates range from 5 to 75 percent. Reported rates among crime victims are between 19 and 75 percent, and rates as high as 80 percent have been reported following rape. In Gaza, a city in Palestinian Authority area, one study conducted by the Gaza

Community Mental Health Program GCMHP, 1996 reported prevalence rates of PTSD among ex-political prisoners were 30 percent (El sarraj et al., 2008) which not agree with the researcher's study.

PTSD is an occupational hazard for nursing. It is estimated that up to 14 percent of the overall general nursing population experience symptoms that meet the criteria to be diagnosed with PTSD, which agree with the researcher's study.

Some studies agree with the researcher's study such as the study of Guo et al. (2004) the result show that healthcare professionals or rescue team members participating in disaster relief exhibited a prevalence of 13–31.8% (Ozen & Sir, 2004; Guo et al., 2004). Many of these teams witness the devastating aftermath of the events and are exposed to a variety of tragic events, increasing their risk for PTSD along with other psychiatric disturbances. While other study showed that the rates of children who reported moderate to severe PTSD reactions as follow up had decreased from 40.6% to 20.9% after one year of peace process (Thabet et al., 1999).

Another studies not agree with the researcher's study such as the study of Armagan et al. (2006) the result show that PTSD was diagnosed in eight of the 33 (24.2%) participants. No significant difference was detected in the distribution of PTSD diagnosis according to gender, age, profession, professional experience, previous disaster experience, and/or previous experience of traumatic events. However, the severity of PTSD symptoms as measured by the CAPS-1 score was significantly higher in women, nurses, and participants with <3 previous disaster duty experiences. In Gaza, the study of EL Majdalawi (2004) found that (71.2%) of study sample developed PTSD. And the study of Thabet et al. (1999) the result showed that 72.8% of children developed at least mild intensity PTSD reactions, and 26.2% of children developed moderate to severe PTSD reactions. Also the study of Thabet et al. (2009) showed that (70.1%) of children were likely to present with PTSD, and (60%) of parents had symptoms of potential clinical significance. Another study of Thabet et al. (2009) showed that (54.4%) of Palestinian people had symptoms of potential clinical significance of PTSD. The study of Miller et al. (1999) found that the prevalence of moderate to severe PTSD was 39.5%. And the study of Thabet et al. (2006) found that eighty seven (39.2%) of children from the Gaza Strip reported posttraumatic stress disorder (40 and above in IES) compared to 51 (34%) of children from the West Bank. Also the

study of Thabet et al. (2001) the result showed that one third of the children reported significant PTSD reactions.

Nurses in various roles (e.g., educator, therapist, prescriber, case manager, staff nurse) may encounter individuals with PTSD. The researcher believes that the PTSD percentage (19.7%) is higher slightly than the overall general percentage (14%), of the nursing population who experience symptoms that meet the criteria to be diagnosed with PTSD. The presence of this general overall percentage among the world countries, refer to that the nurses work under life-long stress and anxiety. Furthermore, the Palestinian nurses live the same circumstances in addition to the ongoing stress and traumas in Palestine due to many factors such as poverty, political instability and siege on Gaza. Because of that the researcher thinks that 19.7% of the sample having PTSD, is not surprising, and it is in the expectation range. The researcher thinks that this percentage refer to the strong traumatic experiences that they experienced and passed through. Most nurses deal with patients suffering from traumatic events, which considered as indirect trauma, and they could benefit from these experiences to develop their adaptation skills and techniques.

Relationship between posttraumatic stress disorder and posttraumatic growth among nurses in Gaza Strip

The researcher found that there is a significant relationship between posttraumatic growth and PTSD, traumatic events, intrusion, and avoidance.

There are some studies consist with the researcher's study, whereas some studies have demonstrated that greater PTG was related to greater PTS symptoms (Pietrzak et al., 2010; Hall et al., 2009; Lehman et al., 1993; Park et al., 1996; Tomich and Helgeson, 2004; Wild and Paivio, 2003). As well as the results of a recent meta-analysis of 77 cross-sectional studies indicated that PTG as related to greater trauma-related avoidance and intrusive thoughts (Helgeson et al., 2006). Another study of (Dekel, 2007) the strong positive relationship between the wives' PTG and their own distress might be an additional source of growth for the wives. This finding is consistent with Tedeschi and Calhoun's (1996) finding that the more traumatic experiences individuals have, the more positive changes they report. Moreover, this relationship is consistent with the findings of several studies on direct victims of traumatic events, such as Israeli adolescents who were exposed to terror attacks (Laufer & Solomon, 2005), persons who had survived the Holocaust as children

(Lev-Wiesel & Amir, 2003), survivors of childhood sexual abuse (Lev-Wiesel & Amir, 2005), and witnesses of the 1995 Oklahoma City bombing (Pargament et al., 1998).

Studies have examined PTG and PTS symptoms in a variety of trauma contexts, but few were conducted following terrorism exposure. Several prior nationally representative studies in Israel reported that PTG was directly related to PTS symptoms (Hall et al., 2009; Laufer and Solomon, 2006; Solomon and Dekel, 2007; Dekel and Nuttman-Shwartz, 2009) and greater symptoms of PTS and depression (Hobfoll et al., 2006; Hobfoll et al., 2008).
Other study of Levine et al. (2008) regression modeling showed that the relationship between the growth and PTSD measures was linear and curvilinear (inverted-U). These results replicated accounting for heterogeneity in PTSD, exposure and subsamples. Collectively, the results imply that posttraumatic growth in adolescence is characterized by two robust components, and is greatest at moderate posttraumatic stress levels(Levine et al., 2008).

While other studies showed that the PTG highly correlated with fewer PTSD, such as the study of (Ai et al., 2005; Frazier et al., 2001; Hall et al., 2008; McMillen et al., 1997).

Unlike the previous studies few studies supported the viewpoint that PTG and psychological distress are unrelated (Cordova et al., 2007; Val and Linley, 2006; Widows et al., 2005).

Theoretically, the relationship between PTSD and growth may take four forms: (a) experiencing PTSD symptoms disturbs human functioning and quality of life, and so relates negatively to growth (Johnson et al., 2007; Urcuyo et al., 2005); (b) experiencing growth is only possible if PTSD occurs and so a positive relationship is hypothesized (Tedeschi & Calhoun, 1996, 2004); (c) PTSD and growth are separate outcomes that may coexist independently (Linley & Joseph, 2004; Cordova et al., 2001; Widows et al., 2005); and (d) the relationship between PTSD and growth follows an inverted-U (Powell et al., 2003). Low and high PTSD levels increase growth less than moderate levels of PTSD that correspond to the greatest growth (Solomon & Dekel, 2007).

One explanation for the positive association between PTSD symptoms and PTG is that PTG occurs when the trauma has been upsetting enough to promote engagement in positive meaning-making of the event (Tedeschi and Calhoun, 1996, 2004; Levine et al.,

2009). Thus, trauma survivors with lower levels of exposure (Fontana and Rosenheck, 1998) and/or PTSD symptoms (Levine et al., 2009) may be less likely to report PTG.
In other words, the nature of a traumatic experience plays a role in subsequent growth. Trauma can shatter assumptions (Janoff-Bulman, 1992), and reduce positive illusions (Taylor & Brown, 1988), to provide a window of realism through which one can concentrate on various existential matters (i.e., what is most important in life). Thus, the more severe the trauma, the greater the reported PTG (Park et al., 1996; Tedeschi & Calhoun, 1996). For example, in a study of military veterans, higher combat exposure was significantly and positively related to positive outcomes, such as valuing life more and having a clearer purpose in life (Aldwin et al., 1994).

The researcher believes that the Palestinian people live under difficult conditions and circumstances. Some of them deal with daily stressors and pressures. All of these factors affect on the coping styles and mechanisms. The nurses who live in Gaza, considered one of the most vulnerable groups, because they are marginalized, and the services providers groups are deprived from the support as well. Additionally, the nurses used to work in the departments deal with patients suffering from major wounds, and emergency cases. All of these factors may give the nurse the capacity and effectiveness to deal well with such traumatic life-events. So the researcher thinks that the relation between PTSD and PTG is rationalized.

Factors that form the posttraumatic growth among nurses in Gaza Strip

The researcher found that the main results of the PTG domains was as follows; the dimension of spiritual change was 76.7% and the personal strength was 61.8%. whereas the answers of the sample were as the following; 82.6% of the sample believe strongly in God and 70.3% understand spiritual matters better, as well as 67.1% discovered that they are stronger than they thought themselves.

There are many studies clearly consistent with the researcher study only the religion domain that is considered the forming factor of PTG such as the study of (Milam et al., 2004; Park et al., 1996; Tedeschi & Calhoun, 1996) that found religiosity is positively related to PTG and the study of Urcuyo et al. (2005) that found positive reframing as well as religious coping were strongly related to perceived positive changes, whereas avoidance coping strategies were not significantly related to positive changes. In the study of Prati and Pietrantoni (2009) meta-analytic review examines the role of optimism, social support,

and coping strategies in contributing to posttraumatic growth. Results showed that Religious coping was strongly correlated with growth. As well as the study of Bellizzi et al. (2009) has examined the relationship between race, religiosity, and posttraumatic growth. The results showed that African American breast cancer survivors reported higher levels of posttraumatic growth than White women. However, this relationship was mediated by religiosity.

While other studies agree with the another studies consistent with the personality strength such as the study of Feder et al. (2008) that found respondents with PTSD scored higher on an overall measure of posttraumatic growth and on items reflecting appreciation of life and personal strength. This study have found a moderate degree of PTG, particularly greater appreciation of life and personal strength in 30 former Vietnam prisoners of war. And the study of Solomon and Dekel (2007) which found elevated perceptions of PTG, most notably on ratings of appreciation of life and personal strength. In addition to Pietrzak et al. (2010) seventy-two percent of the sample endorsed a significant degree of posttraumatic growth in at least one of the areas assessed, the most common of which were changing priorities about what is important in life (52.2%), being able to better appreciate each day (51.1%), and being better able to handle difficulties (48.5%). respondents with PTSD scored higher on an overall measure of posttraumatic growth and on items reflecting appreciation of life and personal strength.

And some studies not consistent with the researcher's study, such as the study of Schroevers and Teo (2008) which showed that many patients reported posttraumatic growth, mostly in the domain of appreciation of life. Top three most frequently reported growth experiences were ‘I have a greater appreciation for the value of my own life’ (92%), ‘I can better appreciate each day’ (92%), and ‘I have more compassion for others’ (93%). And the study of Beck et al. (2008) Holocaust survivors participating in the current study rated an appreciation of life as being the most associated with their Holocaust experience of the five posttraumatic growth domains. The second highest rated growth effect was personal strength. And spiritual change was the lowest ranked posttraumatic growth aspect, which was rated significantly lower than the other four growth aspects.

The researcher thinks that the individual affected by the nature of the socialization of his/her parents, community and believes. If their socialization manner affected by the religious aspect, the person will think that traumas is getting him or her more stronger than

before, because this trauma is getting closer to God. Moreover, the religion is one main part of the culture, especially the Palestinian culture is mainly affected by the Islamic domain. Most religions have developed their own theodicy, one's religious perspective can have a dramatic effect on PTG by providing a framework through which traumas can be appraised. Using trauma to come closer to God can increase one's spirituality, whereas the opposite may occur if one feels betrayed by God through the trauma.

In addition to that, the severity of the trauma affect all the people in different level, according to the protective factors. The person behavior formed through many factors such as socialization, personality characters, and the support received from others.

The researcher thinks the main difference in responding to the traumatic events is the personality strength, whereas the more strength of personality have, the less negative effects may developed. in other words, the weak and fragile personality is prone to many disorders and do not change and resist, while the people with personality strength, who exposed to the same traumatic events, resist and seize the opportunity to get the benefits from these traumatic events and develop the PTG. By the end, the researcher thinks that the PTG refer to the individual differences.

Relationship between posttraumatic growth and socio-demographics data among nurses in Gaza Strip

The researcher found that there was no statistically significant difference among the means of posttraumatic growth and age (p-value =0.298), Gender (p-value =0.604), Social status (p-value =0.088), Place of residence (p-value =0.557), Educational level (p-value =0.107), Income (p-value =0.200), Place of work (p-value =0.280), Years of Experience (p-value =0.394), and training course (p-value =0.066).

The study of Beck et al. (2008) and Milam et al. (2004) agreed with the researcher study, where as it indicated no significant differences in reported levels of PTG between females and males. And Tedeschi and Calhoun (1996) said that posttraumatic growth has been noted in both males and females.

Most of the previous studies were unlike the researcher study, whereas past studies of populations exposed to terrorism and war have linked reports of PTG to being female (Dekel, 2007; Maguen et al., 2006; Val and Linley, 2006; Sears et al., 2003). In general, women report more PTG than men (Park et al., 1996; Tedeschi & Calhoun, 1996). As well

as in other study of Hall et al. (2010) indicate that PTG was associated with being female, lower education, greater recent terrorism exposure, greater loss of psychosocial resources, greater social support, and greater self-efficacy.
But the study of Kroo and Nagy (2011) indicate that PTG was higher in mail more female. The mean total PTGI score was 68.92 (M=58.6 for females and M=71 for males).

While other study of Beck et al. (2008) and Milam et al. (2004) showed that age was positively associated with PTG. In addition to Bayer et al. (2007) indicated significant correlations were found between age and PTG, On the other hand, the participants' marital status did not significantly influence their PTG. Posttraumatic growth tends to be reported more highly among younger adult samples, although it is suggested that there may be potential confounds in age effects (Linley & Joseph, 2004).

The researcher believes that the PTG refer to the dimension of the religion and the strength of personality, as the results appeared in the study. So that there was no significance to the socio-demographic data.

All the nurses work in the same working environment, circumstances and conditions, and under the same traumatic and stressful events. That is why the (age – gender – place of residence) of the target group did not form an change factor regarding developing the PTG. Developing PTG is different among the nurses, even among those are working in the same working environment, even in the same department despite the (age – gender – place of residence), because getting the benefits of the traumatic events, constitute as a base to develop PTG. Not all nurses get the same level of benefits from the traumatic events, as well as the individual differences among nurses play a major role in forming the PTG. This result enhances the result of the research, that showed the socio-demographic data has no relation with PTG.

5.4 Recommendations

In the light of the literature and the results of the current study, which showed a high rate of trauma among nurses; 23.4% of the nurses have mild trauma, 43.1% of the nurses have moderate trauma and 33.6% of the nurses have severe trauma. In addition to that, 19.7% of the nurses have PTSD, which considered slightly higher than the overall general percentage 14%, of the nursing population. So the following recommendations are made:

- Nurses identified with symptoms of posttraumatic stress disorder should be encouraged to share their feelings and thoughts, and to seek therapy. They should be fully supported by their nurse manager throughout their entire healing process.
- It is necessary to provide therapeutic intervention such as crisis intervention for nurses who were exposed to traumatic events, and still suffering from its side effects.
- Establish help the helpers and counseling department in every health care centers, and the staff mission is to give awareness sessions about the psychological problems associated with the trauma, in order to educate and train nurses on how to deal with these psychological problems and how to overcome them.
- The ministry of health should form reciprocal relationships with community-based organizations, social service agencies, to provide mental health psychosocial programs to the nurses who are working in the medical field.
- Disseminate the results of the study to the meant stakeholders, in order to get benefits from this study as possible as they can.

5.5 suggestions for future research

- Comparative studies among nurses of Gaza and West Bank regarding the level of traumatic events, PTG, and PTSD among the nurses working in medical field.
- Comparative studies among nurses of Gaza and West Bank regarding the level of resilience.
- The relationship between personality traits and posttraumatic growth.
- The relationship between religion and posttraumatic growth.
- The relationship between resilience and posttraumatic growth.
- Longitudinal and qualitative researches about posttraumatic growth.

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Annex 1

Palestinian National Authority
Ministry of Health
Helsinki Committee

السلطة الوطنية الفلسطينية
وزارة الصحة
لجنة هلسنكي

التاريخ:07/03/2011

Name: **Nader Shamia**

الاسم: نادر شامية

I would like to inform you that the committee has discussed your application about:

"The relationship between posttraumatic stress disorder and posttraumatic growth among nurses in Gaza Strip".

نفيدكم علماً بأن اللجنة قد ناقشت مقترح دراستكم حول:-

In its meeting on March 2011

and decided the Following:-

To approve the above mention research study.

و ذلك في جلستها المنعقدة لشهر 3 2011

و قد قررت ما يلي:-

الموافقة على البحث المذكور عاليه.

Signature
توقيع

Member
عضو

Member
عضو

Chairperson

Conditions:-

- Valid for 2 years from the date of approval to start.
- It is necessary to notify the committee in any change in the admitted study protocol.
- The committee appreciate receiving one copy of your final research when it is completed.

5

Annex 2

The Palestinian National Authority
Ministry of Health
Directorate General of Human Resources Development

السلطة الوطنية الفلسطينية
وزارة الصحة
الإدارة العامة لتنمية القوى البشرية

٤٩٠٤٢

الرقم :..... 11/ 615

التاريخ:2011/04/06م

الأخ الاستاذ/ خليل شقفة المحترم،،،

مدير وحدة التمريض

تحية طيبة وبعد،،،

الموضوع/ تسهيل مهمة باحث

بخصوص الموضوع أعلاه، يرجي تسهيل مهمة الباحث / نادر اشرف شامية والملتحق ببرنامج ماجستير الصحة النفسية و المجتمعية – كلية الصحة العامة – جامعة القدس في إجراء بحث بعنوان :-

" The Relationship between Posttraumatic Stress Disorder and Posttraumatic Growth among Nurses in Gaza Strip"

حيث سيقوم الباحث بالاطلاع و اخذ بيانات عن اعداد القوى العاملة في مجال التمريض ومؤهلاتهم و توزيعاتهم و اماكن عملهم ومعلومات اخرى ، و ذلك بما لا يتعارض مع مصلحة العمل وضمن أخلاقيات البحث العلمي، و دون تحمل الوزارة أي أعباء.

وتفضلوا بقبول التحية والتقدير،،،

د. ناصر رأفت أبو شعبان
مدير عام تنمية القوى البشرية

- مرفق نموذج طلب تسهيل مهمة باحث

- صورة/
1- صاحب/ـه العلاقة

وزارة الصحة الفلسطينية
وحدة التمريض
وارد
رقم: ٥٣٧
التاريخ: ٢٠١١/٤/٨٩

Gaza Tel / 08-2827298 Fax / 08-2868109 Email / gdhrd@moh.gov.ps

Annex 3

Al-Quds University
Jerusalem
School of Public Health

جامعة القدس
القدس
كلية الصحة العامة

نسخة/ الملف

2011/4/4

حضرة الدكتور/ يوسف موسى المحترم
المدير التنفيذي–اتحاد لجان العمل الصحي
تحية طيبة وبعد ،،،

الموضوع :مساعدة الطالب عمرو القريناوي والطالب نادر شامية

يقوم الطلبة المذكورين أعلاه بإجراء أبحاث بعنوان :

اسم الطالب	عنوان البحث
عمرو القريناوي	*The relationship between Work stress, coping ,and resilience among nurses in Gaza Strip*
نادر شامية	*The relationship between posttraumatic stress disorder and posttraumatic growth among nurses in Gaza strip*

كمتطلب للحصول على درجة الماجستير في الصحة النفسية المجتمعية وعليه نرجو التكرم والإيعاز لمن ترونه مناسب لتسهيل مهمة الطلبة في جمع البيانات اللازمة من طواقم التمريض الموجودة في مستشفياتكم وعياداتكم الموقرة في قطاع غزة .
علما بأن المعلومات ستكون متوفرة لدى الباحثين والجامعة فقط وسنطلعكم على النتائج في حينه .

شاكرين لكم حسن تعاونكم ودعمكم للمسيرة التعليمية .

وتفضلوا بقبول وافر الاحترام والتقدير،،،

د.عبد العزيز موسى ثابت
منسق برنامج الصحة النفسية المجتمعية
جامعة القدس – غزة

د. عبد العزيز موسى ثابت
مدير البرامج الأكاديمية
جامعة القدس – غزة

نسخة/ الملف

Jerusalem Branch/Telefax 02-24799234
Gaza Branch/telefax 08-2884422-2884411
Sphealth@admin.alquds.edu
فرع القدس/تلفاكس 02-2799234
فرع غزة/تلفاكس 08-2884422-2884411
ص.ب/51000-القدس

اتحاد لجان العمل الصحي
Union of Health Work Committees

بسم الله الرحمن الرحيم

إشارتنا: 58-1-2011 التاريخ: 2011/4/17

السيد/ د. عبد العزيز موسى ثابت – منسق برنامج الصحة النفسية المجتمعية – جامعة القدس – غزة

تحية واحتراماً، وبعد...

إيماءً لرسالتكم المُؤرخة بتاريخ 2011/4/4 والخاصة بمساعدة الطالبان عمرو القريناوي ونادر شامية في أبحاثهما؛ يسرنا في اتحاد لجان العمل الصحي تسهيل مهمة الطالبان في جمع البيانات اللازمة من طـواقم التمريض الموجودة في مراكز الاتحاد ومستشفى العودة.

وتفضلوا بقبول فائق الاحترام،

د. يوسف عوض الله

رئيس مجلس الإدارة

Palestine-Gaza-Behind Al-Abbas Mosque-Assorani Building
Email: info@gaza-health.com Website: www.gaza-health.com
فلسطين - قطاع غزة - غزة - خلف مسجد العباس - عمارة الصوراني
تليفون: ٢٨٢٤٢٧٢ ٠٨ ٩٧٠+ ، فاكس: ٢٨٦٩٢٢٠ ٠٨ ٩٧٠+ ، ص.ب. : ٥١٢٣

Annex 4

P.O. BOX 72
PALESTINE –GAZA
TEL NO. 08-2818400

المستشفي الأهلي العربي
غـزة - Gaza
Ahli Arab Hospital

ص . ب ٧٢
فلسطين – غـزة
ت ٠٨-٢٨١٨٤٠٠

٢٣ مايـو ٢٠١١

السيـد / د. عبد العزيز موسى ثابت
منسق برنامج الصحة النفسية المجتمعية
جامعة القدس
غـزة
كلية الصحة العامة

بعـد التحيـة ،

الموضوع : مساعدة الطالب / عمرو القريناوي والطالب / نادر شامية

إيماء لرسالتكم المؤرخة بتاريخ ٤ إبريل ٢٠١١ بخصوص مساعدة الطالب / عمرو القريناوي والطالب / نادر شامية بإجراء بحث تحت عنوان :

إسم الطالب	عنوان البحث
عمرو القريناوي	The relationship between Work stress, copying, and resilience among nurses in Gaza Strip
نادر شامية	The relationship between posttraumatic stress disorder and posttraumatic growth among nurses in Gaza Strip

نود إفادتكم أن إدارة المستشفى قد سمحت للطالبان المذكوران عاليه من جمع البيانات اللازمة لاستكمال متطلبات بحثهما الخاص لدرجة الماجستير في الصحة النفسية المجتمعية وعليهما الاتصال بإدارة المستشفى لتسهيل مهام عملهما .

واقبلوا وافـر التحيـات.

سهيلـه تـرزي
مديـرة المستشفى

Fax No. 972-8-2818406=
فاكس رقم ٩٧٢ -٨- ٢٨١٨٤٠٦
Email: suhaila@palnet.com

Annex 5

Al-Quds University
Jerusalem
School of Public Health

جـامـعـة الـقـدس
القدس
كلية الصحة العامة

2011/4/4

حضرة الدكتور/ محمد المقادمة المحترم
مدير برامج الصحة بوكالة الغوث
تحية طيبة وبعد ،،،

الموضوع :مساعدة الطالب عمرو القريناوي والطالب نادر شامية

يقوم الطلبة المذكورين أعلاه بإجراء أبحاث بعنوان :

اسم الطالب	عنوان البحث
عمرو القريناوي	*The relationship between Work stress, coping ,and resilience among nurses in Gaza Strip*
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كمتطلب للحصول على درجة الماجستير في الصحة النفسية المجتمعية وعليه نرجو التكرم والإذن في تزويد مناسب لتسهيل مهمة الطلبة في جمع البيانات اللازمة من طواقم التمريض الموجودة في عياداتكم الموزعة في قطاع غزة .
علما بأن المعلومات ستكون متوفرة لدى الباحثين والجامعة فقط وستطلعكم على النتائج في حينه .

شاكرين لكم حسن تعاونكم ودعمكم للمسيرة التعليمية .

وتفضلوا بقبول وافر الاحترام والتقدير،،،

د.عبد العزيز موسى ثابت
منسق برنامج الصحة النفسية المجتمعية

د. عبد العزيز موسى ثابت
مدير البرامج الأكاديمية
جامعة القدس - غزة

0599498254

نسخة/ الملف

Jerusalem Branch/Telefax 02-24799234
Gaza Branch/telefax 08-2884422-2884411
Sphealth@admin.alquds.edu
فرع القدس/تلفاكس 02-2799234
فرع غزة/تلفاكس 08-2884422-2884411
ص.ب/51000-القدس

Annex 6

Al-Quds University
Jerusalem
School of Public Health

جامعة القدس
القدس
كلية الصحة العامة

2011/4/13

وزارة الداخلية والامن الوطني
مديرية الخدمات الطبية العسكرية
مكتب المدير العام
وارد رقم: 21976
التاريخ: 13.4.2011

حضرة الدكتور/ عاطف الكحلوت المحترم
مدير الخدمات الطبية العسكرية
تحية طيبة وبعد ،،،

الموضوع :مساعدة الطالب عمرو القريناوي والطالب نادر شامية

يقوم الطلبة المذكورين أعلاه بإجراء أبحاث بعنوان :

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وتفضلوا بقبول وافر الاحترام والتقدير،،،

د.عبد العزيز موسى ثابت
منسق برنامج الصحة النفسية المجتمعية
جامعة القدس – غزة

د. عبد العزيز موسى ثابت
مدير البرامج الأكاديمية
جامعة القدس – غزة

نسخة/ الملف

Jerusalem Branch/Telefax 02-24799234
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فرع غزة/تلفاكس 08-2884422-2884411
ص.ب/51000-القدس

Annex 7

DSM-IV-TR Diagnostic criteria for posttraumatic stress disorder

A. The person has been exposed to a traumatic event in which both of the following were present:

(1) the person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others.

(2) the person's response involved intense fear, helplessness, or horror, Note: In children, this may be expressed instead by disorganized or agitated behavior.

B. The traumatic event is persistently re experienced in one (or more) of the following way:

(1) recurrent and intrusive distressing recollection of the event, including images, thoughts, or perceptions. Note: In young children, repetitive play may occur in which themes or aspects of the trauma are expressed.

(2) recurrent distressing dreams of the event, Note: In children, there may be frightening dreams without recognizable content.

(3) acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusions, hallucinations, and dissociative flashback episodes, including those that occur on awakening or when intoxicated). Note: In young children, trauma-specific reenactment may occur.

(4) intense psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event.

(5) physiological reactivity on exposure to internal or external cues that symbolize or resemble and aspect of the traumatic event.

C. Persistent avoidance of stimuli associated whit the trauma and numbing of general responsiveness (not present before the trauma), as indicated by three (or more) of the following:

(1) efforts to avoid thoughts, feelings, or conversations associated with the trauma.

(2) efforts to avoid activities, places, or people that arouse recollections of the trauma.

(3) inability to recall an important aspect of the trauma.

(4) markedly diminished interest or participation in significant activities.

(5) feeling of detachment or estrangement from others.

(6) restricted rang of affect (e.g., unable to have loving feelings).

(7) sense of a foreshortened future (e.g., does not expect to have a career, marriage, children, or a normal life span).

D. Persistent symptoms of increased arousal (not present before the trauma), as indicated by two (or more) of the following:

(1) difficulty falling or staying asleep.

(2) irritability or outbursts of anger.

(3) difficulty concentration.

(4) hypervigilance.

(5) exaggerate startle response.

E. Duration of the disturbance (symptoms in Criteria B, C, and D) is more than 1 month.

F. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

Specify if:

Acute: if duration of symptoms is less that 3 months

Chronic: if duration of symptoms is 3 months or more

Specify if:

With delayed onset: if onset of symptoms is at least 6 months after the event.

Annex 8

بسم الله الرحمن الرحيم

استبيان حول

"العلاقة بين كرب ما بعد الصدمة والنمو ما بعد الصدمة (التطور الإيجابي) بين الممرضين في قطاع غزة"

أخي الممرض،،،،، أختي الممرضة،،،،،
يقوم الباحث بهذه الدراسة لاستكمال متطلبات بحث التخرج لدراسة ماجستير الصحة النفسية المجتمعية بجامعة القدس_أبو ديس (كلية الصحة العامة).
يشكر لكم الباحث مشاركتكم في هذه الدراسة و أن تمنحونا بعضا من وقتكم الثمين للإجابة على أسئلة الاستبيان، مشاركتكم في هذه الدراسة تساهم في التعرف على العلاقة بين كرب ما بعد الصدمة والنمو (التطور الايجابي) ما بعد الصدمة بين الممرضين والممرضات في قطاع غزة والذين يعملون في المؤسسات الصحية (الحكومية، الأهلية، الخاصة، الوكالة) بغض النظر عن مستوياتهم الإدارية.
نرجو منكم عدم كتابة الاسم ونؤكد لكم بان إجاباتكم على الأسئلة الواردة في الاستبيان ستكون سرية وتستخدم فقط لغرض البحث العلمي وستكون محل اهتمام وتقدير.
علما بأنكم تحتفظون بحقكم في رفض الإجابة على أي سؤال أو جميع الأسئلة الواردة في الاستبيان.

شاكرين لكم حسن تعاونكم؛؛؛؛؛ والله الموفق

الباحث: نادر شامية
جوال:٠٥٩٩٤٩٨٢٥٤
Shamee.na@hotmail.com

Annex 9

أولا: استبيان الحالة الاجتماعية و الاقتصادية، ضع علامة X في المربع المناسب لكل عبارة:

رقم الاستبانة_____(خاص بالباحث)

١. **العمر** .....

٢. **الجنس** □ ذكر □ أنثى

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

٤. **مكان السكن** □ شمال غزة □ غزة □ الوسطى □ خان يونس □ رفح

٥. **مستوى التعليم** □ ممرض عملي □ دبلوم ثلاث سنوات □ بكالوريوس □ ماجستير □ دكتوراه

٦. **الدخل الشهري** □ أقل من١٥٠٠ ش □١٥٠١-٢٥٠٠ش □ ٢٥٠١-٣٥٠٠ش □ أكثر من ٣٥٠١ ش

٧. مكان العمل .....، القسم .....

٨. عدد سنوات خبرة العمل الكلية .....

٩. هل تلقيت دورات تدريبية عن الصدمة النفسية والتعامل معها؟ □ نعم □ لا

Annex 10

ثانيا: مقياس الأحداث و الخبرات الصادمة

عزيزي/تي: من فضلك اجب عن الأسئلة المرفقة و التي تقيس ما تعرضت له من صدمات عن طريق وضع علامة X في المربع المناسب.

الرقم	العبارة	نعم	لا
	صدمة الحرب		
١	شاهدت استشهاد صديق لك أمامك.		
٢	شاهدت استشهاد احد أفراد أسرتك.		
٣	شاهدت إصابة صديق لك أمامك بالرصاص أو شظايا القنابل.		
٤	شاهدت إصابة احد أفراد أسرتك.		
٥	شاهدت بيت جيرانكم و هو يهدم ، و يدمر من القصف أو الجرافات.		
٦	شاهدت بيوت الجيران و هي تقصف بالمدفعية الثقيلة والرشاشات، و الطائرات.		
٧	شاهدت بيتكم وهو يقصف بالمدفعية الثقيلة، والرشاشات، و الطائرات.		
٨	شاهدت صور الجرحى و الأشلاء والشهداء في التلفزيون.		
٩	تعرضت للضرب و الإهانة من جيش الاحتلال.		
	أحداث صادمة للشخص نفسه		
١٠	تعرضت للإصابة بشظية قنبلة أو صاروخ أو الرصاص.		
١١	تعرضت للاحتجاز في البيت.		
١٢	تعرضت للحرمان من الماء أو الأكل أو الذهاب لدورة المياه.		
١٣	تعرضت لإطلاق النار من قبل الجيش الإسرائيلي بقصد التخويف.		
١٤	تعرضت للتهديد شخصياً بالقتل.		
١٥	تعرضت للخطر الشديد باستخدامك كدرع بشري.		
١٦	تعرضت لترك بيتكم مع عائلتك وأقاربك.		
١٧	تعرضت للإصابة بالحرق بالقنابل العادية و الفسفورية.		
١٨	أصبت بمرض مزمن هدد حياتك.		
١٩	أصيب احد أفراد أسرتك بمرض مزمن هدد حياته.		
٢٠	هل تعرضت لأي حادث مثل حروق، وقوع من مبني عالي، أو حادث سيارة.		
	أحداث صادمة في مكان العمل		
٢١	شاهدت استشهاد صديق أو قريب لك أمامك و أنت في مكان عملك.		
٢٢	شاهدت الجرحى و الأشلاء والشهداء و أنت في مكان عملك.		

٢٣	تعرضت للإصابة بشظية قنبلة أو صاروخ أو الرصاص و أنت في مكان عملك .		
٢٤	هل تعرضت للاحتجاز و أنت في مكان عملك .		
٢٥	هل تعرضت للضرب والإهانة و أنت تؤدي عملك.		
٢٦	هل فقدت شخص عزيز عليك وأنت في مكان العمل.		
٢٧	هل فقدت أي وظيفة لك من قبل.		
٢٨	أصبت بمرض معدي و خطير أثناء العمل .		

Annex 11

ثالثا: استبيان كرب ما بعد الصدمة

ترجمة أ. د. عبد العزيز ثابت

عزيزي /عزيزتي

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	الحدث (الخبرة الصادمة)	دائما	غالبا	أحيانا	نادرا	أبدا
١	هل تعاودك صور و أحداث و ذكريات بما تعرضت له .					
٢	هل تحلم أحلام مزعجة تذكرك بالصدمة.					
٣	هل ينتابك شعور بأن ما تعرضت له أثناء الصدمة سوف يحدث الآن مرة أخرى (أو تلعب بأشياء تذكرك بالصدمة).					
٤	هل تصاب بحالة من الضيق الشديد عند التعرض لآي موقف صعب خارجي أو داخلي من نفسك يذكرك بما تعرضت له .					
٥	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 .					
٦	هل تتجنب الأفكار، والأحاديث، والإحساسات التي تذكرك بالخبرات الصادمة التي تعرضت لها أثناء الصدمة.					
٧	هل تتجنب الأشخاص و الأماكن ، والمواقف التي تذكرك بالخبرات الصادمة التي تعرضت لها أثناء الصدمة .					
٨	أصبحت غير قادر على تذكر أشياء مهمة تتعلق بفترة الصدمة و ما تعرضت له من مواقف صادمة.					
٩	منذ تعرضت للصدمة هل قل بشكل واضح اهتمامك بالمشاركة في النشاطات الاجتماعية، والمشاركات السياسية المختلفة.					
١٠	هل تشعر بالغربة و الانفصال عمن حولك وأنه ليس لك بهم أي صلة.					
١١	هل أنت عاجز على حب الآخرين من حولك.					
١٢	هل تشعر بأنه ليس لديك مستقبل مثل أن تكمل تعليمك وتتزوج وتعيش حياة طويلة.					
١٣	هل تشكو من صعوبة في النوم أو البقاء نائما.					

١٤	هل تشعر بالتوتر وتنتابك نوبات من الغضب الشديد.					
١٥	هل لديك صعوبات في التركيز أثناء تأدية واجباتك المختلفة.					
١٦	هل تشعر بأنك دائما متيقظ ومتوقع للأسوأ وفي حالة انتظار دائم لما سيحدث.					
١٧	هل تجفل و تتفزز بشكل غير طبيعي لسماعك أقل صوت مزعج .					

Annex 12

رابعا: مقياس التطور الايجابي بعد الصدمات النفسية

ترجمة أ. د. عبد العزيز ثابت

عزيزي /عزيزتي

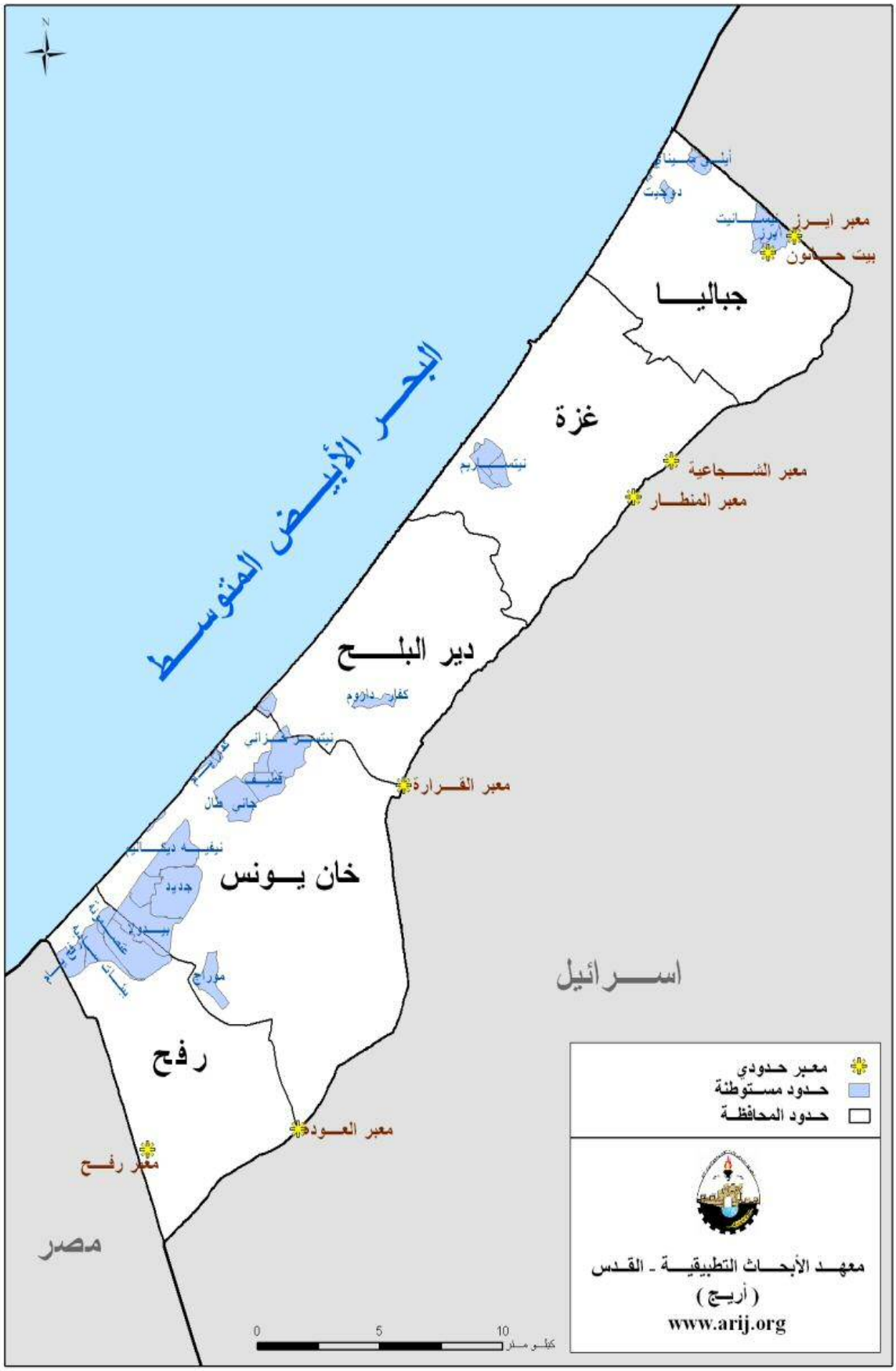
فيما يلي مجموعة من الأسئلة التي تتناول القوة والتطور للأشخاص الذين يتعرضون لأزمات وصدمات نفسية مثل الحرب، و العنف، والحوادث المختلفة. برجاء وضح علامة (√) في الخانة التي تراها تناسبك. علما بان الإجابات هي على النحو التالي:

٠= لا، ١= لقد جربت ذلك بطريقة بسيطة بعد الأزمة، ٢= لقد جربت ذلك بطريقة متوسطة بعد الأزمة، ٣= لقد جربت ذلك بطريقة كبيرة بعد الأزمة، ٤= لقد جربت ذلك بطريقة كبيرة جدا بعد الأزمة.

البنود	بدرجة كبيرة جدا	بدرجة كبيرة	بدرجة متوسطة	بدرجة بسيطة	لا
١. تغيرت أهدافي في الحياة بعد التعرض للصدمة مقارنة لما هي عليه قبل ذلك.					
٢. اقدر قيمة حياتي أكثر من الأول .					
٣. بدأت اهتم بأشياء جديدة في الحياة.					
٤. أصبحت ثقتي في نفسي أكثر من قبل.					
٥. أصبحت أتفهم الأمور الروحية و الدينية أفضل من قبل.					
٦. عرفت بأنني استطيع الاعتماد على الآخرين حولي عندما أقع في مشكلة.					
٧. اخترت طريق (مسار) جديد في حياتي.					
٨. أشعر بالقرب من الآخرين.					
٩. أصبحت قادرا على التعبير عن مشاعري أكثر من قبل الصدمة.					
١٠. أعرف بأنني أصبحت قادرا بطريقة أفضل على التعامل مع مشاكلي.					
١١. أستطيع أن أفعل الأشياء في حياتي بطريقة جيدة بعد الصدمة.					
١٢. أقبل بشكل أفضل ما انتهت إليه الأمور بعد الصدمة.					
١٣. اقدر كل يوم جديد في حياتي أكثر من الأول.					
١٤. أصبحت لدي فرص جديدة في الحياة لم تكن موجودة من قبل.					

١٥. أصبحت لدي عاطفة و حب تجاه الآخرين.					
١٦. أحاول أن أقيم أفضل العلاقات الاجتماعية مع الآخرين.					
١٧. أحاول أن أغير الأشياء في الحياة التي تحتاج للتغيير.					
١٨. أصبح أيماني أعمق بالله.					
١٩. اكتشفت بأنني أكثر قوة مما كنت أعتقد.					
٢٠. تعلمت كثيراً كيف أن الناس حولي رائعين .					
٢١. تقبلت أكثر من قبل بأنني أحتاج الناس من حولي.					

Annex 13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ملخص باللغة العربية

العلاقة بين كرب ما بعد الصدمة والنمو ما بعد الصدمة (التطور الإيجابي) بين الممرضين في قطاع غزة

الهدف: هدفت هذه الدراسة للكشف عن العلاقة بين كرب ما بعد الصدمة والنمو ما بعد الصدمة (التطور الإيجابي) بين الممرضين في قطاع غزة.

الطريقة: استخدم الباحث المنهج الوصفي التحليلي لعرض البيانات الخاصة بمجتمع العينة. كما استخدم عدة مقاييس مقننة و متلائمة مع غرض و هدف الدراسة منها: مقياس الحالة الاجتماعية و الاقتصادية (إعداد الباحث)، ومقياس الأحداث الصادمة (إعداد الباحث)، ومقياس كرب ما بعد الصدمة(النسخة العربية)، ومقياس التطور الإيجابي ما بعد الصدمة (ترجمة د. عبد العزيز ثابت).

العينة: اختيرت عينة الدراسة باستخدام العينة العشوائية الطبقية العنقودية، والتي اشتملت على ٢٧٤ من الممرضين الذين يعملون في وزارة الصحة ٢١٦ (٧٩%)، والخدمات الطبية العسكرية ١٤ (٥%)، ووكالة الغوث ٢٧ (١٠%)، والمراكز الخاصة ١٧ (٦%). بواقع ١٤٣ ممرض (٥٢,٧%)، و ١٣١ ممرضة (٤٧,٣%).

النَتائِج: أظهرت النتائج أن انتشار الصدمةِ بين الممرضين كَانَ؛ ٢٣,٤ % (٦٤) عِنْدَهم صدمةُ بسيطة، ٤٣,١ % (١١٨) عِنْدَهُم صدمةُ متوسطةُ، و٣٣,٦ % (٩٢) عِنْدَهمُ صدمةُ شديدة. وكان متوسط الأحداث الصادمة ٨,٧٦. و كانت أكثر الأحداثِ الصادمة بين الممرضين "شاهدت صور الجرحى و الأشلاء والشهداء في التلفزيون " ٩٤.١ %، " شاهدت الجرحى و الأشلاء والشهداء و أنت في مكان عملك " ٧٨,٤ %، " شاهدت بيت جيرانكم و هو يهدم، و يدمر من القصف أو الجارفات " ٦٣,٥% . وكان متوسط كرب ما بعد الصدمة ٢٢,٦٦، وأن ١٩,٧ % من العينة ينطبق عليهم تشخيص كرب ما بعد الصدمة، وكان متوسط أعراض التجنب ٨,٣٩، ومتوسط أعراض التدخل٨,٠٣، ومتوسط أعراض الإثارة ٦,٤٧. وكان متوسط التطور الإيجابي ما بعد الصدمة ٤٨,١، و الذي يعتبر معدل متوسط إلى عالي (متوسط =٤٨,١، مدى كليّ ٠-٨٤)، و كان في الغالب في مجالِ التغييرِ الروحيِ ٧٦,٧ %، وقوّة الشخصية ٦١,٨ %. و كانت أعلى ثلاثة اجانات بخصوص تجاربِ التطور الإيجابي ما بعد الصدمة، " أصبح أيماني أعمق بالله " (٨٢,٦ %)، " أصبحت أتفهم الأمور الروحية و الدينية أفضل من قبل " (٧٠,٣ %)، " اكتشفت بأنني أكثر قوة مما كنت أعتقد" (٦٧,١ %).أظهرت النتائج أن هناك دلالة إحصائية بين كرب ما بعد الصدمة و التطور الإيجابي ما بعد الصدمة و الخبرات الصادمة و أعراض التجنب و أعراض التدخل. كما أظهرت النتائج أنه لا يوجد دلالة إحصائية بين التطور الإيجابي ما بعد الصدمة طبقاً للعُمرِ ، الجنس ، الحالة الاجتماعية ، مكان السكنِ، مستوى التعليم، الدخل، مكان العملِ، سَنَوات الخبرةِ ، والدورات التدريبية.