



# Positive Posttraumatic Growth in Iranian Nurses Who Served in War Zones

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## Abstract

**Introduction:** Post-traumatic growth or Positive Posttraumatic Changes refers to development of an individual's experience involving accidents or incidents etc., as a result of coping with trauma, war, tragedy etc. (collectively known as stressors). This issue has wide-ranging consequences on the economy, society, culture, and psychology. Military nurses deployed to war zones face the dual pressure of providing healthcare and being involved in military activities. The study sought to assess post-traumatic growth among nurses deployed to war zones.

**Method:** This qualitative study was conducted at the Baqiyatallah Nursing Faculty, Tehran, Iran, using the conventional content analysis approach from 2021 to 2023. Data were collected through semi-structured individual interviews with 11 nurses. Sampling was purposeful and continued until data saturation was achieved. Data were analyzed using MAXQDA10 software.

**Results:** After analyzing the data, we identified 22 subcategories and 6 main categories, which included: "divine growth," "empowering interpersonal relationships," "learning new cultures," "Finding new learning opportunities," "increased personnel resilience," and "changes in attitude."

**Conclusion:** The results of this study showed that post-traumatic growth in nurses following trauma, war, and tragedy is a complex, multidimensional, and contextual concept that may be affected by various factors namely stressors, mental and psychological status, previous encounter with stress. The findings of this study can provide nursing leaders and dispatch nurses with a deeper recognition of the factors that contribute to successful coping among Iranian nurses deployed to war zones and development of positive post-traumatic growth.

**Keywords:** Armed Conflicts, Axis of Resistance, Nurses, Posttraumatic Growth.

## Introduction

Post-traumatic growth (PTG) refers to the positive personal changes individuals experience as a result of trauma, manifested in different aspects of their lives, including relationships, lifestyle, and overall perspective. PTG has been found to reduce depression

and enhance well-being, prompting individuals to reassess their worldview. Some studies have investigated the role of various events, such as trauma, cancer, surgery, and illness, in understanding the possibility of growth after an accident<sup>1-3</sup>. PTG and

positive changes often involve enhancing interpersonal relationships, discovering new abilities, gaining personal empowerment, deepening spirituality, and developing a greater appreciation for life as a result of experiencing a traumatic event <sup>4,5</sup>.

Since accidents are unavoidable in human life, research is critical to transforming the consequences of post-traumatic stress disorder into PTG <sup>3</sup>. Trauma can be a devastating experience on the one hand and an opportunity for growth and transformation on the other hand<sup>6</sup>. Recent studies show that more than 50% of survivors of natural disasters experience some degree of PTG <sup>4</sup>.

As a stressful factor, war has economic, social, cultural, and psychological consequences, significantly affecting the relationships of society members for many generations <sup>7</sup>. Various academic publications have proven that war has significant negative impacts on mental health and well-being, resulting in the manifestation of a range of psychological disorders, such as posttraumatic stress disorder (PTSD), suicidal thoughts, and depression. There is also evidence that military conflicts can lead to the onset or exacerbation of psychosis, bipolar disorder, and schizophrenia <sup>6</sup>. War-related traumatic events may also lead to positive changes termed posttraumatic growth. Substantial PTG has been reported among combat veterans <sup>7</sup>.

The stresses associated with providing health care and combat operations impose a double burden on military medical personnel deployed in combat zones. In addition to the pressure and stress caused by treating wounded soldiers and civilians, medical personnel are also at risk of life-threatening injuries due to attacks with small arms, mortars, rockets, and hand grenades <sup>9</sup>. According to Mark et al., military personnel who served in Afghanistan or Iraq experienced PTG due to high levels of social and spiritual support <sup>10</sup>. Daniel Dyball et al. showed that 30% of men and 34% of women deployed to war zones from the UK experienced moderate to high levels of PTG<sup>5</sup>. In the study conducted by Shamia and Vestanis, PTG was reported in nurses present in the Gaza region conflicts after encountering trauma <sup>4</sup>. In their study on the US military nurses deployed to war zones in Iraq and Afghanistan, Mary et al. asked participants to complete the Posttraumatic Growth Inventory (PTGI), Core Beliefs Inventory (CBI), and six open-ended write-in questions. Nurses' experiences demonstrated the phenomenon of PTG,

especially in appreciation of life and personal strength dimensions <sup>11</sup>.

Iranian nurses have recently played a significant role in providing treatment to the wounded in the Axis of Resistance war zones (Referring to the alliance of countries in the Middle East, including Iran, Iraq, Syria, Yemen, etc.). Despite the global attention paid to the efforts of nurses in war zones, no study has been conducted on the activity of Iranian nurses in the Axis of Resistance war zones, nor has there been any research on their PTG. Therefore, this study has sought to investigate PTG in Iranian nurses within the Axis of Resistance.

## Methods

This qualitative study was conducted using the conventional content analysis approach at Baqiyatullah Nursing Faculty in Tehran, Iran, from 2021 to 2023. The data were obtained through unstructured interviews with nurses experienced in the Axis of Resistance war zones, followed by semi-structured interviews. The inclusion criteria were having a rich experience in nursing in the war zones of the Axis of Resistance front line and a willingness to participate in the study. Snowball sampling was used to select participants and gather data. The primary participants were selected from nurses whom the researcher knew. All participants were males between the ages of 22 and 46 with academic nursing education deployed to Axis of Resistance war zones to provide care for the wounded. The research objective was explained to the participants in the first part of the interview. The interviews lasted approximately 45 to 65 minutes and took place in the hospital, university, or the participant's office. The interviews were conducted after obtaining consent and adhering to ethical principles of confidentiality and data anonymity. A nursing Ph.D. candidate experienced in nursing at war zones conducted the study. The audio of the interviews was recorded with the participants' permission, and transcribed verbatim on the computer Microsoft Word software after each interview. Interviews began with the general and main questions such as: "Explain briefly about the nature of nursing in the Axis of Resistance war zones?" "What did you learn from these situations? What kinds of lessons did you take?", "What kinds of changes have you experienced in your life from what

you have suffered?”, “Did you have any changes in your behavior after participating in the war?”, “Were there any opportunities in your life after the war? What do you think about this?”, and “What has changed in your life since your return?”.

Data collection continued until saturation, when a new category did not appear and the existing categories were enriched. Finally, 11 nurses were interviewed. Data were analyzed using qualitative content analysis by conventional method and the Graneheim and Lundman model<sup>12</sup>. The analysis involved the following steps: (a) typing the interviews immediately after they were done, (b) reading the entire text to gain a comprehensive understanding of its content, (c) identifying the units of meaning and assigning initial codes, and (d) categorizing the initial codes into more comprehensive categories. In this approach, code classification was directly extracted from the interviews, extracting categories regardless of predetermined data categories and transcribing and typing the text verbatim in Microsoft Word after each interview. The initial codes were then extracted after multiple rounds of listening to the transcript of the recorded interviews. Then, the subcategories and categories were formed based on the similarities of the extracted codes. The researcher primarily analyzed the codes, after which the study team reviewed and re-categorized the list of categories and subcategories. Besides, three members of the academic staff thoroughly reviewed the categories and subcategories to increase the validity and reliability of the analysis. The final version of the results was then presented. MAXQDA10 software was used for data analysis. The validity of the study was determined utilizing the validity criteria of Lincoln and Guba qualitative research, including acceptability, trustworthiness, confirmability, and transferability<sup>13</sup>. The researcher's interest in the research topic, voluntary participation in the axis of resistance, and long-term engagement with the research topic determined the research validity. Transferability was ensured by thoroughly describing the problem, the characteristics of the participants, the data collection and analysis method, and bringing examples of the participants' quotes. Acceptability or validity was achieved through the researcher's continuous interaction with the data during the two academic semesters. The final results were reflected to the participants, and the consistency of the results with their opinions was checked. Ethical

permission and approval to conduct this study were obtained from the Faculty of Nursing.

## Results

The participants were all male nurses aged 22 to 45, providing voluntary care to wounded people in the Axis of Resistance. Content analysis revealed 612 primary codes, 22 subcategories, and six main categories. These main categories included “divine growth”, “empowering interpersonal relationships”, “Learning about other cultures”, “Finding new learning opportunities”, “increased resilience”, and “changes in attitude”.

Divine growth included the “closer to God, the joy of worship, finding peace in prayer, and divine sense of accomplishment” subcategories. Empowering interpersonal relationships included “intimacy of friendships, fraternal bond, and a sense of nostalgia”. Learning about other cultures included the “understanding the need for another language, interaction with different cultures, and culture of resistance” subcategories. Finding new learning opportunities included “encouragement to learn, learning skills outside of the profession, expansion of nursing knowledge, and familiarity with other languages”. Increased resilience included subcategories such as “patience and resistance, reducing the impact of encountering war injuries, hard work tolerance, and increased compatibility with wartime conditions”. The change in focus included “serving as a priority, committing to work in the Axis of Resistance, difficult decisions, and discovering truths beyond intrinsic existence”.

### 1. Divine Growth

In war zones, nurses in the Axis of Resistance experienced spiritual growth in various dimensions while facing war accidents. Participants described moments when they felt closer to God and the joy of worship, finding peace in prayer and a divine sense of accomplishment (Table. 1).

Table 1: Divine Growth.

Main Category	Subcategories	Semantic unit
<b>Divine Growth</b>	Closer to God	Participant 2: <i>On the battlefield, especially during military operations, we felt closer to God and saw God's presence in our moments.</i>
	The joy of worship	Participant 6: <i>The prayers and supplications there felt good and were enjoyable. The conditions there made us feel that we were in the presence of God and that he looked at us more. When we came back, we tried to maintain this feeling in ourselves.</i>
	Finding peace in prayer	Participant 3: <i>It was admirable to see the wounded who relieved themselves by trusting in God and praying despite the severe pain and injuries.</i>
	Divine sense of accomplishment	Participant 1: <i>We were envious of the wounded and the martyrs since they reached such a high level, but we lagged behind them. We wanted God to help us reach us to the caravan of martyrs. Our presence on the battlefield was a success given to us by God and his saints.</i>

## 2. Empowering the Interpersonal Relationships

The participants experienced changes in their interpersonal relationships in the war zones of the resistance. Changes in interpersonal relationships, the creation of new and deep friendships, and a sense of

brotherhood, nostalgia, and intimacy among the treatment team during the difficult days of caring for the injured were among the participants' statements. They also experienced more homesickness for their loved ones when they were at war (Table 2).

Table 2: Empowering the Interpersonal Relationships.

Main Category	Sub Categories	Semantic unit
<b>Empowering the Interpersonal Relationships</b>	Intimacy of friendship	Participant 11: <i>I am introverted and don't have many friends, but I found many friends on the battlefield with whom I still have a relationship and some form of deep friendship..</i>
	Fraternal bond	Participant 9: <i>In our work environment, the relationship between colleagues, and especially the relationship between nurses, doctors, and other members of the treatment team, is more work-oriented and organizational. However, the relationship between the members of the treatment team on the battlefield was basically fraternal and friendly, and teamwork was really done more and better there.</i>
	A sense of nostalgia	Participant 7: <i>During my stay on the battlefield, which lasted for one or two months, I felt more homesick for my family. I used to travel a lot, but this feeling of homesickness and homelessness was more evident there.</i>

### 3. Learning about other cultures

The participants reported that they were in contact with other cultures and languages in the war zones of the resistance. Communicating with a new language or different cultures and experiencing a culture of resilience provided new opportunities for their personal and professional excellence (Table 3).

### 4. Finding New Learning Opportunities

The participants stated that the resistance war zones provided them with many educational opportunities. Despite the destructive physical and psychological effects of the war, there were educational opportunities that nurses had not experienced before. Membership in the axis of resistance motivated nurses to seek more knowledge and feel the need for continuous learning (Table 4).

Table 3: Learning about other cultures.

Main Category	Subcategories	Semantic unit
<b>Learning about other cultures</b>	Understanding the need for another language	Participant 5: <i>I did not know Arabic. When I went to the battlefield, I learned many things and could easily communicate with the native people after a few years. Of course, when I returned home, I tried to use the opportunity to learn Arabic more.</i>
	Interaction with different cultures	Participant 4: <i>Encountering the new culture and communicating with the people there changed our view and vision towards people. The different groups in the Axis of Resistance each had their own culture, but they all strove for a common goal of fraternal gathering there.</i>
	Culture of Resilience	Participant 8: <i>In the Axis of Resistance, there was a dominant culture of resistance. Here, everyone is trying to progress and improve themselves, while there, the goal was only collective success and the victory of right against wrong despite all the difficulties and problems. This was something that could not be learned anywhere else.</i>

Table 4: Finding New Learning Opportunities.

Main Category	Sub Categories	Semantic unit
<b>Finding new learning opportunities</b>	Encouragement to learn	Participant 6: <i>This presence on the battlefield made me try to continue my education and complete my master's degree.</i>
	Learning Skills Outside of the profession	Participant 10: <i>I learned a lot on the battlefield, both in my field of work and other fields, as everyone had to do several things simultaneously due to the special conditions prevailing there.</i>
	Expansion of nursing knowledge	Participant 5: <i>Working in different positions made me learn many things. We went wherever necessary, including the operating room, the emergency room, the clinic, and the support, learning many things that we might never have learned under normal conditions and working in the hospital without those experienced colleagues.</i>
	Familiarity with other languages	Participant 9: <i>Learning a new language outside the battlefield enabled me to communicate with different</i>



		<i>people in different working and non-working situations and on different trips.</i>
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### 5. Increasing resilience

People and nurses always face many problems in war-torn areas. Participants mentioned lack of facilities and staff, severe traumas, loss of friends and comrades, and lack of security as factors evoking increased resilience, patience, and resistance (Table 5).

### 6. Change in Attitude

Exposure to the Axis of Resistance war zones resulted in a shift in the priorities of the participants included in the study. For participants, change in priorities to achieve bigger goals, ignoring problems and hardships, commitment to being in the Axis of Resistance, and passing the previous life priorities were all regarded as growth (Table 6).

Table 5: Increasing resilience.

Main Category	Sub Categories	Semantic unit
<b>Increasing resilience</b>	Patience and resistance	Participant 7: <i>Working in the harsh conditions of war zones increases patience and tolerance. You must be able to cope with harsh conditions and work with minimum facilities.</i>
	Reducing the Impact of Encountering War Injuries	Participant 2: <i>In the beginning, it was difficult for me to face the traumas of war. It made me feel bad to see young people suffering severe injuries and bleeding profusely or having their limbs amputated. I didn't sleep or eat for a few days but gradually got used to it.</i>
	Hard work tolerance	Participant 6: <i>We were working there with minimal facilities, support, and treatment. It was easy for us to endure all these hardships because of our goal.</i>
	Increase in compatibility with wartime conditions	Participant 8: <i>Lack of security, distance from family, work problems, and lack of personnel and facilities pressured everyone; however, our colleagues tried to do their best with all those problems and provide the highest quality of service to the wounded.</i>

Table 6: Change in Attitude.

Main Category	Sub Categories	Semantic unit
<b>Change in Attitude</b>	Serving as a priority	Participant 1: <i>During my service in the battlefield, I had many family problems, as my wife was pregnant and was about to give birth; however, being there at this time was a priority for me over everything else.</i>
	Commitment to work in the Axis of Resistance	Participant 6: <i>My father had a heart problem, and the doctor told him to be hospitalized, when I was on a mission. If I had requested, it would have been agreed to return, but the work would have stopped in that case.</i>
	Difficult decisions	Participant 9: <i>I left all my work, education, and income here and went. I had a lot of trouble, but I think it was the right decision to go at that time because they needed medical staff in the area.</i>
	Discovering truths beyond intrinsic existence	Participant 3: <i>When you are here, you only think about yourself and your family, but when you are in the resistance area, many new doors open before your eyes, highlighting that you have to work for more important</i>

	<i>factors. This experience does not come cheaply, but it is worth all the hardships you go through.</i>
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## Discussion

Nursing in war zones is a unique situation with exceptional experiences. This study examined PTG among nurses deployed to resistance war zones, revealing that nurses experienced different aspects of PTG.

Dibal et al. studied the soldiers deployed to Iraq and Afghanistan and observed different levels of PTG, reporting that about 30% of men and 34% of women experienced high degrees of PTG<sup>5</sup>. Shakespeare-Finch et al. categorized PTG experiences into various dimensions, including faith in a higher power, appreciation of life, shifting priorities, religious and spiritual transformation, personal resilience, and increased empathy towards others<sup>14</sup>. In the research conducted by Samsir et al., the experiences of PTG among Syrian refugees were categorized into five distinct domains, encompassing various learned pain experiences, such as developing strength, recognizing the significance of one's homeland and freedom, and cultivating patience and responsibility. As the authors highlighted, these categories also involved fostering relationships with others, including deepening commitment, increasing resilience, and nurturing compassion. In addition to the above, new possibilities were offered, such as education, language acquisition, living in a more liberated environment, experiencing safety and peace, and encountering diverse individuals and emerging trends. Furthermore, the resulting spiritual transformation led to a closer connection with God, strengthened faith, and a more profound religious experience. Lastly, a shift in priorities was prompted, emphasizing the importance of nation-building, education and training, language acquisition, peace and security, and spirituality<sup>15</sup>. These findings align with the current study in certain aspects, such as divine growth, expansion in relations, educational opportunities, and increasing resilience, suggesting that war can affect individuals involved through certain ways.

Research conducted by Shamia et al. reported PTG and positive changes in nurses working in the war zones of Gaza. These changes encompassed enhanced interpersonal relationships, a heightened sense of

newfound abilities, increased personal empowerment, heightened spirituality, and a deeper comprehension of life<sup>4</sup>. In the study of Mary Ellen Doherty et al. on nurses sent to war zones in Afghanistan and Iraq, nurses experienced PTG in all dimensions of the PTG scale<sup>16</sup>, indicating consistent results with the findings of the present study. Feeling a sense of closeness to God, experiencing spiritual growth, and having a desire to pray and supplicate to God were among the aspects of post-traumatic growth frequently observed in the present study, potentially attributed to the cultural and religious factors that influenced the nurses within the Axis of Resistance.

In the study conducted by Firouzkohi et al. on nurses' experiences of triage in the imposed war between Iran and Iraq, nurses admitted that serving in war zones led to the development of their skills in the triage of war wounded and other clinical skills. The nurses pointed out that they had to learn and use skills beyond the nursing duties to save the lives of the injured due to the lack of sufficient staff<sup>15</sup>. In Norman's study on the nurses deployed during the Vietnam War, it was found that the nurses' experiences in Vietnam enhanced their ability to make informed professional decisions regarding the care of the wounded and sick. Additionally, the study revealed that the nurses developed their technical and management skills. Working in a war setting was found to enhance the proficiency of nurses in carrying out various nursing interventions<sup>16</sup>. In the research of Rahim Aghaei et al. on the nurses present in the Iran-Iraq war, care in the war environment was perceived as an informal academy. The war was an opportunity for nurses to receive training and professional development. Also, being in war conditions caused innovation and creativity among nurses<sup>18</sup>. The findings of the study by Firouzkohi et al. indicated the improvement in the managerial skills of nursing personnel during the war as one of the outcomes of the war. Managerial actions of nurses during the war, such as hospital preparation, equipment provision, and establishment of field emergencies and aid stations, as well as their care for countless wounded and chemically injured individuals during operations, resulted in

numerous successes that were among the war's effects. Nursing personnel worked and cared for wounded warriors in various medical centers, gaining experience and enhancing their abilities <sup>19</sup>. The unique circumstances present in war zones, coupled with limited resources and personnel, can result in similar experiences for nurses across various war zones, including Axis of Resistance. However, the unique cultural circumstances that shape the Axis of Resistance greatly influence individuals' experiences, which is worth consideration when evaluating this concept in other conflict regions.

In the study conducted by Doherty et al., nurses who were present in Iraq and Afghanistan reported experiencing PTG in war zones. The study recommended that nurses needed awareness of the potential for personal growth when providing care for war wounded <sup>11</sup>. Shamia et al. found that over 19% of nurses reported positive professional growth experiences after exposure to war zones and facing war traumas <sup>20</sup>. Bastin pointed out that nurses enjoyed autonomy and experienced professional growth due to the presence of numerous wounded individuals and limited resources in war zones, enabling them to enhance their existing skills and acquire new ones while increasing their self-confidence and professional knowledge<sup>21</sup>. According to Goodman et al., nurses have the opportunity to learn and experience different care functions only by being in war zones, which can be attributed to the need to manage a large number of trauma patients, giving them the chance to develop their skills<sup>22</sup>. These studies align with the findings of the current study concerning educational opportunities. Additionally, Dash and Dorothy argue that nurses, exposed to traumatic events, such as war and traumatic amputations, should maintain a positive attitude and be flexible to take care of themselves. They should also know their abilities, talents, and weaknesses <sup>23</sup>. The results of this study also showed that being in a war environment provided nurses with various learning opportunities that were not given attention or favored in normal conditions.

Focusing on the experiences of nurses in the Iraq war, Goodman et al. found that nurses faced challenges with language skills when communicating with wounded Iraqis, which hindered their ability to plan treatment and provide care. The nurses mentioned that the difficulty of communicating was one of their fears while being in

Iraq. Some nurses faced the problem of lack of trust in the translators. Another problem they faced was the significant cultural differences between the nurses and the injured natives. Nurses with experience in Afghanistan, Bosnia, and Honduras also raised these problems <sup>22</sup>. These findings are consistent with the exposure to a new culture and language in the current study, which was prominent among our participants considering the vastness of the Axis of Resistance and the presence of individuals from diverse cultures and languages.

In confirming the findings of the present study on the theme of spiritual growth, Rahim Aghaei et al. stated that the nurses did not consider the divine reward or receiving salaries and other benefits as important when providing care for the wounded in the war. Nurses considered their work spiritual and sought to get closer to God. They also stated that they were not afraid of being wounded, captured, or killed because they considered it to be God's will. The majority of nurses taking part in this study regarded care for the injured as a sacred duty and willingly volunteered for service during the war <sup>5</sup>. In Brenda Elliott's study, the participants stated that being in war zones provided an opportunity for soldiers to fulfill their sense of patriotism and find salvation. They had an indescribable feeling that their actions could save lives and protect people from the threat of death. Being in these areas has made them have bigger and different goals in life than before. Service in war zones in a different country and caring for soldiers with severe injuries gave nurses a new perspective and understanding of life <sup>24</sup>. Due to the similarity of the adaptive mechanisms that different people employ when facing trauma, many common aspects can be observed in various studies. However, the aspects of post-traumatic growth can vary depending on the circumstances and the cultural context that influences them. Conducting more quantitative and qualitative studies using standard scales will help to gain a deeper understanding of various aspects of post-traumatic growth in nurses.

### Study Limitations

Axis of Resistance experiences were reported retrospectively and may have been influenced by adaptation, coping mechanisms, and recall bias. Since this study was the first exclusively focusing on PTG in Iranian nurses deployed to war, it is not possible to make



any comparisons to previous research.

## Conclusion

The study showed that the participants experienced different dimensions of PTG after they had gone to the war zones of resistance. Attention to the different dimensions of PTG in nurses deployed to war zones and the strengthening of these dimensions may have a significant impact on the improvement of their performance and the prevention of psychological risks and adverse effects caused by service in war zones. Psychological preparation of nurses before deployment to war zones in the face of war conditions should be effective in enabling them to take advantage of these harsh conditions for their growth and advancement. This study was an initial endeavor to capture this phenomenon among Iranian nurses and would help nurses and managers reduce the negative aspects of war deployment.

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## Conflict of Interest Disclosures

The authors declare no conflict of interest in the present study.

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None.

## Authors' Contributions

All authors equally contributed in this study.

## Ethical Statement

The present study considered all ethical considerations, including trust and honesty. This study was conducted based on the findings of a doctoral dissertation in nursing approved by Baqiyatullah University of Medical Sciences. The study adhered to the ethics code IR.MBSU.REC.13990442.

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