ORIGINAL ARTICLE

Assessment of Post-traumatic Growth using Post-traumatic Growth Inventory and the Impact of Clinical Pharmacists on Post-Traumatic Growth Enhancement

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Abstract

Aim: This study aimed to evaluate the impact of trauma and assess levels of post-traumatic growth (PTG) among individuals who had experienced traumatic events. Additionally, it sought to explore the effectiveness of clinical pharmacist–led counselling in enhancing PTG levels in individuals with lower initial PTG scores. **Materials and Methods:** A total of 130 participants, aged between 16 to 80 years, who had experienced trauma at some point in their lives, were included in this study. A mixed-method approach was employed, incorporating both qualitative interviews and quantitative assessments. Two standardized tools were used: the Post-Traumatic Growth Inventory (PTGI) and the Impact of Event Scale-Revised (IES-R). Participants underwent two counselling sessions led by clinical pharmacists. Pre- and post-counselling PTG levels were compared. Statistical analysis was conducted using a two-way ANOVA, with a P-value < 0.05 considered statistically significant. **Results and Discussion:** Out of the 130 participants, 56% (73 individuals) exhibited very high levels of post-traumatic growth (PTG), while 44% (57 individuals) showed moderate PTG prior to counselling. After twosessions of clinical pharmacist-led counselling, a notable improvement was observed in PTG levels, with several participants shifting from lower to higher PTG categories. Statistical analysis using two-way ANOVA revealed significant improvements in specific domains of PTG: personal strength (P = 0.03), new possibilities (P = 0.005), appreciation for life (P = 0.04), and total PTG score (P = 0.03). However, no statistically significant changes were found in the areas of improved relationships (P = 0.127) and spiritual growth (P = 0.5). These results suggest that counselling interventions by clinical pharmacists have a meaningful impact on enhancing psychological recovery and fostering growth after trauma, particularly in areas related to personal resilience, future opportunities, and life appreciation. **Conclusion:** The study demonstrates that clinical pharmacists play a significant role in supporting trauma-affected individuals through structured counselling, which can enhance various aspects of post-traumatic growth. Targeted pharmacist interventions can lead to meaningful psychological improvements, especially in personal strength, new life opportunities, and overall PTG. .

Key words: Growth, impact of event scale-revised, impact, post-traumatic growth inventory, post-traumatic growth, trauma

INTRODUCTION

Trauma results from an event, series of events, or set of circumstances that is experienced by an individual as physically or emotionally harmful or threatening and that has lasting adverse effects on the individual's functioning and physical, social, emotional, or spiritual well-being.[1] The World Mental Health Surveys of adults were carried out among nearly

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70,000 participants from 24 countries, ranging in economic status from low to high.[2] According to this study's data, 70.4% individuals at some time in their life had experienced at least one type of traumatic event.

Impact of trauma

How an event affects an individual depends on many factors, including characteristics of the individual, the type and characteristics of the event, the developmental process, the meaning of the trauma, and sociocultural factors.[3] The aftermath of the traumatic event may either lead to distress or growth, i.e., PTSD or PTG, based on the individual's perception.[4]

Reasons for trauma

Traumatic events can be isolated or repeated, ongoing events. A person can also experience trauma after witnessing something traumatic happening to someone else.[5] Life-threatening illness/chronic illness, loved one suffering from illness, relationship issues, sudden death of loved ones, road accidents, cancer, physical/emotional abuse, family issues, abortion, burns, sexual abuse, alcohol/drug addiction, divorce, and other reasons, such as financial issues, surgeries, have all been reported as triggers for trauma.[6]

Post-traumatic growth (PTG)

It is defined as a "positive psychological change experienced because of the struggle with trauma or highly challenging situations."[7] The aftermath of trauma does not always show a negative impact. It has been noted that some individuals who overcome severely traumatic events experience what is termed as PTG.[4,8] The growth, post-trauma, can be seen in many aspects such as an increase in personal strength, new possibilities, improved relationships, increased spirituality, and an increase in appreciation for life.

METHODOLOGY

Methods and materials

This study was conducted in Maharaja Institute of Medical Sciences, Nellimarla, Vizianagaram, for an 8-month duration from July 2024 to February 2025. A prospective, qualitative approach was adopted for this study. A total of 130 individuals who have undergone traumatic experiences were selected by a random sampling technique based on the inclusion and exclusion criteria. The researchers acquired formal permission and informed consent from the study participants. The study purpose was explained to all the individuals who participated in this study and their attendants. The demographic variables were gathered through a structured questionnaire. Trauma and PTG were assessed using closed-ended questionnaires, Impact of Event Scale-Revised (IES-R), and PTG Inventory (PTGI). After assessing the trauma and PTG, individuals with low PTG scores were identified and counseled through two scheduled sessions. Their scores were noted after each session. The data were analyzed by means of descriptive and inferential statistics such as frequency, percentage, mean, standard deviation, and analysis of variance test.

Tools used in this study

The tools that are used in the study to identify the impact of trauma and PTG are IES-R[9] and PTGI,[8] respectively.

IES-R

The IES-R is a self-report questionnaire measuring distress after a traumatic event, focusing on intrusion, avoidance, and hyperarousal. The maximum mean score is 12, with lower scores indicating less distress. A score of 33 or above (out of 88) suggests likely trauma.

PTGI

The PTGI assesses post-traumatic growth through 21 statements rated by respondents, covering five factors: personal strength, new possibilities, improved relationships, spiritual growth, and appreciation for life. Scores indicate growth levels: 0–21 (very low), 22–63 (moderate), and 64–105 (high).

RESULTS

From the observations, the results exhibited that most of the individuals belonged to the age group of 16–25. 50% (65) of individuals are males, and the remaining 50% (65) are females. 60% (78) from urban areas, and the remaining 40% (52) are from rural areas. 65% (84) are literate and 35% (46) are illiterate. 19% (25) are alcoholic and 81% (105) are non-alcoholic. 90% (117) are not smokers, and 10% (13) are smokers. 41% (53) are employed, and 59% (77) are unemployed. 59% (77) are married, 39% (51) are unmarried, and the remaining 2% (2) are divorced. 55% (71) belonged below the poverty line, and 45% (59) belonged above the poverty line.

As depicted in Table 1 and Figure 1, it is observed that 28% (37) of individuals experienced trauma due to suffering from illness/chronic illness, 15% (20) due to loved ones suffering from illness, 11% (14) due to relationship issues, 8% (11) each due to road accidents and losing of family members, 6% (8) due to cancer, 4% (5) due to physical/emotional abuse, 4% (5) due to family issues, 2% (2) each due to abortion and burns, 1% (1) each due to rehabilitation from alcohol or drug addiction, sexual abuse and divorce. The remaining 9% (12) of individuals experienced trauma due to other reasons, such as financial issues, surgeries,

etc. From IES-R scores, we have observed that 87% of individuals are severely impacted by traumatic events in their lives.

As illustrated in Table 2 and Figure 2, the distribution of age in 130 study individuals, where the 16–25 age group individuals suffered more (37%) from trauma, and the 76–85 age group depicted as the least affected (1%) from trauma in our study.

As presented in Table 3 and Figure 3, the distribution of the location of 130 study individuals, in which 60% are from urban and the remaining 40% are from rural regions, is shown in our study.

Table 1: Reason for trauma of 130 study individuals

Reason for trauma	Percentage	No. of individuals
Rehabilitation due to alcohol/ drug addiction	1	1
Abortion	2	2
RTA	8	11
Lost family members	8	11
Illness/Chronic illness	28	37
Sexual abuse	1	1
Physical/Emotional abuse	4	5
Divorce	1	1
Family issues	4	5
Relationship issues	11	14
Cancer	6	8
Family member suffering from illness	15	20
Burns	2	2
Others	9	12
Total	100	130

Table 2: Age-wise distribution of study individuals

Age	Percentage	Frequency
16–25	37	48
26–35	19	25
36–45	12	16
46–55	16	21
56–65	9	12
66–75	5	7
76–85	1	1
Total	100	130

Table 3: Location distribution of study individuals

Location	Percentage	Frequency
Rural	40	52
Urban	60	78
Total	100	130

As demonstrated in Table 4 and Figure 4, the total IES-R score distribution of 130 study individuals includes 87% of severe impact, 9% moderate, and 2% of each mild and normal impact in our study.

As represented in Table 5 and Figure 5, the total PTGI score distribution of 130 study individuals, which classifies 56% of very high growth, 44% moderate, and 0% of very low growth in our study.

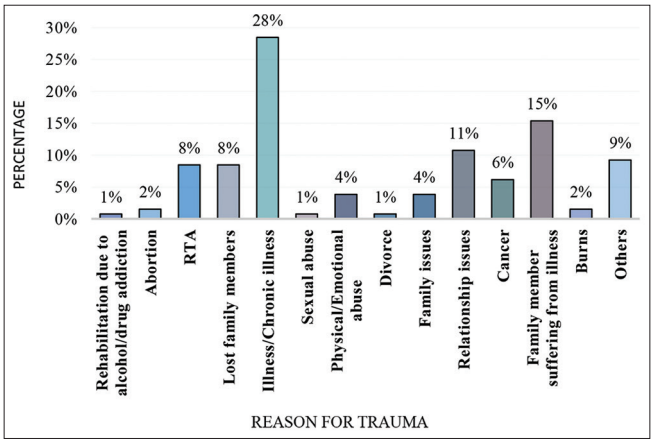

Figure 1: The distribution of reasons for trauma in 130 study individuals

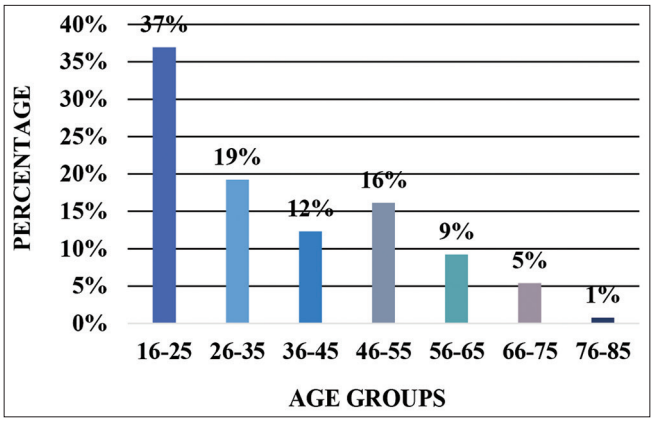

Figure 2: The distribution of age in 130 study individuals

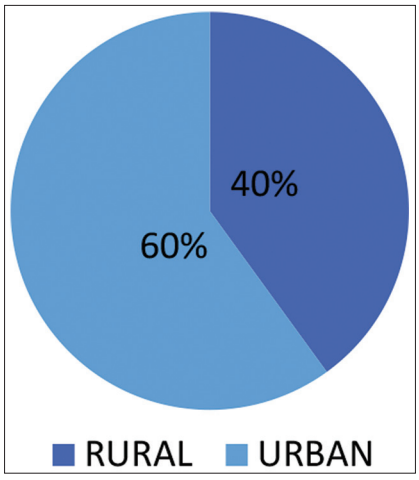

Figure 3: The distribution of location in 130 study individuals

Personal strength (PS)

As shown in Figure 6 and Table 6,

- Before counseling: "Moderate" or "High" scores, with none in the "Low" category.
- After 1st counseling: A significant increase in "High" scores (from 38 to 47), but "Very High" remained low (7).
- After 2nd counseling: "Very High" scores increased notably (from 7 to 26), while "High" slightly dropped (35).
- This suggests that counseling effectively shifted participants toward stronger personal growth, particularly in the "Very High" category.
- $P \leq 0.05$ (0.03) after the 2nd counseling indicates significant improvement.

New possibilities (NP)

As highlighted in Figure 7 and Table 7,

- Before counseling: Majority in moderate (34) and high (26) categories. Very few in low (1) and very high (0) categories.
- After 1st counseling: Moderate scores decreased (11) as individuals moved to higher levels. High scores significantly increased (46), and (4) very high growth.
- After the 2nd counseling: High scores further increased (49), a very high category emerged (10), indicating a

Table 4: Total IES-R score distribution of study individuals

Score range	Percentage	Frequency
0–3	2	2
3–6	26	34
6–9	62	80
9–12	11	14
Total	100	130

Table 5: Total PTGI score distribution of study individuals

Score range	Growth level	Percentage	Frequency
0–21	Very low growth	0	0
22–63	Moderate growth	44	57
64–105	Very high growth	56	73
Total		100	130

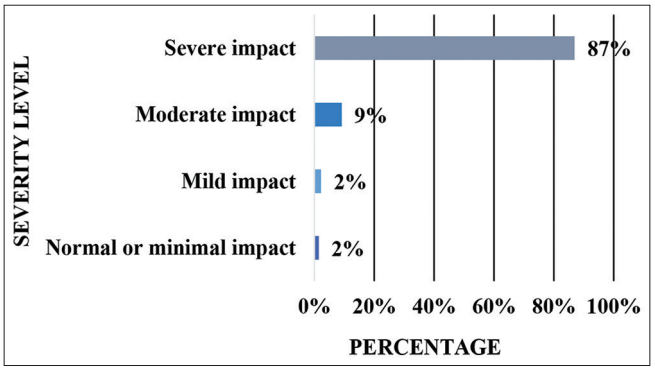

Figure 4: The distribution of the total impact of event scale-revised in 130 study individuals

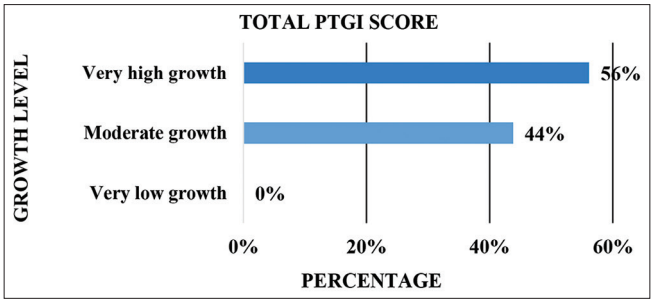

Figure 5: The distribution of total PTGI in 130 study individuals

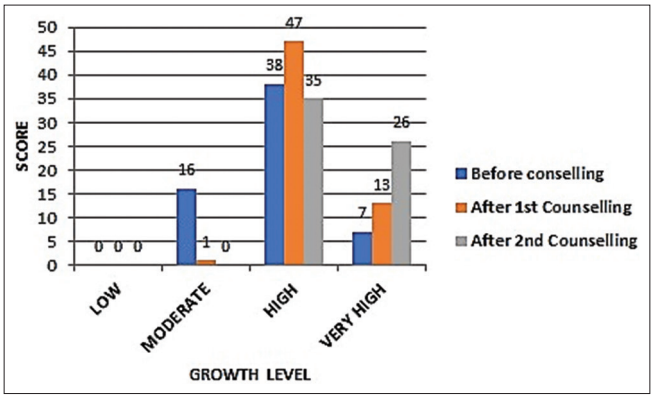

Figure 6: Frequency distribution of personal strength scores across three stages: Before counseling, after 1st and 2nd counseling

Table 6: Results of personal strength before, after the 1st and 2nd counseling

S. No.	PS score	Severity	Before counseling		After 1st counseling		*P*-value	After 2nd counseling		*P*-value
			No of cases	Percentage	No of cases	Percentage		No of cases	Percentage	
1	0–5	Low	0	0	0	0	**0.125***	0	0	**0.03***
2	6–10	Moderate	16	26.2	1	1.6		0	0	
3	11–15	High	38	62.2	47	77.04		35	57.37	
4	16–20	Very high	7	11.4	13	21.31		26	42.62	

P – value ≤ 0.05: Significant, > 0.05: Non-Significant.

stronger perception of new possibilities.
- Counseling effectively shifted individuals from moderate to high and eventually to very high growth levels.
- $P \leq 0.05$ (0.005) after the 2nd counseling indicates significant improvement.

Improved relationships (IR)

As depicted in Figure 8 and Table 8,
- Before counseling: Low (1) and moderate (26) categories, with no participants in the very high category.
- After 1st counseling: Growth shifted upward, with moderate scores decreasing (7), high scores increasing (34), and very high scores still at 0.
- After 2nd counseling: Growth further improved, with High scores rising to 54, and a new presence in the very high category (2), while low and moderate categories reached (0).
- This suggests a clear positive trend in relationship improvements due to counseling.
- $P > 0.05$ (0.127) after the 2nd counseling indicates no significant improvement.

Spiritual growth (SG)

As depicted in Figure 9 and Table 9,
- Before counseling: Majority in high growth (28), further to moderate (15) and very high growth (12), then (6) low growth level.
- After 1st counseling: Low has the least (1), compared to moderate (13) and very high (15), majority in high growth (32).
- After 2nd counseling: High growth (35) shows more improvement compared to very high (16) and moderate (10), low growth records (0).
- Counseling led to a shift from low/moderate growth to high/very high growth.
- $P > 0.05$ (0.5) after the 2nd counseling indicates no significant improvement.

Appreciation for life (AFL)

As indicated in Figure 10 and Table 10,
- Before counseling: No participants in low (0), least (1) had "Very High" appreciation, with most in the "High"

Table 7: Results of new possibilities before, after the 1st, and 2nd counseling

S. No.	NP score	Severity	Before counseling		After 1st counseling		*P*-value	After 2nd counseling		*P*-value
			No of cases	Percentage	No of cases	Percentage		No of cases	Percentage	
1	0–6	Low	1	1.63	0	0	**0.53***	0	0	**0.005***
2	7–13	Moderate	34	55.73	11	18.0		2	3.2	
3	14–19	High	26	42.62	46	75.4		49	80.3	
4	20–25	Very high	0	0	4	6.55		10	16.39	

P – Value ≤ 0.05: Significant, > 0.05: Non-Significant.

Table 8: Result of Improved relationship before, after 1st and 2nd counseling

S. No.	IR score	Severity	Before counseling		After 1st counseling		*P*-value	After 2nd counseling		*P*-value
			No of cases	Percentage	No of cases	Percentage		No of cases	Percentage	
1	0–9	Low	1	1.63	0	0	1	0	0	0.127
2	10–19	Moderate	26	42.62	7	11.4		0	0	
3	20–29	High	34	55.73	54	88.5		59	96.72	
4	30–35	Very high	0	0	0	0		2	3.2	

Table 9: Results of spiritual growth before and after the 1st and 2nd counseling

S. No.	SG score	Severity	Before counseling		After 1st counseling		*P*-value	After 2nd counseling		*P*-value
			No of cases	Percentage	No of cases	Percentage		No of cases	Percentage	
1	0–2	Low	6	9.83	1	1.63	**1**	0	0	0.5
2	3–5	Moderate	15	24.59	13	21.31		10	16.3	
3	6–8	High	28	45.90	32	52.45		35	57.37	
4	9–10	Very high	12	19.67	15	24.5		16	26.2	

P – Value ≤ 0.05: Significant, > 0.05: Non-Significant.

(40) and "Moderate" (20) categories.
- After 1st counseling: "Moderate" appreciation decreased (20), and "Very High" appreciation emerged (42).
- After 2nd counseling: "Moderate" appreciation records the least (1), while "High" appreciation increased significantly (34), further (26), very high growth.
- This indicates that counseling effectively enhanced participants' appreciation for life, gradually moving them toward higher growth levels.
- $P \leq 0.05$ (0.04) after the 2nd counseling indicates significant improvement.

Total score

As shown in Figure 11 and Table 11,
- Before counseling: Most participants (39) had moderate growth (22–63), while 22 had very high growth (64–105). No participants were in the very low growth range (0–21).
- After 1st counseling: The number of participants in moderate growth decreased (14), while those in very high growth increased to 47, indicating improvement.
- After 2nd counseling: Moderate growth further decreased (2), and very high growth increased significantly to (59), suggesting a strong positive effect on PTG.
- Overall, the data show a shift from moderate to very high PTG, with no cases of very low growth.
- $P \leq 0.05$ (0.03) after the 2nd counseling indicates significant improvement.

Scope of the study

The present research focused on the psychological impact of trauma, cognitive and emotional changes, social relationships, resilience, and coping strategies. By identifying individuals with lower PTGI scores, the study investigates the effectiveness of clinical pharmacists-led counseling in enhancing growth outcomes. The scope contributes to understanding the

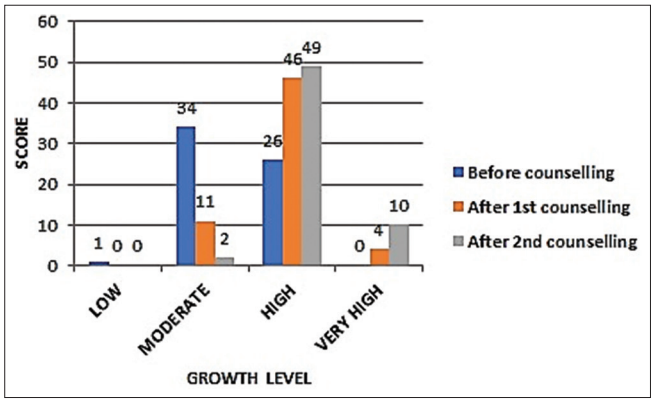

Figure 7: Frequency distribution of new possibilities scores across three stages: Before counseling, after 1st and 2nd counseling

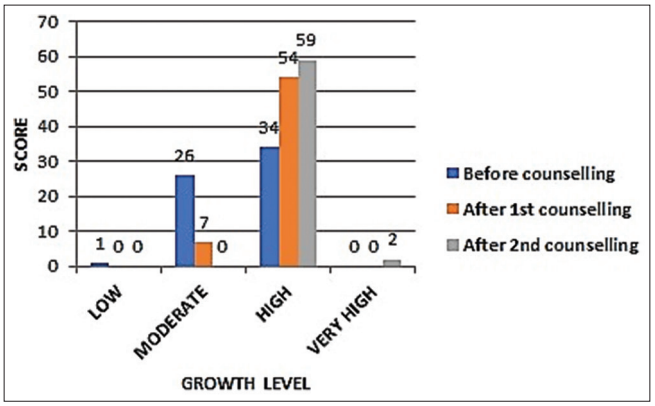

Figure 8: Frequency distribution of improved relationship scores across three stages: Before counseling, after 1st and 2nd counseling

Table 10: Results of appreciation for life before and after the 1st and 2nd counseling

S. No.	AFL score	Severity	Before counseling		After 1st counseling		*P*-value	After 2nd counseling		*P*-value
			No of cases	Percentage	No of cases	Percentage		No of cases	Percentage	
1	0–3	Low	0	0	0	0	**0.03***	0	0	0.04*
2	4–7	Moderate	20	32.78	8	13.11		1	1.6	
3	8–11	High	40	65.57	42	68.8		34	55.7	
4	12–15	Very high	1	1.63	11	18.03		26	42.6	

P – Value ≤ 0.05: Significant, > 0.05: Non-Significant.

Table 11: Result of total PTGI before and after 1st and 2nd counseling

S. No.	Total score	Severity	Before counseling		After 1st counseling		*P*-value	After 2nd counseling		*P*-value
			No of cases	Percentage	No of cases	Percentage		No of cases	Percentage	
1	0–21	Low	0	0	0	0	**0.02***	0	0	**0.03***
2	22–63	Moderate	39	63.93	14	22.9		2	3.27	
3	64–105	Very high	22	36.06	47	77.04		59	96.7	

P – Value ≤ 0.05: Significant, > 0.05: Non-Significant.

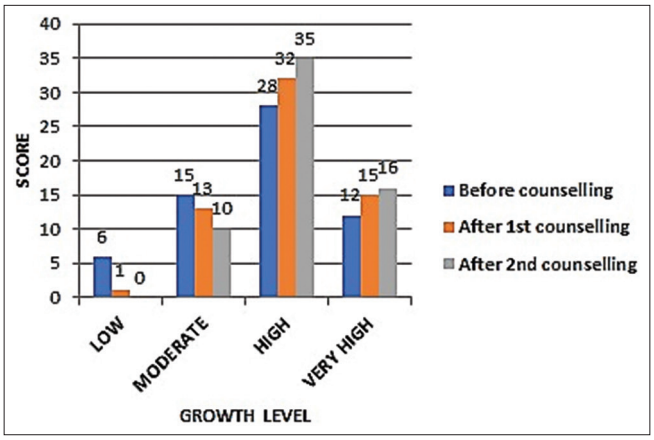

Figure 9: Frequency distribution of spiritual growth score across three stages: Before counseling, after 1st and 2nd counseling

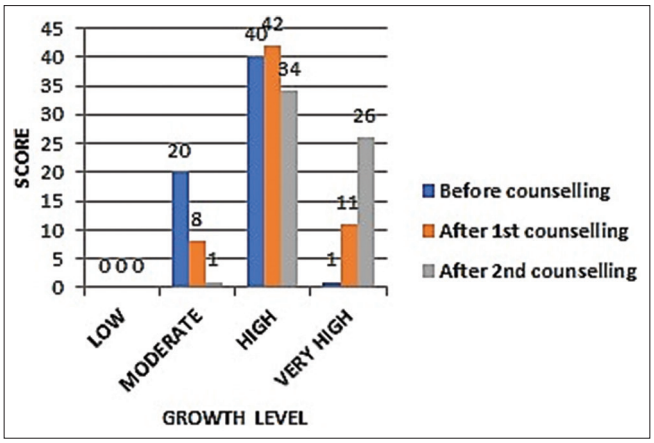

Figure 10: Frequency distribution of appreciation for life score across three stages: Before counseling, after 1st and 2nd counseling

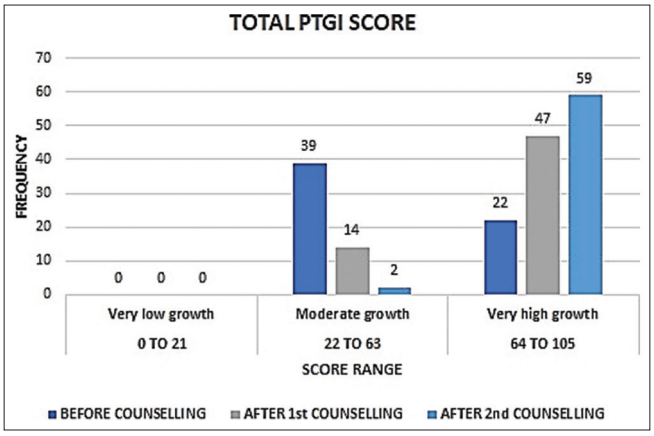

Figure 11: Frequency distribution of post-traumatic growth inventory score across three stages: Before counseling, after 1st and 2nd counseling

therapeutic potential of PTGI-guided assessment. It also highlights its relevance in clinical settings for early intervention, patient monitoring, and outcome measurement.

Moreover, the use of PTGI in this research provides a foundational framework for future studies to examine the longitudinal effects of trauma-focused counseling and develop tailored psychosocial interventions. It serves as a reproducible and scalable tool for researchers, mental health professionals, and clinical pharmacists aiming to promote recovery among trauma-affected populations.

Limitations of the study

1. The information provided by the individuals may be incomplete
2. The individual may not be comfortable with a particular question, so they may give false information
3. While collecting the data, human errors such as forgetting to ask a particular question or entering wrong information may occur.

DISCUSSION

- The outcomes indicate a positive shift in PTG scores, especially in areas such as personal strength, new possibilities, improved relationships, spiritual growth, and appreciation for life. Previous studies have initiated those psychological interventions, such as cognitive-behavioral therapy (CBT), acceptance and commitment therapy (ACT), and narrative therapy, which are provided to PTG by helping individuals to reframe their traumatic experiences.[4,7,10]
- The present study was oriented with these outcomes by showing the counseling sessions, which are facilitated by clinical pharmacists that significantly improved the PTG scores. There is a shift observed from moderate to very high PTG levels, which indicates growth in traumatic individuals. In the age-wise distribution of the study population, the age group between 16 and 25 years has the highest percentage of 37%. This indicates that the majority of the younger individuals are affected by the trauma than the other age groups.[11]
- The study population is distributed between the rural and urban areas. The location distribution of the study population table shows that the highest population is from urban areas, which was 60%. These data suggest that the study may have greater awareness in urban settings. Often, medicines (e.g., antidepressants) are used to treat trauma-related symptoms such as PTSD; these studies indicate that the single pharmacological treatment does not enhance the PTG directly.[12,13] The current study supports their interpretation by illustrating that counseling sessions are responsible for significant improvement in PTG scores rather than the medication alone, especially in areas such as personal strength and new possibilities.
- Prior research has identified variations in how different dimensions of PTG respond to interventions. For example, a meta-analysis by Prati and Pietrantoni

(2009)[14] displayed that the appreciation for life and personal strength was significantly higher than spiritual growth in structured interventions. However, the present study has illustrated that there was a significant improvement in all over five domains of PTG, suggesting that counseling sessions provided by clinical pharmacists can develop the complete growth effects.

- Studies tracking PTG over time suggest that growth does not occur immediately after trauma but unfolds over months or even years.[11,15] The current study, conducted over 8 months, observed a steady progression in PTG, particularly after the 2nd round of counseling. This aligns with previous findings that emphasize the need for sustained interventions rather than 1-time psychological support.
- The present study identifies that illness/chronic illness is the most significant reason for trauma, with the highest percentage of 28% by other reasons such as relationship issues, cancer, sexual abuse, abortion, physical and emotional abuse, family issues, road traffic accidents, and others.[16]
- The total IES-R scores table shows that 62% of individuals scored between 6 and 9. Out of 130 individuals, 87% of individuals experienced a high level of trauma or a severe impact on trauma.
- Studies by Levine *et al*. (2018) and Brooks *et al*. (2019) highlight that professional counseling fosters PTG by encouraging cognitive restructuring and emotional processing.[10,17] These researchers have emphasized the role of mental health professionals, such as psychologists and social workers, in prompting PTG.[18,19] However, the role of clinical pharmacists in PTG enhancement has received little attention. The present study expands this field by demonstrating that clinical pharmacists, through structured counseling, can effectively improve PTG outcomes, making a strong case for their inclusion in trauma care teams.
- Personal strength counseling distribution of the study population table shows that the *P*-value is significant, as the *P*-value for personal strength after the 2nd counseling is 0.03. Hence, there is a need for two counseling sessions to improve personal strength in post-traumatic individuals.
- The new possibilities counseling distribution of the study population table shows that after the 2nd counseling, high scores increased to 49, and very high scores increased to 10, which indicates a stronger perception of new possibilities. Two counseling sessions effectively shift individuals from moderate to high and very high growth levels. As the *P*-value after the 2nd counseling is 0.005, which indicates new possibilities were significant.
- The improved relationship counseling distribution of the study population table shows that the *P*-value is not significant, as the $P = 0.127$ after the 2nd counseling.
- The spiritual growth counseling distribution of the study population table shows that the *P*-value for spiritual growth is 0.5, which is not significant after the 2nd counseling. Hence, this indicates that most of the post-traumatic individuals are not showing any improvement in spiritual growth even after 2nd counseling.
- The data in the appreciation for life counseling distribution of the study population table shows a clear positive shift in appreciation for life after counseling. At the end of the 2nd counseling, very high appreciation had increased significantly. This indicates that the counseling effectively improved an individual's appreciation for life. For the appreciation of life, the $P = 0.04$ after the 2nd counseling, indicating significance.
- The overall data in the total PTGI counseling distribution of the study population table shows that there was a shift from moderate to very high PTG after the 2nd counseling session, which indicates a strong positive effect of counseling on PTG. The *P*-value for the total PTGI score is 0.03 after the 2nd counseling, which indicates significance.
- The present study effectively identified the factors influencing post-traumatic growth (PTG) and demonstrated the impact of clinical counseling interventions in enhancing trauma recovery. These findings pave the way for future research and inform clinical practices aimed at fostering resilience and promoting recovery across diverse populations.

CONCLUSION

The study emphasized the role of counseling by clinical pharmacists in improving the PTG in individuals who experienced trauma. The findings of the research highlighted the shift among the PTG dimensions, which include personal strength, improved relationships, new possibilities, spiritual growth, and appreciation for life. Pharmacists help patients to process their trauma and to find meaning in their experiences by engaging in therapeutic discussions that are oriented about providing counseling and support. This multifaceted approach by clinical pharmacists helps trauma survivor's move toward growth and improved well-being. It is apparent that there is a significant change from moderate to very high growth across these domains. These results accentuated the critical role of clinical pharmacists in enhancing psychological coping abilities in trauma patients by providing support and counseling. The current investigation study demonstrated that interventions made by clinical pharmacists had a crucial impact on improving the quality of life and the overall well-being of the individuals affected by trauma. Incorporating such interventions into the healthcare system by clinical pharmacists can result in maintaining positive psychological health and enhanced recovery in individuals.

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