An investigation using the Hopkins Symptom Checklist and Post Traumatic Growth Inventory conducted on refugees from Afghanistan, Pakistan, and the Rohingya in India

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Abstract

Keywords

Anxiety, Depression, Hopkins symptoms checklist, India, Post traumatic growth, Refugees

Background: The conducted research mainly focuses on the mental status of the refugee population in India along with PTSD and the post-traumatic growth, respectively. This study aims to evaluate anxiety and depression levels among different refugee groups by providing a comprehensive outline of the impact trauma experiences have on their mental well-being.

Objective: This research project will deliver information to refugee communities showing how the interaction between the community and trauma is experienced in a more global way and provide potential approaches to interventions and support services that are crafted to the needs and challenges of diverse refugee communities.

Methods: The study utilized the Hopkins Symptoms Checklist (HSCL-25) tool and Post-Traumatic Growth Inventory questionnaires for mental status assessment. These questionnaires collected Afghan, Pakistani, and Rohingya refugees' positive change and mental health issues in India. Study used Cronbach's α reliability assessment to measure the reliability of constructed latent factors, and used Pearson's correlation analysis to show the PTGI items and their respective latent factors.

Results: Study found refugees' anxiety and depression with respect to their socio-economic and demographic characteristics. The results indicate the groups' various post-traumatic growth levels, expanding our understanding of community mental health.

Conclusion: The research concluded that mental health is important for overall health, and the refugees' mental health issues need more attention. The study explains how cultural component and individual experience are used to build specific ideas to improve refugee mental health and post-traumatic growth.

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Introduction

Migrant and refugee populations can experience many challenges before and throughout the migration process as well as during their settlement in a new environment. The Global Action Plan (2019-23) proposed by the World Health Organization (WHO, 2019) put forward the health and well-being of refugees and migrants to leave no one behind. A critical way to ensure overall health is to prioritize mental health for overall health and well-being. Yet mental health concerns among refugees have received inadequate attention globally. Moreover, the stigma surrounding mental health issues often prevents refugees from seeking help or expressing their experiences.

Common psychological conditions, such as anxiety, depression, and post-traumatic stress disorder (PTSD), are more prevalent in refugees and migrants who have experienced adversities than in the general population (WHO, 2019). However, due to a lack of resources and the stigma associated with seeking mental health care, the majority of refugees, asylum seekers, the unaccompanied vulnerable like children and women, and other survivors of forced displacement will not obtain the necessary mental health care (Song and Teichholtz, 2019). Few studies have addressed the stigma and obstacles associated with talking about refugees' mental health worldwide. Because of cultural norms that prohibit silence or disclosure, fear that a diagnosis may affect their ability to find employment or accommodation, and the lack of treatment options, refugees and asylum seekers may be reluctant to seek mental healthcare (Shannon et al, 2015; Song & Jong, 2014; Morris et al., 2009).

The children of migrants and refugees are particularly vulnerable to factors that harm their mental health and overall well-being, such as low family integration, racism, discrimination, frequent school changes, or no education at all. Children who have experienced parental migration are more likely to experience lifetime behavioural issues, depression, anxiety, and problems with drugs and alcohol. A substantial body of research has linked the number and type of adverse life events experienced by refugees to the severity of their psychological distress (Derluyn et al. 2004; Felsman et al. 1990; Geltman et al. 2005; and Sourander, 1998). Distress (e.g., emotions of anxiety and melancholy, hopelessness, sleeping issues, fatigue, irritation, anger, and aches and pains) is a prevalent condition for migrants and refugees. This pattern is consistent across studies, underlining the impact of traumatic experiences on refugee mental health. Additionally, various factors such as parental status (Ajdukovic, 1993), older age (Falk, Hersen, and Van Hasselt, 1994), and gender (Smith et al., 2012) have been shown to influence mental health outcomes in host countries. However, most people's conditions improve over time. A study of Vietnamese refugees demonstrated post-traumatic growth among refugee groups. It shows that having higher exposure to mental health conditions, refugees have shown improvement in mental health (Steel et al., 2002).

Currently, India is providing shelter to Tibetan, Chinese Republic, Syrians, Sri Lankan, Bhutanese, Somali, Palestinian, Rohingya, Pakistani, and Afghani Refugees. In this study, we are going to take three among these refugee groups, Rohingya, non-Muslim Afghan, and non-Muslim Pakistan

refugees, they were specifically selected not only because of the general absence of analysis of their lived experiences in India compared with other refugee groups – such as Tibetans, Chins from Myanmar, Chakmas from Bangladesh, and Tamil from Sri Lanka but also because of their faith differences – Muslim, Sikh and Hindu this offers an important opportunity to take a comparative perspective on how faith impacts urban refugee experiences in a religiously majoritarian host environment.

The evaluation of posttraumatic stress disorder (PTDS) measures is critical for understanding the mental condition of the refugee population. However, consistency and accuracy across the different culturally defined refugee groups need to be tested, which could receive much attention. Consequently, mental health professionals operating in crises have less evidence to draw conclusions from the findings of common clinical assessment instruments regarding symptom intensity and prevalence rates. In this chapter, we examined measurement invariance in Hopkins Symptoms Checklist Questionnaire scores, which are the most popular PTSD tools among refugee groups. We undertook a comprehensive exploration of trauma experiences to assess anxiety and depression among refugee populations. Using the Post Traumatic Growth Inventory (PTGI) scale, we also explored post-traumatic growth in refugee groups. By deciphering trauma experiences and post-traumatic growth levels, we aim to illuminate coping strategies, adaptive mechanisms, and resilience within diverse refugee communities. The findings aspire to equip policymakers and practitioners with nuanced insights, facilitating the design of tailored interventions, and support services attuned to each group's distinctive needs and challenges.

Material and Methods

Selection of respondents

The interview is conducted with three refugee communities residing in India, Hindu Afghans in Delhi, Muslim Rohingya in Aligarh, Uttar Pradesh, and Hindu-Pakistani in Jodhpur, Rajasthan. Places like Jodhpur Rajasthan, Aligarh UP and Delhi were selected because of the high presence of these refugee communities.

Pakistani Hindu Refugee in India: Hindu Pakistanis: No doubt that the largest bilateral flow in the region took place in 1947 after the partition of India. A small number of Hindus still live in Pakistan, more than 0.1 million Pakistani Hindus have migrated to India since the 1970s (Akcapar, S. K.,2018).

Afghani Sikh Refugee in India: A large number of Afghan refugees have fled to India. India has been receiving Afghans since the Soviet invasion of 1979 and the fall of the Taliban regime in 2001. Over 60% of the 12,000 Afghan refugees registered in India are Hindu and Sikh who originally went to Afghanistan from Punjab. There are also those from Tajik, Uzbek, Hazara, and Pashtun ethnicity, belonging to Shia and Sunni sects of Islam, whereas a small minority of them converted to evangelical Christianity (Akcapar, S. K.,2018). The Afghan refugees in India are victims of geo-political and historical circumstances in Afghanistan where the big powers are playing their game. The recent American bombardment of Afghanistan and subsequent events have led to a tragic situation. There are hardly 10,000 Afghan refugees, in India (mostly Sikhs and Hindus) who have come here during the last two decades. (Bose, A.,2004).

Rohingya Muslim Refugees in India: Rohingyas are Muslims from the Arakan/Rakhine State in northern Myanmar. The conflict with Buddhists made them evacuate their country and find shelter in countries such as Bangladesh, Thailand, and Malaysia. Their numbers in India have reached almost 10,000. Most Rohingyas are stateless and come to India from Bangladesh, leaving their protracted situations. Presently, they are concentrated in Jammu, Hyderabad, Haryana, Uttar Pradesh and Delhi. (Akcapar, S. K.,2018).

However, New Delhi has not risen to the occasion in the evolving humanitarian tragedy. Far from being supportive or sensitive to the plight of the Rohingya, the government of India labelled them as illegal migrants who require deportation. India's Home Affairs Ministry has issued instructions to concerned states to identify illegal Rohingya and repatriate them to Myanmar. In addition, the government has filed a counter-petition before the Indian Supreme Court declaring the Rohingya to be both illegal migrants and a threat to national security (Sahoo, N.,2017). Having been disowned by their own country, the Rohingya found no takers in the neighbourhood. For instance, Bangladesh, while now providing temporary shelter to more than half a million of them, had strongly resisted their entry in previous decades. (Hinic, O., 2016).

Inclusion criteria

Purposive sampling is used to select the respondents. Inclusion and exclusion methods are applied while selecting the respondents based on year of migration, the study mostly considered only those people who migrated to India after 2012.

Allocation of sample

The study also conducted Household profiling of 40 Aghani, 134 Pakistani and 36 Rohingya in some of the selected camps from the selected cities. The same number of Respondents was also used for quantitative scaling using the Hopkins Symptom Checklist, and Post-traumatic growth inventory and 75 were selected for in-depth interviews (25 from each refugee group) using inclusion and exclusion criteria (Such as Year of Migration, education type of employment age etc.).

The study has also tried to achieve equal representation for female respondents. However, the representation of women was only 25 per cent due to hesitation and a strong veil system.

The interview schedule captured the vulnerabilities they faced in India in the refugee camps, post-traumatic stress Reactions Among refugees, the legal conditions of refugees in India, and relief work in refugee camps.

The quantitative method is applied for covering aspects of the objective on post-traumatic stress reactions among refugees and for household profiling using structured and close-ended interview schedules, to assist post-traumatic stress reaction, Hopkins Symptom Checklist-25 (HSCL-25)

Hopkins Symptom Checklist-25 Questionnaire

This tool was developed in the 1950s, the Hopkins Symptoms Checklist (HSCL) is a popular and extensively utilized screening tool. At Johns Hopkins University, Parloff, Kelman, and Frank created the initial concept. One of the HSCL's original developers, Professor Karl Rickels, together with his colleagues, showed how the 25-item version of the test may be applied in a family

practice or family planning service. Anxiety and depression symptoms are measured with the HSCL-25 symptom inventory. It has twenty-five items: Ten items in Part I and fifteen in Part II of the HSCL-25 measure symptoms of anxiety and depression, respectively. Each question has four response categories on the scale: "Not at all," "A little," "Quite a bit," and "Extremely," which range from 1 to 4. Two scores are computed: depression score is the average of the 15 depression items, and the overall score is the average of all 25 items. The total score is strongly correlated with severe emotional distress of an undefined diagnosis, as has been repeatedly demonstrated in several populations, and the depression score is correlated with major depression as defined by the Diagnostic and Statistical Manual of the American Psychiatric Association, IV Version (DSM-IV)

Post Traumatic Growth Inventory

The Posttraumatic Growth Inventory (PTGI) was developed by Tedeschi and Calhoun (1996) to measure the amount of self-improvement and post-trauma growth that individuals experience. A scale with 21 items based on the five-factor paradigm of Tedeschi, this assessment is among the most accurate and valid tools for assessing human development after a traumatic event. In addition, all the 21 items are assessed based on which of the five criteria they belong to. The post-traumatic growth level is indicated by a summing of the scores. The scale ranges from 0 to 5 where 0 implies- I did not experience this as a result of my crisis, 1 implies- I experienced this change to a very small degree as a result of my crisis, 2 implies – I experienced this change to a small degree as a result of my crisis, 3 implies – I experienced this change to a moderate degree as a result of my crisis, 4 implies – I experienced this change to a great degree as a result of my crisis, and 5 implies – I experienced this change to a very great degree as a result of my crisis. The advantage of this scale is that the way the outcomes are categorized based on the five components indicates which area of self-development we are strongest in and which one may need some work. A high overall score, for instance, suggests that the individual has had a good shift. However, a deeper examination of the scores for each part would offer a clearer picture of what has changed and what areas of the self might still use some work.

Statistical approach

For the Hopkins analysis, we used HSCL-25 scores to calculate the anxiety and depression among three refugee groups. Anxiety and depression scores are divided into three categories as per the Hopkins symptom checklist (0-1.54) not diagnosed, (155-1.74) probable case, and (≥ 1.75) in need of treatment. We then performed the frequency distribution and bivariate analysis for three categories in order, not diagnosed, probable case, and a case in need of treatment. Afterwards, the methodology for PTGI-21 involved comparing mean scores among the groups. Furthermore, we constructed the five-factor latent variable from 21 items of the Post-Traumatic Growth Inventory (PTGI) to categorize the growth in different aspects and to find its interlinkages. These factor variables are Relating to Others (RO), New Possibilities (NP), Personal Strength (PS), Spiritual Change (SC), and Appreciation of Life (AL). We deployed Cronbach's α reliability assessment to measure the reliability of constructed latent factors. Also, we used Pearson's correlation analysis to show the PTGI items and their respective latent factors. Also, pairwise

correlation analyses were used to examine PTGI factor relationships. To Analyse Quantitative data Microsoft, excel has been used for data wrangling and Stata version 16.0 was used for data analysis.

Ethical clearance

Ethical approval for the present study was obtained from the Institutional review board (IRB) from International Institute for population Sciences (IIPS), Mumbai, India.

Result and Discussion

Hopkins Symptom Checklist-25 Questionnaire

Results from Table 1, Table 2, and Table 3 present the anxiety and depression levels of Afghani, Pakistani, and Rohingya refugees in India based on various background characteristics. For Afghani refugees, those aged 18-30 show high anxiety levels (54.6%) and probable cases of depression (63.6%). Marital seems to have a higher influence on

perceived mental health among the refugee population. Married individuals have a higher need for depression treatment among Afghani (50.0%), higher anxiety (66.4%) and probable depression cases (84.0%) among Pakistani and anxiety (63.9%) and probable depression cases (80.6%) among Rohingya refugees. Similarly, young refugees aged 18-30 years showed the highest anxiety (71.4%) and probable depression cases (87.8%) among Pakistani and notable anxiety (66.7%) and probable depression cases (90.5%) among Rohingya refugees. Furthermore, engagement in agriculture/labour appears to correlate with higher levels of anxiety and depression compared to other occupational categories. Among Afghani migrants (28.6%), Pakistani migrants (6.4%), and Rohingya (64.0%) refugees engaged in agriculture/labour showing signs of anxiety, and 42.9%, 87.2%, and 20.0% respectively exhibited symptoms of depression.

Table 1 Anxiety and depression level of Afghani migrants according to background characteristics

Background Characteristics	Anxiety			Depression		
	Not diagnosed	Probable case	In need of treatment	Not diagnosed	Probable case	In need of treatment
Age						
18-30	9.1	36.4	54.6	0.0	36.4	63.6
30-40	27.3	18.2	54.6	36.4	0.0	63.6
40-50	16.7	0.0	83.3	0.0	33.3	66.7
50-60	22.2	33.3	44.4	11.1	22.2	66.7
Sex						
Female	15.8	31.6	52.6	26.3	5.3	68.4
Male	19.1	14.3	66.7	4.8	33.3	61.9
Marital Status						
Married	50.0	0.0	50.0	0.0	0.0	100.0
Unmarried	17.1	22.9	60.0	17.1	20.0	62.9
Education						
No Education	5.9	11.8	82.4	17.7	17.7	64.7
Primary	18.2	36.4	45.5	9.1	0.0	90.9
Secondary	50.0	25.0	25.0	25.0	37.5	37.5
Higher	0.0	25.0	75.0	0.0	50.0	50.0
No. of children						
0-1	8.3	16.7	75.0	0.0	33.3	66.7
2-3	16.7	22.2	61.1	11.1	11.1	77.8
>3	30.0	30.0	40.0	40.0	20.0	40.0
Employment						
Agriculture/Labour	28.6	14.3	57.1	14.3	42.9	42.9
Business	25.0	25.0	50.0	16.7	16.7	66.7
Job/Skilled	11.1	27.8	61.1	16.7	16.7	66.7
Not working/Homemaker	0.0	0.0	100.0	0.0	0.0	100.0
Total	17.5	22.5	60.0	15.0	20.0	65.0

Table 2 Anxiety and depression level of Pakistani migrants by background characteristics

Background Characteristics	Anxiety			Depression		
	Not diagnosed	Probable case	In need of treatment	Not diagnosed	Probable case	In need of treatment
Age						
18-30	13.7	23.3	63.0	0.0	15.1	84.9
30-40	4.1	24.5	71.4	0.0	12.2	87.8
40-50	0.0	20.0	80.0	10.0	30.0	60.0
50-60	50.0	0.0	50.0	0.0	0.0	100.0
Sex						
Female	0.0	0.0	100.0	100.0	0.0	0.0
Male	9.9	22.7	67.4	0.0	15.2	84.9
Marital Status						
Married	10.4	23.2	66.4	0.8	15.2	84.0
Unmarried	0.0	25.0	75.0	0.0	12.5	87.5
Education						
No Education	7.6	26.4	66.0	1.9	13.2	84.9
Primary	10.0	20.0	70.0	0.0	30.0	70.0
Secondary	9.5	19.1	71.4	0.0	14.3	85.7
Higher	12.0	22.0	66.0	0.0	14.0	86.0
No. of children						
0-1	15.6	28.1	56.3	0.0	15.6	84.4
2-3	9.0	22.4	68.7	0.0	16.4	83.6
>3	5.7	20.0	74.3	2.9	11.4	85.7
Employment						
Agriculture/Labour	6.4	24.5	69.2	0.0	12.8	87.2
Business	20.0	26.7	53.3	0.0	20.0	80.0
Job/Skilled	0.0	0.0	100.0	0.0	25.0	75.0
Not working/Homemaker	16.7	0.0	83.3	16.7	16.7	66.7
Total	9.7	23.1	67.2	0.8	14.9	84.3

Table 3 Anxiety and depression level of Rohingya migrants by background characteristics

Background Characteristics	Anxiety			Depression		
	Not diagnosed	Probable case	In need of treatment	Not diagnosed	Probable case	In need of treatment
Age						
18-30	66.7	14.3	19.1	90.5	4.8	4.8
30-40	75.0	0.0	25.0	75.0	12.5	12.5
40-50	0.0	0.0	100.0	33.3	0.0	66.7
50-60	75.0	0.0	25.0	75.0	0.0	25.0
Sex						
Female	68.8	12.5	18.8	81.3	6.3	12.5
Male	60.0	5.0	35.0	80.0	5.0	15.0
Marital Status						
Married	63.9	8.3	27.8	80.6	5.6	13.9
Unmarried	0.0	0.0	0.0	0.0	0.0	0.0
Education						
No Education	62.5	8.3	29.2	79.2	4.2	16.7
Primary	75.0	0.0	25.0	100.0	0.0	0.0
Secondary	66.7	16.7	16.7	83.3	16.7	0.0
Higher	50.0	0.0	50.0	50.0	0.0	50.0
No. of children						
0-1	50.0	12.5	37.5	87.5	6.3	6.3
2-3	73.3	6.7	20.0	80.0	6.7	13.3
>3	80.0	0.0	20.0	60.0	0.0	40.0
Employment						
Agriculture/Labour	64.0	4.0	32.0	76.0	4.0	20.0
Business	40.0	20.0	40.0	80.0	20.0	0.0
Job/Skilled	0.0	0.0	0.0	0.0	0.0	0.0
Not working/Homemaker	83.3	16.7	0.0	100.0	0.0	0.0
Total	63.9	8.3	27.8	80.6	5.6	13.9

Post Traumatic Growth Inventory

Tables 4, Table 5, and Table 6 demonstrate the sample size and mean score along with a 95% Confidence Interval (CI) of the Post-traumatic Growth Inventory (PTGI) responses of Afghani, Pakistani, and Rohingya refugees, highlighting their perceived positive transformations after experiencing trauma. We found high variation in the mean score of the PTGI constructs across three refugee groups. Pakistani Hindu refugees with the largest sample size of 132 participants reported higher mean scores (3.02 out of 5) across multiple PTGI constructs showing better growth after the traumatic experiences of migration compared to their Afghani (2.41 out of 5) and Rohingya (1.76 out of 5) counterparts.

Moreover, Pakistani refugees display higher levels of growth in areas such as changed priorities (X = 2.67), appreciation for life (X = 3.27), development of new interests (X = 3.64), self-reliance (X = 2.91), understanding of spiritual matters (X = 3.43), establishment of a new life path (X = 3.39), closeness with others (X = 2.96), expression of emotions (X = 2.22), handling difficulties (X = 3.35), acceptance of life's workings (X = 4.31), appreciation of each day (X = 2.85), compassion for others (X = 2.24), effort in relationships (X = 3.87), willingness to change (X = 3.12), and religious faith (X = 3.48). On the other hand, Afghani and Rohingya refugees had lower mean scores of PTGI across several constructs, suggesting relatively lesser perceived growth post-trauma. However, there are some specific areas where Afghani and Rohingya refugees have better growth after traumatic migration experiences. Afghani refugees showed a higher willingness to express emotions (X = 2.44), while Rohingya refugees reported higher scores in perceiving new opportunities (X = 2.39).

Table 4 Descriptive results of Post Traumatic Growth Inventory of Afghani refugee

PTI construct	Sample size	Mean Score	95% CI
I changed my priorities about what is important in life	41	1.32	(0.88, 1.75)
I have a greater appreciation for the value of my own life	41	1.98	(1.59, 2.37)
I developed new interests	41	2.17	(1.78, 2.56)
I have a greater feeling of self-reliance	41	1.93	(1.53, 2.33)
I have a better understanding of spiritual matters	41	2.29	(1.90, 2.69)
I more clearly see that I can count on people in times of trouble	41	1.9	(1.52, 2.28)
I established a new path for my life	41	2.15	(1.75, 2.54)
I have a greater sense of closeness with others	41	2.27	(1.83, 2.70)
I am more willing to express my emotions	41	2.44	(2.01, 2.87)
I know better than I can handle difficulties	41	2.98	(2.61, 3.35)
I can do better things with my life	41	2.95	(2.52, 3.39)
I am better able to accept the way things work out	41	2.71	(2.24, 3.18)
I can better appreciate each day	41	2.95	(2.48, 3.42)
New opportunities available which wouldn't have been otherwise	41	2.39	(1.93, 2.85)
I have more compassion for others	41	2.07	(1.68, 2.46)
I put more effort into my relationships	41	2.37	(1.97, 2.76)
I am more likely to try to change things which need changing	41	2.51	(2.08, 2.95)
I have a stronger religious faith	41	3.02	(2.60, 3.44)
I discovered that I'm stronger than I thought I was	41	3.02	(2.60, 3.44)
I learned a great deal about how wonderful people are	41	2.63	(2.26, 3.01)
I better accept needing others	41	2.51	(2.04, 2.98)
Total PTI score	41	2.41	(2.16, 2.65)

Table 5 Descriptive results of Post Traumatic Growth Inventory of Pakistani refugee

PTI construct	Sample size	Mean Score	95% CI
I changed my priorities about what is important in life	132	2.67	(2.41, 2.94)
I have a greater appreciation for the value of my own life	132	3.27	(3.08, 3.46)
I developed new interests	132	3.64	(3.42, 3.85)
I have a greater feeling of self-reliance	132	2.91	(2.71, 3.11)
I have a better understanding of spiritual matters	132	3.43	(3.26, 3.60)
I more clearly see that I can count on people in times of trouble	132	1.66	(1.48, 1.85)
I established a new path for my life	132	3.39	(3.18, 3.61)
I have a greater sense of closeness with others	132	2.96	(2.74, 3.18)
I am more willing to express my emotions	132	2.22	(1.98, 2.46)
I know better than I can handle difficulties	132	3.35	(3.15, 3.55)
I can do better things with my life	132	4.08	(3.90, 4.27)
I am better able to accept the way things work out	132	4.31	(4.12, 4.50)
I can better appreciate each day	132	2.85	(2.65, 3.05)
New opportunities available which wouldn't have been otherwise	132	1.86	(1.66, 2.06)
I have more compassion for others	132	2.24	(2.05, 2.42)
I put more effort into my relationships	132	3.87	(3.69, 4.05)
I am more likely to try to change things which need changing	132	3.12	(2.88, 3.35)
I have a stronger religious faith	132	3.48	(3.30, 3.66)
I discovered that I'm stronger than I thought I was	132	3.34	(3.06, 3.62)
I learned a great deal about how wonderful people are	132	2.22	(2.01, 2.43)
I better accept needing others	132	2.57	(2.37, 2.76)
Total PTI score	132	3.02	(2.93, 3.12)

Table 6 Descriptive results of Post Traumatic Growth Inventory of Rohingya refugee

PTI construct	Sample size	Mean Score	95% CI
I changed my priorities about what is important in life	37	0.70	(0.32, 1.09)
I have a greater appreciation for the value of my own life	37	1.30	(0.83, 1.76)
I developed new interests	37	1.32	(0.92, 1.73)
I have a greater feeling of self-reliance	37	1.43	(1.05, 1.81)
I have a better understanding of spiritual matters	37	1.81	(1.32, 2.30)
I more clearly see that I can count on people in times of trouble	37	1.86	(1.39, 2.34)
I established a new path for my life	37	2.30	(1.81, 2.78)
I have a greater sense of closeness with others	37	1.65	(1.18, 2.12)
I am more willing to express my emotions	37	1.97	(1.50, 2.45)
I know better than I can handle difficulties	37	2.43	(1.91, 2.96)
I can do better things with my life	37	2.38	(1.85, 2.91)
I am better able to accept the way things work out	37	0.76	(0.39, 1.12)
I can better appreciate each day	37	1.89	(1.47, 2.31)
New opportunities are available which wouldn't have been otherwise	37	1.78	(1.32, 2.24)
I have more compassion for others	37	1.57	(1.10, 2.04)
I put more effort into my relationships	37	1.84	(1.42, 2.26)
I am more likely to try to change things which need changing	37	1.92	(1.41, 2.43)
I have a stronger religious faith	37	2.08	(1.59, 2.57)
I discovered that I'm stronger than I thought I was	37	2.16	(1.72, 2.60)
I learned a great deal about how wonderful people are	37	1.65	(1.23, 2.07)
I better accept needing others	37	2.08	(1.61, 2.55)
Total PTI score	37	1.76	(1.50, 2.16)

Correlation of Five Latent Factor Model with Post-Traumatic Growth Inventory (PTGI)

To check the correlation between latent factor model with PTGI, we constructed a five-factor latent factor for 21 PTGI constructs across three refugees, namely, Relating to Others (RO), New Possibilities (NO), Personal Strength, (PS), Spiritual Change (SC), and Appreciation of Life (AL). In Table 4, Table 5, and Table 6 we showed a correlation of five latent factors with the 21 PTGI constructs. Also, we compare the internal reliability of these new constructs to assess the consistency in measuring various aspects of growth among migrants and refugees. Comparison of Cronbach's α across the three refugee groups indicates variations in the internal consistency reliability of the latent factors constructed from Post-Traumatic Growth Inventory. Among Afghani refugees, Cronbach's α values range from 0.68 to 0.76, suggesting moderate to good internal consistency. Similarly, Pakistani refugees exhibit

Cronbach's α values ranging from 0.57 to 0.74, with moderate to good reliability observed across latent factors. In contrast, Rohingya refugees demonstrate slightly lower internal consistency, with Cronbach's α values ranging from 0.53 to 0.70. Moreover, correlation analysis between the 21 items of PTGI items and five latent factors—Resilient Outlook (RO), New Possibilities (NP), Personal Strength (PS), Spiritual Change (SC), and Appreciation of Life (AL) showed varying results in post-traumatic growth experiences of Afghani, Pakistani, and Rohingya refugees. For Afghani refugees, high positive correlations are observed between various PTGI items and latent factors. Notably, items such as "I more clearly see that I can count on people in times of trouble" (0.54) and "I have a greater sense of closeness with others" (0.76) exhibit strong correlations with latent factor of Appreciation of Life. "New opportunities are available which wouldn't have been otherwise" showed a notably high correlation of 0.82 with same factor.

Table 7 Correlation of Latent Factor Model of PTGI Items for Afghani Refugee

PTGI items	RO	NP	PS	SC	AL
(6) I more clearly see that I can count on people in times of trouble.	0.54				
(8) I have a greater sense of closeness with others.	0.76				
(15) I have more compassion for others.	0.68				
(20) I learned a great deal about how wonderful people are.	0.61				
(21) I better accept needing others.	0.70				
(1) I changed my priorities about what is important in life.		0.64			
(3) I developed new interests.		0.56			
(7) I established a new path for my life.		0.51			
(14) New opportunities are available which wouldn't have been otherwise.		0.82			
(17) I am more likely to try to change things which need changing.		0.69			
(19) I discovered that I'm stronger than I thought I was.		0.69			
(4) I have a greater feeling of self-reliance.			0.67		
(9) I am more willing to express my emotions.			0.83		
(10) I know better than I can handle difficulties.			0.72		
(16) I put more effort into my relationships.			0.57		
(5) I have a better understanding of spiritual matters.				0.89	
(18) I have a stronger religious faith.				0.90	
(2) I have a greater appreciation for the value of my own life.					0.71
(13) I can better appreciate each day.					0.85
(11) I can do better things with my life.					0.61
(12) I am better able to accept the way things work out.					0.79
Cronbach's α	0.68	0.74	0.65	0.76	0.73

Table 8 Correlation of Latent Factor Model of PTGI Items for Pakistani Refugee

PTGI items	RO	NP	PS	SC	AL
(6) I more clearly see that I can count on people in times of trouble.	0.60				
(8) I have a greater sense of closeness with others.	0.61				
(15) I have more compassion for others.	0.68				
(20) I learned a great deal about how wonderful people are.	0.68				
(21) I better accept needing others.	0.58				
(1) I changed my priorities about what is important in life.		0.55			
(3) I developed new interests.		0.75			
(7) I established a new path for my life.		0.64			
(14) New opportunities are available which wouldn't have been otherwise.		0.50			
(17) I am more likely to try to change things which need changing.		0.69			
(19) I discovered that I'm stronger than I thought I was.		0.61			
(4) I have a greater feeling of self-reliance.			0.71		
(9) I am more willing to express my emotions.			0.71		
(10) I know better than I can handle difficulties.			0.72		
(16) I put more effort into my relationships.			0.57		
(5) I have a better understanding of spiritual matters.				0.85	
(18) I have a stronger religious faith.				0.87	
(2) I have a greater appreciation for the value of my own life.					0.69
(13) I can better appreciate each day.					0.57
(11) I can do better things with my life.					0.71
(12) I am better able to accept the way things work out.					0.68
Cronbach's α	0.61	0.69	0.62	0.64	0.57

Table 9 Correlation of Latent Factor Model of PTGI Items for Rohingya Refugee

PTGI items	RO	NP	PS	SC	AL
(6) I more clearly see that I can count on people in times of trouble.	0.66				
(8) I have a greater sense of closeness with others.	0.66				
(15) I have more compassion for others.	0.44				
(20) I learned a great deal about how wonderful people are.	0.45				
(21) I better accept needing others.	0.71				
(1) I changed my priorities about what is important in life.		0.67			
(3) I developed new interests.		0.65			
(7) I established a new path for my life.		0.52			
(14) New opportunities are available which wouldn't have been otherwise.		0.67			
(17) I am more likely to try to change things which need changing.		0.71			
(19) I discovered that I'm stronger than I thought I was.		0.59			
(4) I have a greater feeling of self-reliance.			0.57		
(9) I am more willing to express my emotions.			0.72		
(10) I know better than I can handle difficulties.			0.75		
(16) I put more effort into my relationships.			0.69		
(5) I have a better understanding of spiritual matters.				0.84	
(18) I have a stronger religious faith.				0.84	
(2) I have a greater appreciation for the value of my own life.					0.71
(13) I can better appreciate each day.					0.67
(11) I can do better things with my life.					0.73
(12) I am better able to accept the way things work out.					0.67
Cronbach's α	0.53	0.70	0.62	0.58	0.64

Similarly, Pakistani refugees display strong correlations between PTGI items and latent factors. Notable correlations include "I developed new interests" (0.75) and "I have a better understanding of spiritual matters" (0.85) with the Resilient Outlook factor. Additionally, "I have more compassion for others" reveals a strong correlation of 0.68 with New Possibilities factor. Meanwhile, Rohingya refugees exhibit distinct

correlations between PTGI items and latent factors, with items such as "I better accept needing others" (0.71) and "I know better than I can handle difficulties" (0.75) displaying strong correlations with the Resilient Outlook factor. Moreover, "I have a better understanding of spiritual matters" shows a notable correlation of 0.84 with the Spiritual Change factor (Table 7, 8, and 9).

Pairwise Correlation among Five Latent Factors Model

We further explore pairwise correlation among five latent factors shown in Table 10, Table 11, and Table 12. For Afghani refugees, strong positive correlations exist between factors like Relating to Others with New Possibilities (0.67) and Personal Strength (0.75), highlighting the link between social connections and perceiving new opportunities. Also, these findings help in understanding the interlinkage between different aspects of growth among different groups of migrants and refugees. Moderate positive correlations are noted between Personal Strength and Spiritual Change (0.57), emphasizing the relationship between inner resilience and spiritual growth. Similarly, Appreciation of Life showed a notably high correlation with Relating to Others (0.66), underscoring the importance of social support. Among Pakistani refugees, a strong positive association exists between Relating to Others and New Possibilities (1.00), while weaker correlations are observed between Spiritual Change and Appreciation of Life (0.16). For Rohingya refugees, strong correlations are seen between Relating to Others and New Possibilities (0.72), but weaker associations are evident between Spiritual Change and Appreciation of Life (0.57).

Table 10 Correlation among factors of Post Traumatic Growth Inventory for Afghani refugee

Relating to Others	1.00				
New Possibilities	0.67	1.00			
Personal Strength	0.57	0.49	1.00		
Spiritual Change	0.56	0.54	0.52	1.00	
Appreciation of Life	0.66	0.75	0.70	0.51	1.00

Table 11 Correlation among factors of Post Traumatic Growth Inventory for Pakistani refugee

Relating to Others	1.00				
New Possibilities	0.31	1.00			
Personal Strength	0.50	0.60	1.00		
Spiritual Change	0.16	0.13	0.25	1.00	
Appreciation of Life	0.26	0.33	0.43	0.04	1.00

Table 12 Correlation among factors of Post Traumatic Growth Inventory for Rohingya refugee

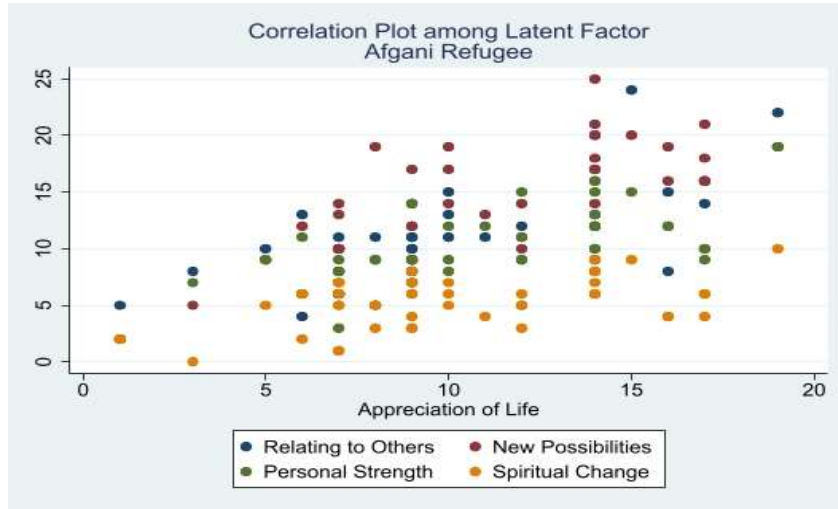|					
Relating to Others	1.00				
New Possibilities	0.72	1.00			
Personal Strength	0.61	0.62	1.00		
Spiritual Change	0.57	0.58	0.58	1.00	
Appreciation of Life	0.77	0.73	0.65	0.62	1.00

Figure 1 Pairwise Correlation Plot among Latent Factors
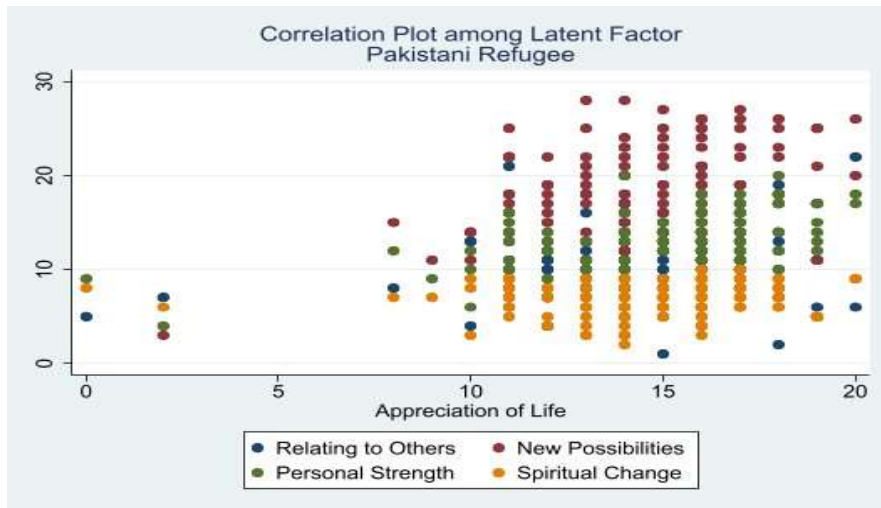

Figure 2 Pairwise Correlation Plot among Latent Factors
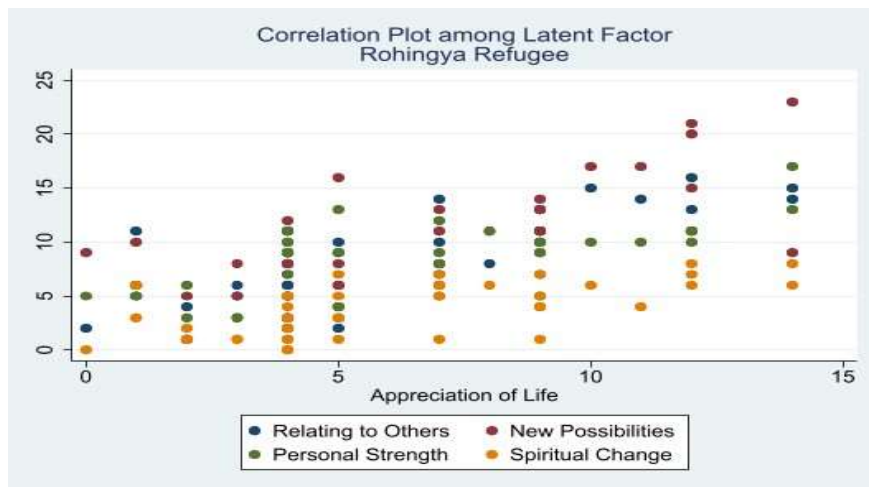

Figure 3 Pairwise Correlation Plot among Latent Factors

Discussion

The findings from the Hopkins Symptom Checklist-25 Questionnaire and the Post-Traumatic Growth Inventory provide critical insights into the experiences of Afghan, Pakistani, and Rohingya refugees in India concerning their mental health and pathways of positive transformation. These results shed light on the complex dynamics of refugee communities and how they respond to trauma and displacement.

Firstly, variations in anxiety and depression levels among the three refugee groups underscore the influence of background and demographic factors. Married individuals across all three groups, including younger Afghani refugees, exhibit higher anxiety and depression levels, pointing to the burden of familial responsibilities and cultural expectations. Additionally, the link between agricultural or labor-oriented employment and heightened anxiety and depression emphasizes the significance of socio-economic stressors on mental health outcomes.

Secondly, the Post-Traumatic Growth Inventory highlights differences in perceptions of positive transformations following trauma. Pakistani refugees, particularly those from the Hindu community, report higher levels of growth in various domains compared to Afghani and Rohingya refugees. This suggests that post-traumatic growth may be influenced by the nature of the traumatic experiences and cultural factors that shape resilience. Correlation analysis further reveals how specific aspects of growth are experienced differently across groups. For instance, Pakistani migrants exhibit strong associations with developing a resilient mindset and finding new interests, whereas Afghani refugees show significant

connections between social support and a renewed appreciation for life. The study's examination of pairwise correlations among latent components underscores the interdependence of growth dimensions, demonstrating how social relationships can enhance resilience and foster personal growth.

Implications for Practice and Policy

These findings emphasize the urgent need for tailored interventions and support systems that reflect the unique needs and strengths of refugee populations. Mental health professionals should receive targeted training in cultural competency to better understand and address the specific challenges faced by diverse refugee groups. For instance, interventions could focus on enhancing social support networks for Afghani refugees or fostering community-based resilience strategies for Pakistani refugees. Specialized mental health services that integrate cultural beliefs and practices could be pivotal in improving mental health outcomes. Furthermore, policymakers should consider creating policies that facilitate the establishment of such culturally sensitive services, including allocating resources for clinics near refugee communities and embedding mental health care into broader humanitarian assistance programs.

Refugee-serving organisations also play a crucial role in this ecosystem. These organisations could develop comprehensive support networks that address mental health challenges and leverage cultural strengths to promote well-being and growth. Initiatives such as peer support groups and culturally informed therapy models could be particularly effective in meeting the psychosocial needs of these populations.

Limitations and Future Research Directions

While the study provides valuable insights, it is essential to acknowledge some limitations. The sample size, cross-sectional design, and reliance on self-reported data may restrict the generalizability of the findings. Future research should explore these issues longitudinally to understand changes in mental health and post-traumatic growth over time and potentially identify factors contributing to resilience and long-term well-being. Comparative studies across refugee groups and settings could further enrich our understanding and guide more effective, culturally grounded interventions.

Conclusion

In conclusion, the results derived from the Post-Traumatic Growth Inventory and the Hopkins Symptom Checklist-25 Questionnaire offer insightful information about the experiences of positive transformation and mental health of Afghan, Pakistani, and Rohingya refugees in India. These findings provide fresh insights into the complex dynamics that exist within refugee groups and how they react to trauma and uprooting. Significant differences in anxiety and depression levels between the refugee groups are found in the study; these differences are impacted by demographic variables such age, marital status, and occupation. Furthermore, research highlights how cultural factors influence how post-traumatic growth is seen, since Pakistani refugees report experiencing greater growth than their Afghani and Rohingya counterparts. The correlation analysis highlights certain development domains that each refugee group experiences, providing more insight into the mechanisms underpinning post-traumatic growth. Robust correlations between specific PTGI items and latent variables underscore the significance of customized treatments aimed at tackling the distinct obstacles and proficiencies of diverse refugee cohorts.

In last, these results highlight how crucial it is to take refugee communities' varied histories and experiences into account when developing mental health interventions and support networks. Well-being and resilience can be effectively fostered by recognizing and attending to the unique requirements of refugees. This methodology guarantees that interventions are culturally aware and adaptable to the various circumstances encountered by immigrant groups, thereby augmenting their ability to prosper in the face of hardship.

References

Ajdukovic, M. (1993). Assessment of professionals' and non professionals' attitudes toward child abuse in Croatia. *Child Abuse and Neglect: The International Journal*, *17*(4), 549-56.

Akcapar, S. K. (2018). South Asian Refugees in India. Society and Culture in South Asia, 4(1), 123- 131.

Bose, A. (2004). Afghan refugees in India. Economic and Political Weekly, 4698-4701.

Derluyn, I., Broekaert, E., Schuyten, G., & De Temmerman, E. (2004). Post-traumatic stress in former Ugandan child soldiers. *The Lancet*, *363*(9412), 861-863.

Falk, B., Hersen, M., & Van Hasselt, V. B. (1994). Assessment of post-traumatic stress disorder in older adults: A critical review. *Clinical psychology review*, *14*(5), 383-415.

Felsman, J. K., Leong, F. T., Johnson, M. C., & Felsman, I. C. (1990). Estimates of psychological distress among Vietnamese refugees: Adolescents, unaccompanied minors and young adults. *Social Science & Medicine*, *31*(11), 1251-1256.

Geltman, P. L., Grant-Knight, W., Mehta, S. D., Lloyd-Travaglini, C., Lustig, S., Landgraf, J.

M., & Wise, P. H. (2005). The "lost boys of Sudan": Functional and behavioral health of unaccompanied refugee minors resettled in the United States. *Archives of pediatrics & adolescent medicine*, *159*(6), 585-591.

Hinic, O. (2016). The challenged identities of the stateless Rohingya.

Morris, M. D., Popper, S. T., Rodwell, T. C., Brodine, S. K., & Brouwer, K. C. (2009). Healthcare barriers of refugees post-resettlement. *Journal of community health*, *34*, 529-538.

Sahoo, N. (2017). India's Rohingya Realpolitik

Shannon, P. J., Wieling, E., Simmelink-McCleary, J., & Becher, E. (2015). Beyond stigma: Barriers to discussing mental health in refugee populations. *Journal of Loss and Trauma*, *20*(3), 281-296.

Smith, P. K., Cowie, H., Olafsson, R. F., & Liefooghe, A. P. (2002). Definitions of bullying: A comparison of terms used, and age and gender differences, in a Fourteen–Country international comparison. *Child development*, *73*(4), 1119-1133.

Song, S. J., & de Jong, J. (2014). The role of silence in Burundian former child soldiers. *International Journal for the Advancement of Counselling*, *36*, 84-95.

Song, S., & Teichholtz, S. (2019). Mental health facts on refugees, asylumseekers, & survivors of forced displacement. *American Psychiatric Association*, *2019*, 1-3.

Sourander, A. (1998). Behavior problems and traumatic events of unaccompanied refugee minors. *Child abuse & neglect*, *22*(7), 719-727.

Steel, Z., Silove, D., Phan, T., & Bauman, A. (2002). Long-term effect of psychological trauma on the mental health of Vietnamese refugees resettled in Australia: a population-based study. *The Lancet*, *360*(9339), 1056-1062.

World Health Organization. (2019). *Global action plan on physical activity 2018-2030: more active people for a healthier world*. World Health Organization.