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The refugees and health crisis: migration policy management and government response to Afghan migrants

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Abstract

Background The health crisis during the pandemic and its aftermath have caused multidimensional shifts within the economic and societal structure for refugees and other marginalized communities. Many countries have implemented programs to cater for the additional needs of underserved populations, but refugees and other migrants are usually not covered by these programs. In this context, this study attempts to explore the impact of the crisis on Afghan refugee's vulnerability and the relationship between health services, relief packages, and risk communication.

Methods The proposed model is tested with 427 Afghan refugees' families from five major cities of Pakistan. The partial least squares structural equation modelling (PLS-SEM) is used to test the vulnerability significance with the crisis and government response in facilities.

Findings The research findings show that post pandemic economic crisis, the access to health services, relief packages and risk communication is directly associated with Afghan refugees' vulnerability ($\beta = 0.471$, $\beta = 0.501$, $\beta = 0.271$ & $\beta = 0.259$). Notably the relationship between post pandemic economic crisis and Afghan refugees' vulnerability is mediated by limited access to health services and unavailability of relief packages. Unavailability of relief packages and lack of risk communication mediates the effect of refugees' crisis on vulnerability. Overall, the proposed model explains 63.3% of the variance in Afghan refugees' vulnerability with government services. It indicates that Afghan refugees are unable to access relief packages, and there is insufficient communication of risk factors. The lack of government facilities is due to the harder closed-door policy of the Pakistani government which has worsened the vulnerability of Afghan refugees after the sudden victory of the Taliban in Afghanistan.

Conclusions In spite of hosting Afghan refugees for the last forty years, the government of Pakistan has no clear systemized policy towards Afghans till now. The paper offers practical policy implications as there is a need for migration policy management combining flexibility and friendliness cooperation to provide government services to refugees. Government preparedness has to include refugee populations in responses to emergencies and look into the current state of new Afghan refugees' flows, and take further extension in the continuation of migration management.

Keywords Refugees, Health disparities, Social protection, Government facilities

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Introduction

The aftershocks of COVID-19 disrupted communities around the world and had significant adverse impacts on the vulnerable population. This crisis has devastated economies and the livelihoods of vulnerable populations. The pandemic has complicated the existing challenges and has contributed to widening the inequality gaps due to movement restrictions [1]; many developing governments must secure livelihoods for the vulnerable [2]. This has contributed in increasing vulnerabilities of refugees and other migrants [3], who are more likely to be worried about the social and economic impacts of this pandemic. The 'new normality' surge has increased the intensity of the refugee crisis as refugees are not very resilient in the face of shocks [4].The cities are sources of economic activity for refugee workers, and refugees may put a burden on local resources and the health care system. Cities might struggle to manage the rising demand, making it difficult to deliver basic services [5]. However, refugees living in camps or camp-like settings are particularly vulnerable to the health crisis as they are mostly informal workers with higher incidences of poverty [6]. In response to such impairment, many governments have developed cash transfer, social protection and health-related risk communication facilities worldwide [1]. However, refugees or other migrant workers are not eligible for these provisions in several countries. Short-term multilayered economic and social support for refugees remains challenging in many countries during this pandemic.

There are 36.4 million refugees across the globe, and Afghan refugees are the second-largest refugee group in the world [5]. Many Afghans have been in exile for at least a generation and numerous Afghan refugee children have grown up in Pakistan and have never lived in their homeland. Pakistan hosts nearly 3 million registered and unregistered Afghan refugees; additionally, many Afghan laborers regularly cross over the border into Pakistan for work [1]. Most of the Afghan refugees are living in informal settlements and in Afghan refugees' villages (RVs). Many Afghan refugee settlements do not have electricity and other basic facilities. Some refugees work as mechanics, others resort to trash-picking on the streets for recycling, and most of the refugees earn hardly 6–7 dollars per day. The pandemic and economic crisis have put an undeniable strain on the fractured health system and the prevailing unequal social structure of Pakistan. These factors have worsened the plight of millions of Afghan refugees who were already vulnerable to the socio-economic constraints in Pakistan. Due to the decisive Kabul situation, the livelihoods of migrants have been gravely compromised, especially the daily wage earners.

In populous urban cities' surroundings, Afghan refugees live in small mud houses or tents known as Afghan basti (town), as shown in Fig. 1. They have limited access to health care and sanitary products. It is also difficult to observe social distancing and healthy measurements. The emerging situation since the middle of August 2021, with evacuation from Kabul, has made Afghan refugees more vulnerable. Pakistan has opened borders for Afghan nationals who have valid visas and proof of registration. The long crisis in Afghanistan has made Pakistan a place to seek shelter. The government of Pakistan has already set up camps near the border and help-desks to manage refugees. With the help of civil society, the government is addressing the needs and issues of Afghan nationals. This possible forthcoming rush of Afghan refugees can put additional financial and political constraints on government facilities. Pakistan's government and society have been welcoming Afghan refugees for forty years. This has been replaced with hesitant and hostile attitudes after the sudden victory of the Taliban in Afghanistan. It seems that Afghan refugees travel for several days to reach the border, and the situation entails frantic and chaotic health crises at border crossings. When returning to Afghanistan, these people appear to have little belongings

Fig. 1 Glimpses of tent and mud huts in Karachi and Islamabad, Pakistan. Source: DAWN News and WPRL post (DAWN,2020; WPRL, 2012)

and bleak futures. According to US Committee for Refugees and Immigrants 2023, the relief operations at the border are overburdened, most likely unable to handle the rising demand brought on by the recent stretched aid from Pakistan.

All crises, including Taliban return and post-pandemic, have affected Afghan migrants and refugees in multiple ways. Particularly, Afghan refugees living in camp-like settings can be subjected to medical and socio-economic risks at several levels [7]. Being a developing country, the Pakistan government's insufficient ability to provide economic and social protection for the most vulnerable segment of Afghan refugees in exile in Pakistan has prompted several million Afghan refugees to flee back. The relief packages given by the Government of Pakistan, like the Ehsaas program, did not include provisions for Afghan refugees.[1]The government has taken initiatives for the Documentation Renewal and Information Verification Exercise (DRIVE), with the support of the United Nations High Commissioner for Refugees (UNHCR), to register Afghans [7]. DRIVE is an effort to allow international donor agencies to assist the government through the multi-stakeholder support platform for the Solution Strategy for Afghan Refugees (SSAR) in Pakistan [8]. The government of Pakistan has also vaccinated foreigners, and Afghan refugees also received vaccination on the same criteria applied to Pakistani citizens. UNHCR is also supporting the rollout of vaccination and sharing vital services in health interventions, including the provision of facilities and boosting prevention measures. The purpose of this study is to find the relationship between such crisis and Afghan refugees' vulnerability and to examine the intervening effects of insufficient facilities (limited health services, relief packages and risk communication) provided by the government to the refugees.

Theoretical background and hypotheses development

Vulnerability is connected with structural factors and social risk [9, 10]. Structural vulnerability determines the multi-dimensional impacts of hazards on certain communities [11, 12]. Social exclusion and social strain theories give a foundation for this study, and it stands for critical vulnerability involving social institutions and basic needs [13–15]. The dependence on intergenerational inequality and sociocultural contexts underpins certain aspects [16]. The influence of the societal level sees an elevation of marginalized population vulnerability [17]. Within the structural crisis, social exclusion theory overlays the constraints of refugees seen as a part of the facilities mechanism [14, 15, 18]. The structuralism perspectives conceptually support the hazards and vulnerability underpinned in government services [19]). The social exclusion theorists seek to have relevancy within society and governments [20]. Various narratives of vulnerability are deeply ingrained in structural divisions of society and inequalities in governments [6]. The multidimensional critical aspects of vulnerability during and after COVID-19 enrich this phenomenon [21, 22]. Considering the risks and weaknesses in government services, limited resources and constraints lookouts the risks and weaknesses in public services and how underlying social, political, and economic institutions affect government systems' responsiveness, resilience, and vulnerabilities. Structuralism perspectives can be applied to hazards and vulnerabilities in government services by identifying and examining the ingrained structural elements that influence the resilience or susceptibility of these services. Social exclusion and social strain theories best fit into explaining the endurance of Afghan refugees' survival for earning livelihoods connected with services provided by the government.

Scholars have studied the relationship between refugees' vulnerability to living conditions in the country, health challenges, and social protection [23]. Thus, this study has used latent variables referring to vital aspects of vulnerability after an extensive review of the literature (see Table 1). The study aims to enrich by testing a proposed model to explain refugees' vulnerability (Fig. 2), indicating the need for the government to include safety networks to tackle the crisis and induced vulnerability among Afghan refugees. This research seeks to contribute to the previous refugee studies by analyzing the voices of Afghan refugees' crises within the conceptual framework. Moreover, this paper examines the relationship between independent and dependent variables, such as the relationship between government services (health services, relief packages, and risk communication) and vulnerability. The conceptual framework is different from prior research because it looks at refugees focusing on two key factors: First, the direct impact of the post pandemic crisis on Afghan refugees' vulnerability, and second, the multiple mediating effects of government facilities (access to health services, relief packages, and risk communication).

Refugees vulnerability and post COVID crisis

The concept of vulnerability is old; however, it is changing for refugees and other migrants, especially after the COVID pandemic [33, 34]. Vulnerability has historically existed among Afghan refugees for decades

[1] Ehsaas emergency cash program is announced by government of Pakistan to help vulnerable community during POST COVID. Under this program of the government's social safety net, 15 million families are provided with help. Afghan refugees are not having provision of this facility.

Table 1 Constructs and items

Refugee Vulnerability (RV) [24]	
	Items
RV1	Loss of jobs and income
RV2	Living conditions
RV3	Economic capacity to overcome
RV4	Saving for future
RV5	Preservation of livelihoods
POST COVID Crisis (CC) [21, 25]	
CC1	Restrained and restricted living
CC2	Wages opportunities situation
CC3	Able to travel cross borders
CC4	Fear and social bounders' distrust
CC5	Inbound restricted travel within host country
Access to Health Service (AHS) [4, 26–29]	
HS1	Access emergency facilities
HS2	Entitlement to healthcare
HS3	Health issue preventive
HS4	Preventive equipment provision
HS5	Access to basic hygiene facilities
Relief packages (RP) [4, 5, 28–31]	
RP1	Provision of basic assistance
RP2	Mobility for timely assistance
RP3	Protection wages right
RP4	Income security through cash transfer
RP5	Opportunities of informal jobs
Risk Communication (RC) [7, 32]	
RC1	Linguistic barriers to understand information
RC2	Limited awareness of trusted information
RC3	Inability to access information
RC4	Community outreach workers
RC5	Receiving of massages

in Pakistan. Moreover, post-COVID has emerged with new risks and challenges, making them more vulnerable [26, 35]. Vulnerability is the idea of exposure to harm or danger from exposure to pressures related to environment and social change and from the absence of the capability to adjust [36, 37]. Refugees are particularly vulnerable and have distinctive needs [38]. Refugees and immigrants tend to be among the most vulnerable groups during post-COVID [25]. Refugees have few opportunities to work and are not eligible for provisions for social services and health benefits. Most of the refugees are working in the informal sector in Pakistan. Refugees are usually daily wagers; most are labourers, earning hardly 6 to 7 dollars daily. Informal jobs are the major source of employment for refugees in developing countries. The governments are not equal in their capacity to respond to post-COVID, not addressing the needs of the vulnerable in crisis. The previous lockdowns and Pakistan's stricter closed-door policy for new Afghan refugees coming to work in the informal sector and the current situation in Afghanistan have increased poverty and vulnerability among these refugee groups.

The inequality and income of refugees, which were already fragile, are now weakened due to recent economic misery in Pakistan, and the current socio-economic threats are increasing the suffering of the refugees [24, 26]. The lives of refugees were already at greater risk of contracting health care and services [27, 39]. These crises have turned refugees more vulnerable to basic necessities because in refugee camps, social distancing is challenging, and there is no proper hygiene [25, 40]. The pandemic has uncovered more patterns of inequality, and authorities in various countries cannot address the needs of vulnerable groups. Thus, it is hypothesized:

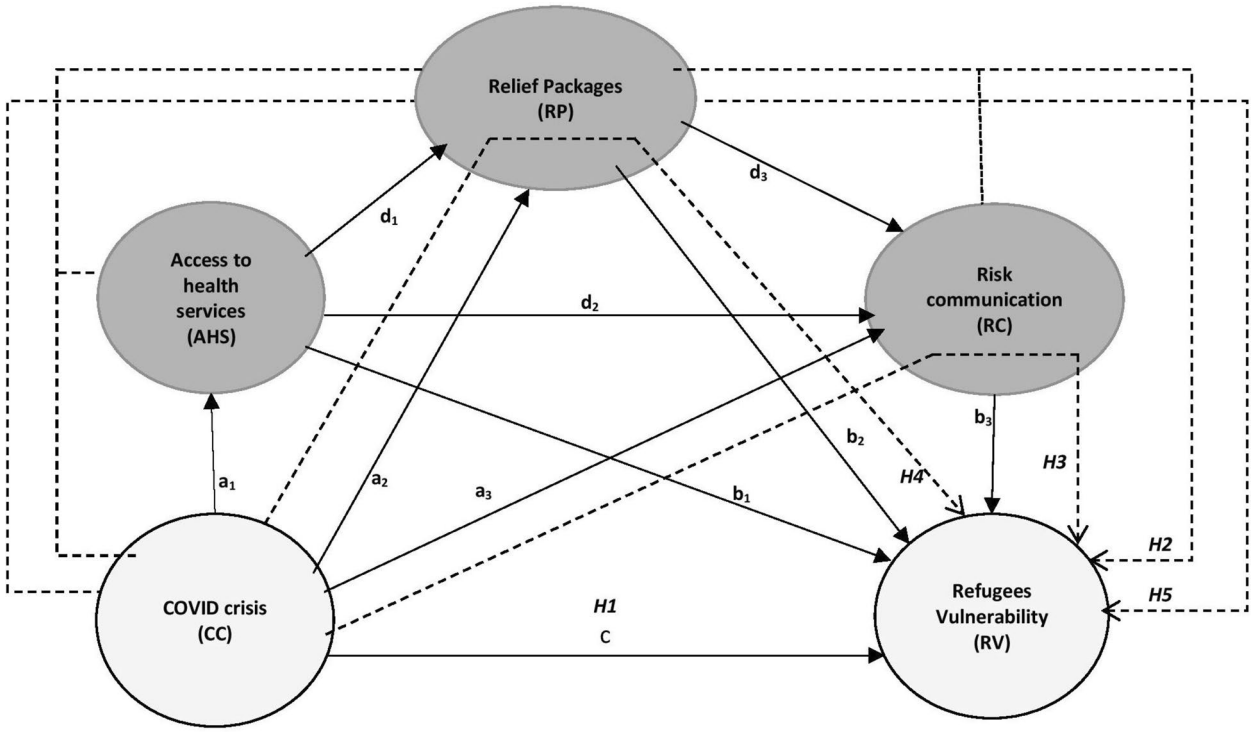

Fig. 2 Conceptual model. Note: The arrows in dash lines indicate the sequential mediating effects which are indirect effects of AHS, RP, RC indicating H2, H3, and H4& H5. The straight lines show the direct effects depicting as c (H1) POST COVID crisis relation with RF and POST COVID crisis relation with HS, RP, RC depicted as a1, a2, a3; HS, RP, RC relation with RV shown as b1, b2, b3, AHSrelation with RP, RC depicted as d1, d2 and RP relation with RC shown as d3

H1: Post-COVID and the economic crisis itself increase the overall vulnerability of refugees.

Government services

The current pandemic has emerged as the dreadful global disaster of the century after World War 2 [41]. The crisis has dire consequences for the refugees in camps. Migrants and refugees are particularly vulnerable when it comes to receiving health services or benefits. Factors like the lack of entitlement to health care and limited awareness of options [4, 26]. Furthermore, the restrained indoor and outdoor spaces during the lockdown are of concern. The government's response to contagious diseases makes it possible to curtain health issues if authorities concentrate on tried and tested public health outbreak responses [28, 42]. The impact of post-COVID has been a global concern relating to refugees where the uncertainty is too great [29].

This crisis has impacted low- and middle-income countries a lot, and the testing of nations in such crucial times is challenging in assisting the vulnerable [30]. Literature on relief support suggests the need to improve adaptive capacity in addressing natural disasters and infectious diseases [31, 43]. The post-COVID crisis exposes the prevalence and importance of existing disparities and, in many cases, worsens them [26]. In Pakistan, refugees are not included in the Ehsas Program relief packages. Due to the economic conditions, the government had faced even more setbacks due to post-COVID restrictions. In the uncertain post-COVID environment, the vulnerability of the Afghan refugees has increased exponentially and more specifically around the Torkham border area camps. Failing to deliver the support services by the government to Afghan refugees will have far-reaching negative effects on worldwide endeavours to battle the bug [5]. Therefore, it is hypothesized:

H2: Restricted health services and the unavailability of relief packages mediate the effect of crisis vulnerability of refugees.

Effective communication enables persons facing health threats and risk emergencies to do risk assessments to ensure functional public health agencies that can prevent large-scale disasters, terrorism scenarios and pandemics[44]. The most recent examples of risk communications include POST COVID, the Ebola outbreak in 2003, the West Nile Virus and the Congo virus. There is better

communication needed to ensure that risk factors can be addressed for such pandemics [45]. Moreover, these communications need to recognize that the language barriers hinder the communication of risk, especially among refugees [46]. Various studies stress the need for psychological, emotional and behavioural change to be addressed through information for the target population by the government [26]. The serious mental issues and trauma may increase among refugees in extended displacement areas. So, it is proposed:

> *H3: Restricted health services and lack of risk communication mediate the effect of crisis on vulnerability of refugees.*

The scarce resources in developing countries and least developed countries have worsened this pandemic for refugees with the closures of the informal sector [6]. The impact of the pandemic is worsening the condition of those working in lower-paid jobs and shrinking earning opportunities for Afghan refugees [47]. The impacts of the lockdown posed threats to health and undermined socio-economic rights of refugees [47]. Afghan refugees in in current situation are living in worse conditions and need cash programs for assistance [32]. The crisis also raises the need for effective and timely information to be communicated to refugees. So, it is proposed:

> *H4: Unavailability of relief packages and lack of risk communication mediate the effect of crisis on vulnerability of refugees.*

Health facilities and preventive measures are not accessible to refugees. The refugees find it very difficult to utilize health facilities and social services provided by national and international organizations.

> *H5: Lack of government facilities, including Health services, relief packages, and risk communication, mediate the effect of the post-COVID crisis and economic misery on the vulnerability of refugees.*

Method

Participants and data collection

The refugee camp settings and slum areas are suffering severely due to recent crises and situations. Mostly, these Afghan refugees are living in urban and peri-urban slums built on government land (see Fig. 3). Refugee villages are in clusters of mud huts or camp-like settings, elevating urban poverty. Some of the civil society and community organizations were contacted in big cities where the Afghan refugees have been settled for years and often crossed the border for earnings. The interaction with community organizations significantly helped to know the true condition of poor refugees. This paved the way for the measurement items to be refined. The Afghan refugees were contacted through community organizations during the semi-lockdown to complete the open-up and continuously collect the data. Data was collected from the major cities of Islamabad, Quetta, Karachi, and Peshawar in Pakistan to get a good number of responses. With a limited number of resources following precautionary measures, data was collected from 429 refugee families based on convenient sampling, and most of the families were from Peshawar city, which hosted many Afghans. Although convenient sampling is crucial for transparency but the study focused on refugee areas to get proper feedback. Convenience sampling was used due to resource constraints and to approach potential participants. The inclusion of each participant was identified as being willing to participate, especially for women, due to cultural barriers. This study is confined to the limited characteristics and context of convenient sampling. Ethical considerations were assured to maintain participants' anonymity.

To test the analytical framework (Fig. 2), the survey questionnaire (see Table 1) was used to collect the data, and it was translated into Pashto, Persian and Dari as Afghans, almost the majority speak Pashto and others understand more easily local Pashtun language. The Afghan refugees born and raised in a host country better understand Urdu, Pakistan's national language. The survey pre-test was first done with 25 refugees, and it led to editing the items of constructs accordingly (indicated in Table 1). The valid measurable indicators are adapted from established literature. The previous literature supplied the ideas of constructs and items, which are modified according to the context of the study. Post-COVID-19 and economic crises are tracked through income source constraints, social pressure, and uncertainty due to semi-lockdowns and restrictions on movement to earn livelihoods [21, 25]. Refugees' vulnerability to this pandemic is multidimensional and expended from socioeconomic and living conditions to food and financial security [24]. Health services are measured for limited access to preventive care, emergency services, and prioritization of health care [4, 26–29]. Insufficient health services do qualify for refugees' vulnerability to COVID-19. The unavailability of social protection pushed refugees back to higher risk conditions in host countries [4, 5, 28–31, 42]. Exclusion from financial welfare programs and lack of temporary cash schemes with host countries also raise inequalities and vulnerability for refugees. The risk communication construct can be tracked by limited knowledge, multiple language barriers and communication [7, 32]. In addition, communication channels become a source of connectivity for risk communication.

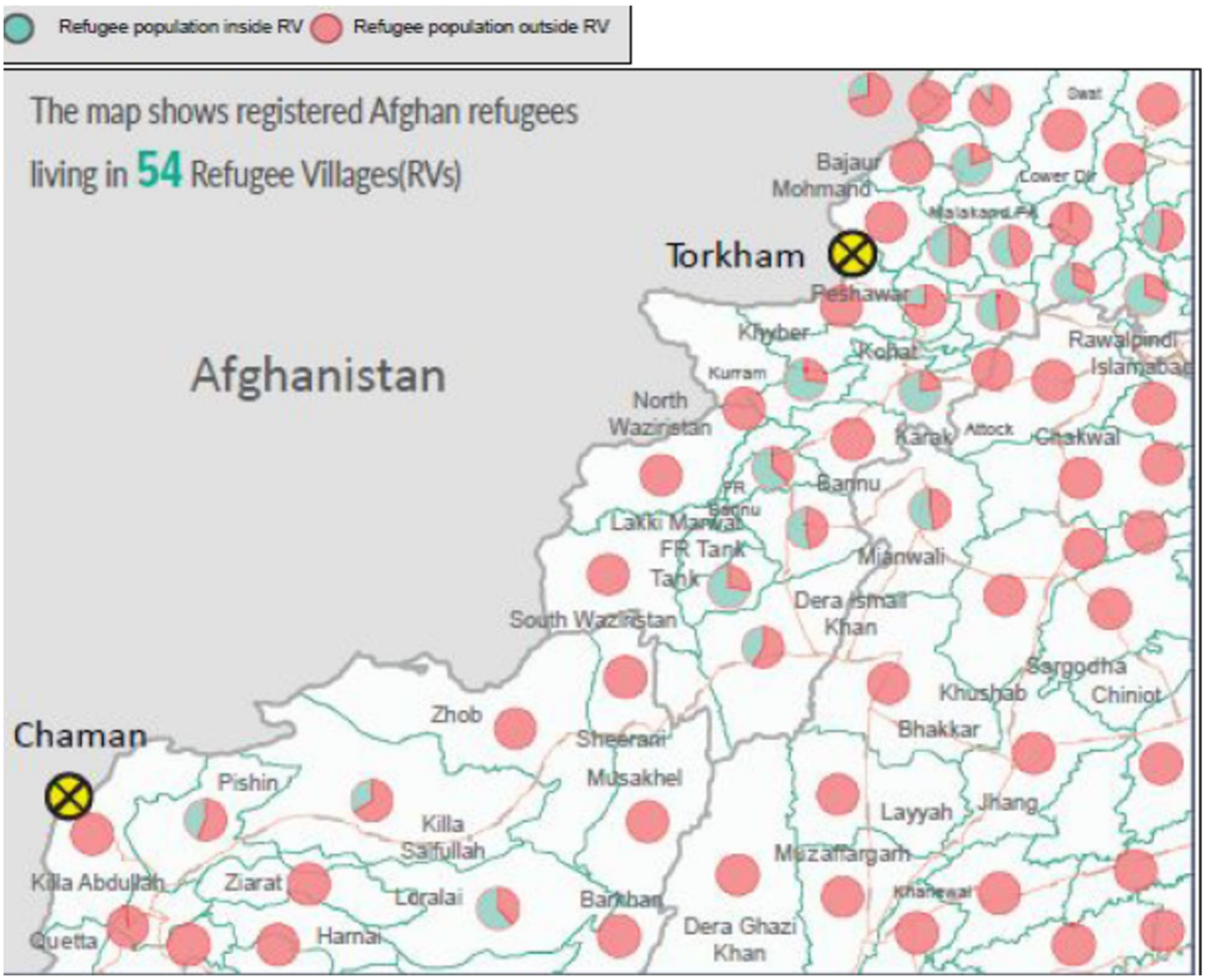

Fig. 3 Afghan Refugees Villages locations in Pakistan. Source: UNHCR 2021(UNHCR, 2021b)

Each construct is measured using five items, and items are considered reflective indicators. A seven-point Likert scale is used 1 for 'far below' to 7 for 'far above' to measure the items. This study examines the experiences of Afghan refugees in post-COVID and builds the scaling for refugee vulnerability.

Analytical techniques used in study

To analyze the data, PLS-SEM modelling is used to assess inner and outer models [48, 49]. PLS-SEM modelling is more suitable and appropriate being a reliable and valid tool for small sample sizes which is not distributed normally [48, 50]. This modelling consists of two sub-models. One is the outer model, known as the measurement model, specifying the relationship of latent variables with indicators. The second sub-model is an inner model, known as the structural model, which shows the relationship between independent and dependent variables. In this model, the variables or constructs are either exogenous (independent) or endogenous (dependent) [51]. Mediating variables are called intervening or causal variables that create a change and show an indirect effect [48]. Partial least squares and structural equation modeling are chosen for this study as it is competent to accommodate complex models with mediation testing [48].

Common method bias in survey data is also checked through bivariate correlation, and a higher correlation of more than 0.90 confirms no evidence for data bias. The Single-factor model provided a poorer fit than the outer model, with all latent variables suggesting that common method bias is not of great concern. To keep the main results unbiased, the proposed analytical model is tested with alternative models where the positions of variables are reversed.

Data analysis and results

Demographic characteristics of the participants

The data of the participants is analyzed for both undocumented and registered refugees. Refugee families who have been taking care of families in such difficult times and were willing to record their issues. Most of the refugee families relied on daily wages, including children, who also helped earn money. Table 2 presents the demographic and socioeconomic characteristics of the refugees.

The income range of the refugees is within 5 to 15 dollars per day for 87% of the families (see Fig. 4). Only 13% of the Afghan refugees crossing borders only for earnings have 15–20 US dollars per day income (see Table 2). It is reflected that the demographic profile of the respondents shows lower income of refugee families who are more disadvantaged. Regarding biological sex ratio, 33 per cent of females were surveyed, and 67 per cent of males were surveyed in the study. Related to the status of the refugees in the host country, 41% of the refugees are unregistered, and the rest are in the category of registered Afghan card and passport holders.

The respondent refugees' locations are reported in panel A. Half of the Afghan refugee families are living in Peshawar, where Afghan refugees are often hosted in the majority for earning. Less than half of the refugees are from Islamabad, whereas in Karachi, one-fourth of the population is surveyed. The number of refugees in Quetta is considerably smaller than in other cities in the study.

The graph presented in panel B depicts the daily earnings of refugees related to work type. This graph shows income in US dollars on the down-axis and type of informal work. The graph shows five options of work type. The first option is of labourers with a dark blue colour, the second option is of hawkers with the orange line, the third option is of waiters indicated with the grey line, and the fourth option is of cleaners pointed with yellow line, and the last option is of others work type shown in the aqua blue line. In terms of income level related to work type, the ratio is relatively more varied among waiters, starting from 7 to 43%. 20 percent of laborers are earning 1–5$, 27 percent earning 5–7$, 30 percent earning 8–15$ and 23 percent earning 15- < $. Note that the cleaners are having lower income. It also indicates that majority of the refugees are doing other than these jobs and access to decent work is bit difficult for earning.

In Fig. 5, respondents are slightly overrepresented in the age group of 23–40 years; around 72% across both groups are within this range. The most notable difference

Table 2 Demographic characteristics (427 participants)

Classifications	No of participants	Percentage
Biological Sex		
Male	286	67%
Female	141	33%
Status in host country		
Passport holders with visa	105	24.59%
Unregistered	174	40.75%
Afghan citizen card (issued by host country)	87	20.37%
Registered	61	14.29%
Daily earning		
5–7 US$	194	45.433%
8–15 US$	177	41.451%
More than 15 US$	56	13.114%
Age in years		
Less than 22	30	7%
23–30	139	32.6%
31–40	169	39.6%
More than 40	89	20.8%
Informal work type		
Construction laborers	130	30.444%
Hawkers	70	16.393%
Waiters	60	14.051%
Cleaners	50	11.709%
Others	117	27.400%

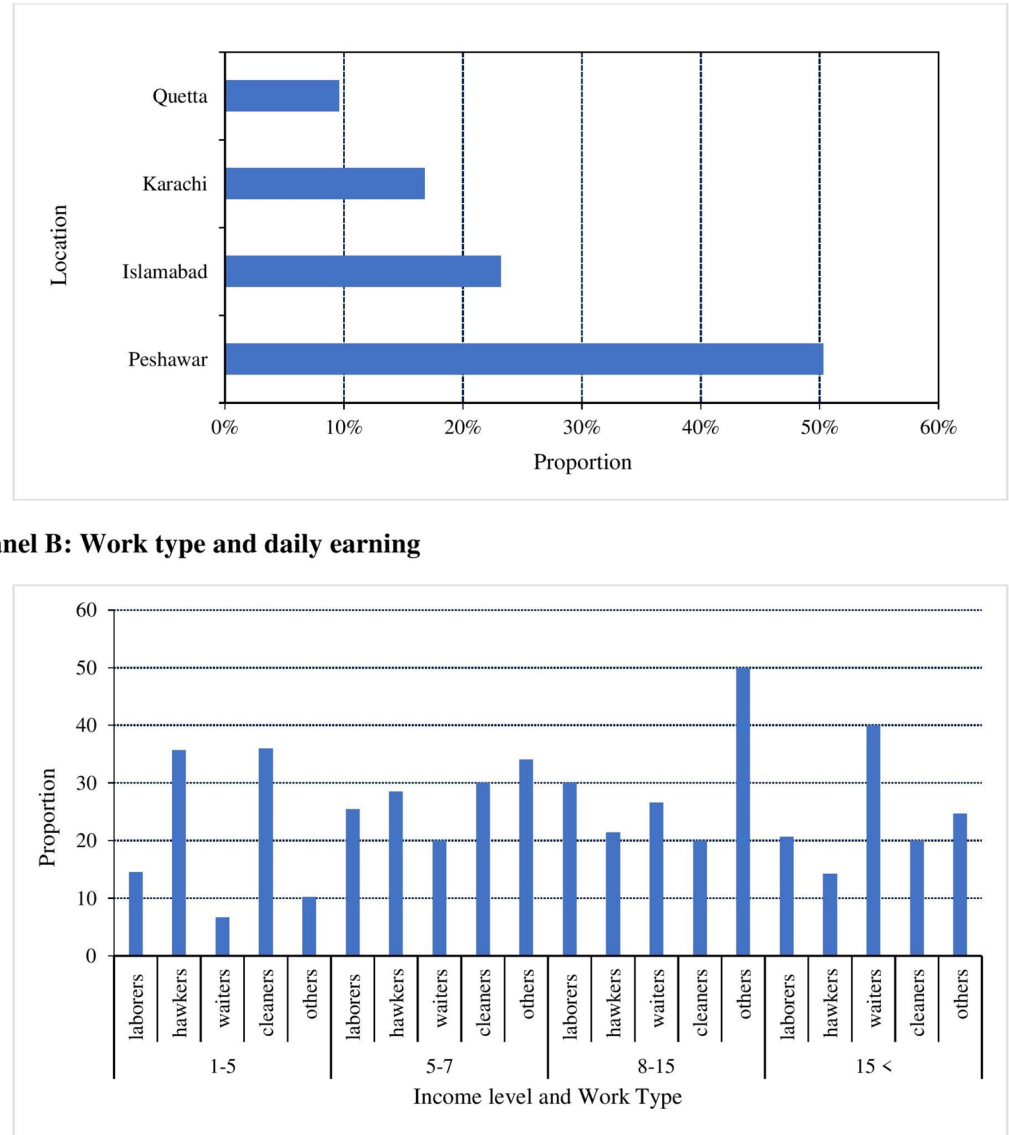

Fig. 4 Distribution of Refugees Participants by Location and Work type Earning

between the two groups is in the age range of more than 40 years. Only 7% of males and females are in the age group of less than 20 years. These findings indicate that most respondents are from the 23 to 40 age group.

PLS-SEM outer model

First, the outer model or measurement model is assessed for the validity and reliability of the latent variable [48]. The purpose of this evaluation is to determine the reliability, internal consistency, and validity of the constructs and items used in the questionnaire. Different validity subtypes are employed, such as convergent validity, discriminant validity and criterion validity, to check construct validity. The items' reliability is tested through factor loading, as shown in Table 3 and factor loading is greater than a threshold of 0.70, and the significance confirms the reliability of measurement items [49, 52].In Small samples, the factor loadings are 0.7 or higher than which shows the indicators' reliability in the model [48]. The Construct reliability is checked by using "Cronbach's alpha" and "rho_A" and "Composite reliability". The acceptable threshold for "Cronbach's alpha" is 0.7 or greater, for "rho_A" is 0.7 0r larger and for "Composite reliability" is larger than 0.6 [48].The Cronbachs'

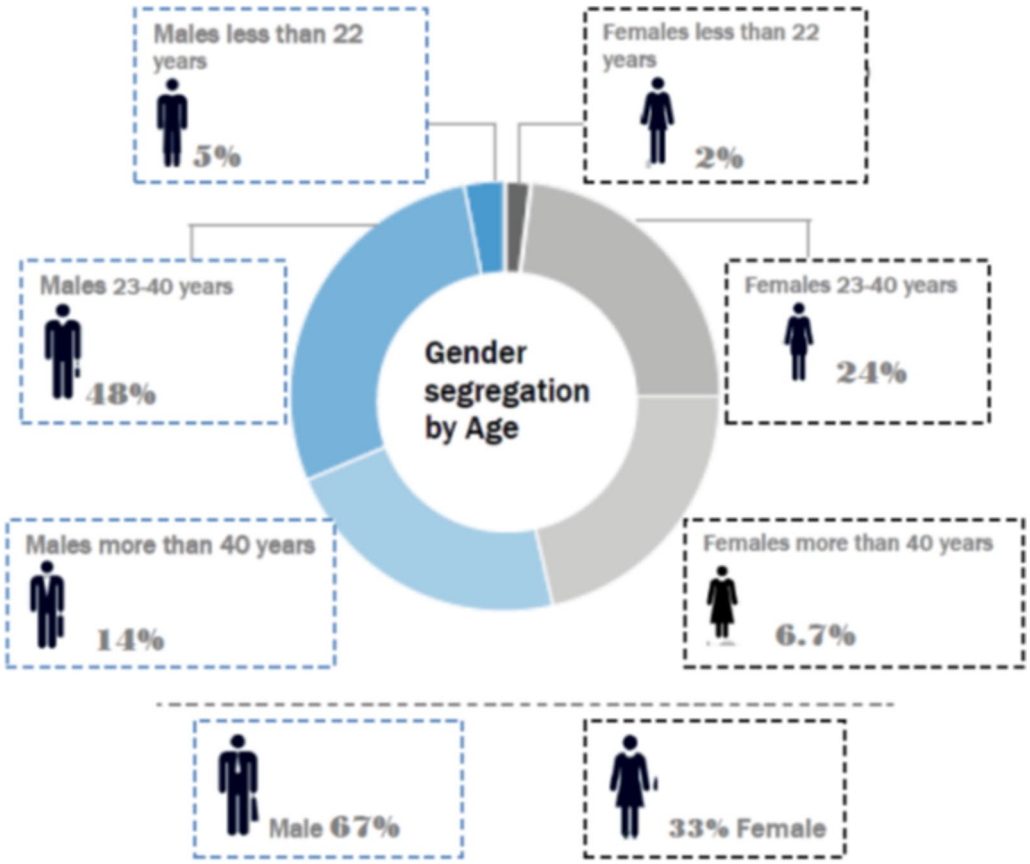

Fig. 5 Gender with Age

alpha ranges within 0.73 – 0.82, and ρA (Dijkstra- henseler's rho) is also 0.764 – 0.846 and composite reliability ranges from 0.821 – 0.874 indicating construct reliability of all five latent constructs. Second, the average variance extraction (AVE) of all latent variables is above the threshold ranging 0.636 – 0.845, confirming the convergent validity of the outer model.

In this model, discriminant validity is checked using Heterotrait-monotrait ratio of correlations (HTMT) [53, 54]. The (Heterotrait – Monotrait) HTMT is used to confirm the discriminant validity (Table 3) because discriminant validity ensures the validity of construct measure. The HTMT is an estimate of the correlation between the constructs. If HTMT value is below 0.90 then discriminant validity is established between the constructs [52, 55]. All values show the significance in relationship of each construct with another. Variance inflation factor (VIF) value is considered acceptable at the level of 2.5 or above [55].VIF values of the variables in Table 4 are lower than the threshold 5, confirming there is absence of multicollinearity problem within the structural model.

The mean value describes the center of the distribution of data and it is counted as standard measure for indication of central tendency of the data. Standard deviation (SD) describes the variance and dispersion of the data. In Table 4, the mean score for risk communication is 5.91. It clearly indicates that risk communication is at a very high level among refuges. Then POST COVID crisis has obtained 5.71 mean value and refugees vulnerability obtained 5.58 mean value which also indicate the high score level.

The correlation analysis is shown in Table 4 to know the direction and strength of relationships among variables. The results show the significant correlation which means that multicollinary is not a problem.

PLS-SEM inner model

The inner model or structural model is assessed (Table 5) for the predictive relevancy of the construct and hypothesis testing for the suitability of model [48]. The collinearity approach is used to measure the predictive constructs and VIF values which are lower than 5 in the model (Table 4). The Q2 values confirm the predictive relevance of all endogenous latent variables in the model. If Q^2 is greater than zero ($Q2 > 0$), it proves the structural model's predictive relevancy with the dependent variable (Hair

Table 3 Outer model

Constructs and items	Factor loading	Standard error	VIF	t-values	Dijstra-Henseler's rho	CR	AVE	C.Alpha
Refugee Vulnerability (RV)					0.764	0.821	0.636	0.735
RV1. Loss of jobs and income	0.798	0.059	1.218	8.152				
RV2. Living conditions	0.735	0.042	1.291	14.323				
RV3. Economic capacity to Overcome	0.783	0.028	1.671	26.243				
RV4. Saving for future	0.771	0.030	1.641	24.338				
RV5. Preservation of livelihoods	0.754	0.029	1.429	24.091				
POST COVID Crisis (CC)					0.768	0.830	0.646	0.748
CC1. Restrained and restricted living	0.707	0.036	1.432	18.684				
CC2. Wages opportunities situation	0.738	0.039	1.504	17.823				
CC3. Able to travel cross borders	0.756	0.049	1.207	11.019				
CC4. Fear and social bounders' distrust	0.731	0.035	1.466	19.967				
CC5. Inbound restricted travel Withinhost country	0.778	0.028	1.538	25.625				
Access to Health Service (HS)					0.846	0.840	0.750	0.794
HS1. Access emergency facilities	0.894	0.026	1.986	31.459				
HS2. Entitlement to healthcare	0.760	0.061	2.324	8.880				
HS3. Health issue preventive	0.786	0.063	2.156	9.056				
HS4. Preventive equipment provision	0.828	0.020	1.291	37.387				
HS5. Access to basic hygiene facilities	0.785	0.034	1.282	18.828				
Relief packages (RP)					0.807	0.862	0.749	0.799
RP1. Provision of basic assistance	0.759	0.041	1.754	17.542				
RP2. Mobility for timely assistance	0.798	0.028	2.038	27.024				
RP3. Protection wages right	0.795	0.029	1.799	25.414				
RP4. Income security through cash transfer	0.792	0.026	1.655	28.797				
RP5. Opportunities of informal jobs	0.771	0.052	1.172	10.547				
Risk Communication (RC)					0.832	0.874	0.845	0.820
RC1. Linguistic barriers to understand information	0.812	0.030	0.812	25.579				
RC2. Limited awareness of trusted information	0.800	0.028	0.800	26.963				
RC3. Inability to access information	0.856	0.018	0.856	42.620				
RC4. Community outreach workers	0.715	0.035	0.715	19.222				
RC5. Receiving of massages	0.617	0.052	0.617	11.518				

Table 4 Discriminant Validity Analysis based on Collinearity test and Heterotrait–Monotrait Criterion

Main constructs		Mean	Standard deviation	Variance inflation factor	RV	CC	HS	RP	RC
RV	Refugee vulnerability	5.582	1.323	1.378		0.658	0.378	0.258	0.622
CC	POST COVID crisis	5.719	1.116	1.892	0.550		0.594	0.453	0.779
HS	Health services	4.973	1.254	1.563	0.357	0.531		0.468	0.455
RP	Relief packages	5.158	1.227	1.287	0.218	0.364	0.421		0.458
RC	Risk communication	5.919	1.144	1.774	0.505	0.628	0.472	0.373	

Table 5 Predictive relevance and accuracy of structural model

Endogenous latent variables	R^2	Q^2 values
Refugees' vulnerability	0.346	0.151
Access to Health Service	0.282	0.123
Relief package	0.204	0.101
Risk communication	0.435	0.232

Table 6 Inner Model Path Coefficients

Direct paths	Coefficient	*p* -value
POST COVID crisis → Refugee vulnerability	0.471	0.000
POST COVID Crisis → Health Service	0.531	0.000
POST COVID Crisis → Relief packages	0.273	0.000
POST COVID Crisis → Risk Communication	0.213	0.014
Health Service → Refugee vulnerability	0.501	0.000
Relief packages → Refugee vulnerability	0.274	0.005
Risk communication → Refugee vulnerability	0.259	0.004
Health Service → Relief packages	0.316	0.000
Health Service → Risk communication	0.251	0.062
Relief packages → Risk communication	0.225	0.016

et al., 2017). Q2 values of refugees' vulnerability (0.151), health services (0.123), relief packages (0.101) and risk communication (0.232) confirms the predictive relevance of the model. The R^2 value is categorized into: weak 0.25, moderate 0.5 and substantial 0.75. The coefficient values ($R^{2)}$ (refugees' vulnerability, 0.346; health services, 0.282; relief packages, 0.204; and risk communication, 0.435) for all endogenous latent variables are between moderate and substantial thresholds, indicating predictive accuracy of the structural model.

Hypotheses testing

The path analysis is a kind of regression-based approach that determines the impact and relationships between variables. The path coefficients and beta coefficient [β] value of every path present the substantial effect of exogenous latent constructs on the endogenous latent constructs. The greater the β value, the stronger the effect it depicts [48]. In Table 6, the direct relationship of exogenous latent variables is checked with endogenous latent variables, and path coefficient values are significant. It significantly shows that the confidence interval is 95%, and the influence of the crisis on refugees' overall vulnerability is β = 0.471, p 0.000. It supports hypothesis 1 and clearly indicates that the pandemic has worsened the situation of Afghan Refugees.

All the paths are significant, and the crisis factor has the top most β value = 0.531 in the model. It indicates the high effect of the COVID crisis with regard to health services. In all paths, the post-COVID crisis also has increased the need for relief packages β = 0.273, p 0.000 and risk communication β = 0.213, p 0.014. Health services factor relationship with regard to vulnerability is greater β = 0.501, p 0.000 as compared to health services impact with relief packages β = 0.316, p 0.000 and risk communication β = 0.251, p 0.062. The influence of relief packages on refugees' vulnerability β = 0.274, p 0.005 and the influence of risk communication on refugees' vulnerability β = 0.259, p 0.004 is significant. Relief packages' influence on risk communication β = 0.225, p 0.016 is also significant.

It can be noted from Table 6 that post-COVID crisis (CC) is the most significant latent variable because the link between CC and other latent variables is strong. Post-COVID crisis has a significant impact on vulnerability, so it is therefore said that hypothesis 1 is supported with a significant value β = 0.471, p 0.000.

Mediation effects assessment

Mediation analysis considers the role of an intermediate variable that explains or helps how the effect of exogenous variable on endogenous variable is extended with mediators. The mediation effects of three mediators are tested as shown in Fig. 2. The mediation assessment is done on the basis of examining multiple mediators with 5000 bootstrap resamples on 95% bias-correlated confidence intervals in the PLS approach [48, 56]. In this mediation model, post-COVID crisis is the exogenous (independent) latent variable, along with health services as mediator one, relief packages as mediator two and risk communication as mediator three, and refugees' vulnerability as the outcome.

In Table 7, the first indirect effect labelled as 'Ind1', the influence of the post-COVID crisis on refugees' vulnerability along with restricted health services and unavailability of relief packages (COV → AHS → RP → RV) is shown as a1d1b2 (as indicated in Table 7 and Fig. 2). The effect of post-COVID crisis on restricted health services and the effect of restricted health services on the unavailability of relief packages, then the end effect on refugees' vulnerability is 0.368significantly positive, and the interval is above zero (0.452, 0.683). It clearly indicates that constraints in access to health services and relief packages have triggered the effects of post COVID crisis on refugees' vulnerability. Consequently hypothesis 2 is supported.

Second indirect effect, labeled as 'Ind2', indicates post COVID crisis on refugees' vulnerability along with restricted health services and limited risk communication (COV → HS → RC → RV) is presented as a1d2b3 (as shown in Table 7 and Fig. 2). The effect of post COVID

Table 7 Mediation Effects

	Paths	Effect	SD	t-values	95% Confidence interval(Bootstrap)	
					Low	High
Model without moderators						
Path estimate	c	0.511	0.041	11.928	0.427	0.595
Model with moderators						
Ind1	a1d1b2	0.368	0.057	9.684	0.452	0.683
Ind2	a1d2b3	0.170	0.055	7.684	0.449	0.681
Ind3	a2d3b3	0.169	0.049	6.309	0.254	0.383
Ind4	a1d1d2d3b3	0.172	0.086	6.785	0.407	0.736
total direct effect	c′	0.471	0.084	7.874	0.309	0.673
total indirect effect	a1d1b2 + a1d2b3 + a2d3b3 + a1d1d2d3b3	0.879	0.053	16.928	0.518	0.779
total effect	c′ + a1d1b2 + a1d2b3 + a2d3b3 + a1d1d2d3b3	1.35	0.038	24.079	0.739	0.871

crisis is more considerable with constraints in access to health services and risk communication pressuring more effect on refugees' vulnerability (0.170). Therefore, hypothesis 3 is supported with significant impact.

The third indirect effect labeled 'Ind3', is the effect of post COVID crisis on refugees' vulnerability through relief packages and risk communication (COV → RP → RC → RV) shown as a2d3b3 (as pointed in Table 7 and Fig. 2). The effect of post COVID crisis is considerable with issues of relief packages and risk communication (0.169) indicting high level of refugees' vulnerability. So, hypothesis four is supported suggesting partial impact.

The forth but final indirect effect labeled 'Ind4', is the effect of post COVID crisis on refugees vulnerability with restricted health services, relief packages and risk communication (COV → HS → RP → RC → RV) presented as a1d1d2d3b3 (as designated in Table 7 and Fig. 2). The effect of post COVID crisis is significant when restricted health services, relief packages and risk communication are used as mediators and in end high level of refugees' vulnerability is turned (0.172). Therefore H5 is also supported.

The direct effect is also indicated as 'c', post COVID crisis on refugees' vulnerability without mediators is 0.471 and significant. When the mediators are included, the direct effect is increased to 0.511significantly which clearly indicates that mediators are serving directly and strongly triggering the impact of post COVID crisis on refugees' vulnerability [57].

The main finding of this study is that post-COVID and economic crises have positively impacted Afghan refugees' vulnerability, so hypothesis 1 is accepted as inconsistent with the previous literature [26, 35]. In addition to this, the pandemic and economic crisis not only directly influence the vulnerability of migrants, but the post-pandemic and economic crisis is impacting multiple mediations such as restricted health services, unavailability of relief packages and lack of communication. Restricted health facilities and unavailability of relief packages mediate meaning enhances the influence of pandemic and economic crisis on the vulnerability of migrants (H2); restricted health facilities and lack of risk communication mediate meaning increases the impact of the pandemic and economic crisis on the vulnerability of migrants (H3); and unavailability of relief packages and lack of risk communication mediates meaning enhances the influence of pandemic and economic crisis on vulnerability of migrants (H4). Overall all the government services including restricted health facilities, lack of risk communication and unavailability of relief packages mediate the effect of pandemic and economic crisis on migrants' vulnerability (H5). As discussed above all direct and indirect paths are significant.

Discussion and policy implications

The study aimed to explore the relationship between access to government services along with post pandemic and economic crisis with vulnerability of Afghan refugees. The contribution of this study are as follows.

In camp-like settings at the borders of Pakistan after the Taliban insurgency in Afghanistan has worsened the situation of Afghan refugees. The inability to maintain regular migration status, social distancing and limited access to protective equipment are all major factors that have increased the vulnerability of Afghan migrants in Pakistan and at border camps.

This study survey reveals that overall, the post-COVID crisis and restricted health services play an important role in increasing the vulnerability of Afghan refugees. Since post-COVID exerts the greatest direct effects, and limited health services, in return, increases the vulnerability. The health facilities in the refugee villages are not sufficient to cater for COVID-19. The women are more vulnerable and are suffering due to a shortage of female health staff in camps. The need is to ensure the coverage of basic needs and access to health services among Afghan migrants. Because of the fractured public health system and lack of medicines and doctors in public hospitals in Pakistan, Afghan migrants also seek private medical services rather than public ones like the Pakistani national people. Access to better healthcare facilities depends on the financial situation of the citizens as well as for Afghan refugees despite the legal status of migrants. In camp-like settings, females are more vulnerable due to the unavailability of female doctors, and the health facilities are inadequate. The females are facing barriers to seeking mental health care due to the suffering of living in unprotected camps. This aspect of policy requires special attention.

Relief packages also have a significant direct impact on vulnerability. Furthermore, the prevailing situation has taken away the bread and butter of the daily wagers among Afghan refugees. This issue is in dire need of government intervention with the collaboration of WHO and UNHCR. The risk communication effect on vulnerability appears to be lower than the positive effects of the post-COVID crisis and access to health services, which means participants tend to weigh more the absence of expected government facilities, the constraints of relief package services, and access to health services. Moreover, the legal status has bound the Afghan refugees to restraint from relief packages. Effective communication and, in time, information or guidance is limited, which creates threats to their health and hazards in supportive knowledge for a socioeconomic upgrade. Discrimination among local communities against Afghan refugees is systemic in the system of the country, which also hinders the refugees from getting timely information.

It is further noted in mediation analysis that a constraint in access to health services and relief packages applies a greater effect of post COVID crisis on the vulnerability. The direct effect of the post-COVID crisis without health services, relief packages, and risk communication in the mediators 'analysis appears to be lower. It is, therefore, obvious from all analyses in the model that restricted health services significantly impact the vulnerability of refugees in the absence of relief packages and insufficient risk communication. Lack of health services and relief packages both significantly enhances the impact of the post-COVID crisis on refugee vulnerability. These findings are inconsistent with the literature [26]. Relief packages also enhance the vulnerability as this mainly comes from the circumstances of the host country. Risk communication is the most critical factor in such mass spread for survival when most refugees are in the informal sector.

The research findings imply that the most vulnerable refugees can be those whose needs have not been considered at the global, country and civil society level [58]. Post-COVID has mounted multiple effects along with various challenges on refugees' vulnerability. Health services, relief packages, and risk communication enhance the crisis impact on refugees. This study contributes to exploring the mediation roles of various factors in refugee situation and the developing economy; it is also significant that the post-COVID crisis also impacted on health services, relief packages, and risk communication impacted on refugees' vulnerability [5, 7, 59].

At the time of writing this study, a new crisis of economic misery in Pakistan in post-COVID and insurgency of Taliban in Afghanistan has been started. Pakistan's government has changed the policies for Afghan refugees. These situations and upcoming desperate occurrences need the attention of authorities and policymakers to respond quickly to the needs of the vulnerable, who are hit hardest by financial and social devastation. The recent pushed-back policy against new Afghan refugees indicates the state's fear of financial and political constraints, but the humanitarian has not to be forgotten in such a difficult time. The lack of clear policy for refugees is not only against human rights but also depicts a negative image of Pakistan in managing government services for refugees. The social isolation of Afghan refugees and the hostile attitude of local people and law enforcement agencies towards Afghans is getting worse. So, the findings of the study highlight the need to revisit plans for Afghan refugees for the government of Pakistan.

1. In such a pandemic, it is not enough to concentrate only on the basic needs of refugees while ignoring the need for emergency financial assistance, universal health coverage and widespread awareness creation for refugee labourers. A country like Pakistan must secure food, shelter and socioeconomic protection for the vulnerable in the months to come. Exclusion of refugees from national and international subsistence requires inclusive plans to strengthen resilience conditions [2].The implicit modernization of informal jobs needs the reintegration of structural underpinnings. The phenomenon of refugees' vulnerability cannot be only decreased by addressing the social

conditions but also needs to be supplemented with legal initiatives [5, 59].

2. A purposeful governmental attitude has largely ignored refugee management and overlooked Afghan migrants entering Pakistan. The Pakistani government has not incorporated an all-covering viewpoint to handle these influxes into the country through inclusive policy planning. The inclusion of women has to receive policy focus for humanitarian assistance due to cultural barriers and gender-based violence.
3. This pandemic has raised the urgency to prioritize aligned social support for effective plans. Refugee labourers have to be included in social protection with the help of international donors on the basis of existing human rights conditions. Serious disruptions in labour work due to post-COVID and economic misery indicate the need for income support for Afghan refugees. United Nations High Commissioner for Refugees (UNHCR) is involved in the programs for Afghan refugees in Pakistan since 2000 till to date. In absence of legal framework in Pakistan for refugees, UNHCR operating refugee status determination program with Pakistani government. Pakistan has already planned a cash assistance program for vulnerable Afghan refugees with the help of the UNHCR in post-COVID on the basis of serious medical conditions, focusing on single parents and those with disabilities. Some emergency cash programs are required to ease the basic needs of those refugees who lost their income during this pandemic. To ensure safety measures and precautions during the crisis, awareness programs in local languages must be planned for illiterate refugees. For livelihood activities, self-employment opportunities and inclusion in skillful training have to be provided.
4. UNHCR programs usually developed in international scenario and lacking participation of primary stakeholder the refugees [60, 61]. This study is helpful to understand the real situation of access to host government facilities. UNHCR provides various economic and social policy guidelines for Afghan refugees and this study help them while indicating strong relationship of migrants' vulnerability in refugee communities.
5. Cities hosting refugees are on the frontline in providing timely protection. In the case of Pakistan, lots of financial constraints are already hampering the efforts to ensure the safety and protection of vulnerable communities. The Afghan population has increased in Pakistan dramatically in the past 40 years. The government of Pakistan cannot easily lift the load of more Afghan refugees after the Taliban takeover of Kabul in August 2021 without the financial support of international donors. A rise in the number of Afghan refugees in Pakistan would place political and financial constraints on Pakistan. International human welfare organizations and social partners have to cooperate in boosting the capacity of government in the cities. Law has to be imposed to protect refugees working in the informal sector and to regulate the living conditions of the poor population. Pakistan, like many other developing countries, is facing immense resource constraints. The formulation of policies to meet the needs of new refugees is essential.
6. Women frequently play major roles in terms of family well-being and healthcare. Women contribute to the well-being of the refugee population through programs on family planning, maternity and child care, and women's health. Women also can play a major role in fostering social cohesiveness and community development. They can help Afghan refugees feel stable and involved in social services, community development projects, and peace-building initiatives. Adopting social inclusion and integration of Afghan refugee women with the host community can be facilitated by initiatives that bridge and remove cultural obstacles [62, 63].

Limitations and future research

There are important limitations to be considered in this study. The study restricted to areas populated with majority of refugees for data collection, which can skew the findings. However, the inclusion of diverse respondents coupled with targeted Afghan refugee areas is a strength. The survey questions were from valid and reliable scale to assess the access to government services for Afghan refugees.

Convenient sampling is crucial for transparency, but the study used is based on convenient sample basis due to restricted time and resources. The generalizability of the findings is sufficient because the study focused on refugees' areas to get proper response via survey. The study adopts cross sectional quantitative design, future studies can use qualitative design to expand the scope and to extend the research. Additionally, the time frame for data collection may have been affected by the prevailing situation in the country.

Conclusion

This study looks into the effects of the post-COVID and economic crisis on the vulnerability of refugees by focusing on the areas of health services, relief packages and risk communication. It contributes to furnishing evidence of multiple supports for improving

refugees' vulnerability in the form of medical, financial, or communication support. With a sample of 427 Afghan refugee families, the research shows a high level of vulnerability. The research highlights the challenges being faced by refugees as a consequence of the Kabul crisis and COVID-19 outbreak, particularly with regard to livelihoods. Afghan refugees might not have been more vulnerable to the disease itself at the start, but subsequent conditions have left them quite vulnerable. This study also highlights the structural underpinnings of the refugees, who mostly earn daily wages.

The government of Pakistan has been trying to provide some access to social services to Afghan refugees and asylum seekers in camps after the Kabul situation since August 2021. Despite hosting Afghan refugees for the last forty years, the government of Pakistan has no clear systemized policy towards Afghans till now. The need to look at the impact of the pandemic on refugees' vulnerability is the need of time as the Kabul situation is still raging in the region.

Supplementary Information

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Supplementary Material 1.

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No.

Informed consent
Informed consents were obtained in June 2022 from Afghan refugee families' in major cities across Pakistan. All the participants were accessed through community organizations during semi-lockdowns. Response Participants were provided with comprehensive information regarding the study's purpose and procedures. Confidentiality and privacy safeguards were strictly implemented throughout the research process.

Authors' contributions
KBS, MM, HHC, NUK and CY conceptualized the research idea; KBS, MM and NUK conducted the surveys and performed the analysis; HHC, CY and KBS wrote the first draft of the manuscript; all authors critically discussed the results, revised the manuscript and have read and approved the manuscript.

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Data availability
No datasets were generated or analysed during the current study.

Declarations

Ethics approval and consent to participate
This research adheres to the ethical standards and guidelines outlined in the Helsinki Declaration of 1964 and its subsequent amendments. To the best of our knowledge, all of the research procedures were performed within these ethical standards. Formal approval was obtained from the Ethical Review Committee (ERC) of the Centre for Policy Studies, COMSATS University, Islamabad, Pakistan.

Consent for publication
The participants of the study were aware and willing to publish their identifiable data in an online, open-access journal.

Competing interests
The authors declare no competing interests.

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