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An Empirical Analysis of Well-being: A Case Study of Slum Area in Islamabad

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ABSTRACT

Slums have long been a feature of urban life in Pakistan as well as throughout the globe. Nearly all slum locations may be found outside of cities. Slums, however, are prevalent in the center of Islamabad, notably on the sides of the riverine null. Notwithstanding, CDA has approved these slums, and most poor Christians reside in Islamabad's slums. Data was collected from 411 households by conducting a primary survey, and families were selected by snowball sampling. The present study has covered four major slum areas of Islamabad, including 100 quarters in F-6/2, the Faisal colony in G-7/2, the Hansa colony in G-8/1, and the France colony in F-7/4. This research's main objective is to empirically analyze the well-being of dwellers and explore the socioeconomic profile of slum dwellers. The present study considered six dimensions of well-being, including housing, education, assets, means of transportation, income, and consumption. We have also calculated poverty estimates and consumption inequality. Poverty estimates show that close to 57 percent population of slum areas was living below the poverty line. The incidence of poverty in slum areas is relatively higher than national poverty estimates.

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1. Introduction

Slum development is not recent; it has been researched for years. Slums now hold over 50% of the globe's population. According to Panday (2020), most urban poor live in slums. Slums are a detrimental consequence of urbanization (Kuddus, Tynan, & McBryde, 2020). The people who live within those slums are from a disenfranchised segment of society and confront a wide range of obstacles. A large body of literature explores and focuses on individuals who live in dilapidated residential units with inadequate infrastructure and a shortage of human capital (Addi & Ayambire, 2022; Biswas, 2019; Gaisie, Kim, & Han, 2019; Kraff, Wurm, & Taubenböck, 2022). Slum residents spend their whole lives in deplorable and poor living situations (Akoteyon, Aliu, & Soladoye, 2021; Habib, Jamil, & Ahmed, 2019; Samuel & Nisar, 2021). However, a large corpus of literature has offered insight into why residents reside in slums. Low socioeconomic position, inadequate service supply, and slum people exclusion are among the culprits (Adams,

Zulu, & Ouellette-Kray, 2020; K. A. Ahmed et al., 2022; Khan, 2022), in contrast, asserted that while terrible circumstances in slums, slum dwellers had considerably better surroundings than those in rural parts of the country.

The expansion of slums has resulted in a rise in urban poverty throughout emerging nations, especially Pakistan (Liu & Jiang, 2021). The significant rise of slums in urban areas of Pakistan, particularly in Islamabad, is linked to rural migration fueled by the desire for better socioeconomic possibilities.

1.1 An Overview of the Slum Population in Pakistan

According to statistics, nearly one-third of Asians reside in slums. In Pakistan, which makes up a significant portion of this percentage, over 40% of urban residents live in slums, as reported by the World Bank (Habib et al., 2019; Panday, 2020). Slums are becoming serious as Pakistan is confronting a ''population bomb,'' with the country becoming the fifth most populated globally and a preponderance of the younger population (63%), resulting in a rising number of households (Hafeez & Fasih, 2018). Recently, large cities within Pakistan, such as Lahore, Islamabad, Karachi, and Faisalabad, are seeing rapid expansion in slums and ''katchi abadis'' that lack essential urban services (Malik & Wahid, 2014).

Abdul and Yu (2020) state that Pakistan is the 5th most populated nation globally, with over "243 million" population in 2021. The number of slums in Pakistan is continuously decreasing; however, the number of residents in these slums is overgrowing. The percentage of the slum population in Pakistan from 1990 to 2018 is reported in Table 1. In 2018, there were 40.10 people residing in slums in Pakistan. Its maximum value over the previous 28 years was 51.00 in 1990, and its minimum was 40.10 in 2018. These figures show that a significant proportion of the urban population still lives in slum areas. These statistics are alarming and need to be addressed.

Table 1
Percentage of Urban Population Living in Slums of Pakistan

Years	Slum Population (% of Urban Population)
1990	51.0
1995	49.8
2000	48.7
2005	47.5
2007	47.0
2010	46.6
2014	45.5
2016	40.80
2018	40.10

Source: World Development Indicators (2018)

In Pakistan, there are many slums facing almost the same problems of sanitation, low-quality drinking water, inappropriate infrastructure, health problems, and lack of education (Gillani, Bhatti, Ali, & Ahmad, 2022; Habib et al., 2019; Majeed & Gillani, 2017; Malik, Roosli, & Tariq, 2020; Shafiq & Gillani, 2018). The attributes of slums in Pakistan also include poor accommodation, a lack of essential utilities, and unpleasant living circumstances. This has long been a persistent issue in Pakistan, populated mainly by the working and middle class, lower-income individuals, and marginalized communities (Malik, 2017).

1.2 An Overview of the Slum Population in Islamabad

The architecture and development of this city marked the beginning of Islamabad's urban poor. Doxiadis", a Greek designer, recommended rigorous steps to halt the growth of slums in

Islamabad when it was still being developed (Abbasi, 2019; Hussnain et al., 2020; Khurram, 2022; Malik, 2017; Moatasim, 2015). Many Pakistanis came to Islamabad for job possibilities since it was envisioned as a capital of optimism and a metaphor for development (Abbasi, 2019). Despite their understanding of the subpar working circumstances, the insufficient labour-housing capacity of the settlements, and the insecurity of social existence, these people sought recognition of their part in Pakistan's renowned and widely reported progress as epitomized by Islamabad. These makeshift work camps served as models for slums throughout the capital. The CDA recruited several people in lower positions who had completed years of education and had prior experience performing menial chores (Kreutzmann, 2013; Waste, 2013).

Hassan, Naeem, Waheed, and Thaheem (2019) reported that Islamabad was the first city in Pakistan that was architect under the pre-statement plan during the 1970s. Many workers were needed at construction for the new city of Islamabad, so many labourers came from rural areas to fulfil the government's demands. Later, as the labourers started to reside, many of their relatives and families moved from their native towns to Islamabad to escape poverty and get employment opportunities. In Islamabad, only 1.2% of the total population resided in slum areas in 1998 (Zaman, 2019). In Pakistan, slums have been a feature of urban sites; mainly, all slum sites exist across the boundaries of cities, but in Islamabad, slums exist in the middle of the town, and slum dwellers are settled mainly on the bank of riverine nullas (Wazir, 2020). The CDA approves these slums. After obtaining the authorization status, CDA took some improving actions for slum dwellers.

Islamabad has a population of 1 million, with 379,620 living in slums or underdeveloped regions. Slum expansion in Islamabad has indeed expanded during the recent decades. Zafar, Waheed, and Javaid (2019) reported that there were merely 12 slums within and surrounding the capital approximately twenty years ago; currently, there are over 4210. Moreover, over 0.1 million individuals are expected to live in more than 24 slums near areas G-7, F-6, F-7, H-9, I-11, & I-12. Notably, many such slums are officially inhabited by their residents and have been issued 'ownership' privileges by the court (Faiza, Mehmood, Naz, & Naz, 2019). However, many residents need sanitation, clean drinking water, electricity, and gas access. The lack of essential utilities has resulted in poor health and socioeconomic inequities (Gillani, Ahmed, Khan, & Hussain, 2022; Gillani, Shafiq, & Ahmad, 2019; Malik et al., 2020). Specific following are the objectives of the present study:

First, to empirically analyze the well-being of dwellers living in slum areas of Islamabad. Second, to explore the socioeconomic profile of the slum dwellers with emphasis on demographic variables, education level, school enrollment, employment status, income, expenditures, and poverty.

In Pakistan, the macroeconomic information and studies that are accessible represent trends without taking into account facts or evidence that pertain to particular communities. Pakistani policymakers cannot identify specific phenomena in undeveloped areas like the slums of Islamabad. Policies cannot be formulated without considering those who reside in slums. This research makes efforts to conscious plan such that it is simple to understand what similar aspects these slum dwellers have about poverty and consumption inequalities. These variables are crucial given their critical role in the goals for Millennium Development. Research from throughout the globe has proven that regions with higher socioeconomic variables achieve more significant outcomes regarding well-being. Thus, this study promotes the collection of data and facts that could be utilized to inform.

2. Literature Review

Samuel and Nisar (2021) investigated several religious perspectives on the causes of why people stay in the slums of Islamabad. The study found that almost all Christians, except a

minority, chose to reside in slums because of their significant social networks. Most slum dwellers are confined to slum areas due to the extreme poverty of the Muslims living in the slum areas. Akhtar (2022) measured the standard of living for those residing in Islamabad's slums using the Wealth Index. The study demonstrates that the wealth index differs among areas; for example, the greatest poorest section of families is found to reside in the G7/1 slum, while the richest group is found to live in the G7/2 slum. Deprivations in households range from 38-54 %. Because CDA has delineated every slum area with its border wall, there is no room for additional homes. The rising population has no options except to continue residing in challenging circumstances. Individuals are generally not highly educated in these slum areas. Therefore, literacy rates need to be higher.

Kamboyo, Shahid, and Kolachi (2016) investigated the problems with service delivery and the quality of life in Islamabad's slum communities, particularly in the Faisal colony. Based on the survey, dwellers in these slum regions are not provided with access to drinking water, sewerage, healthcare, and educational amenities as was intended by the Pakistani Act of 1973. The research also revealed that when it comes to access to basic amenities, slum residents in Islamabad are also not given equal rights with other residents in posh neighbourhoods. Slum dwellers live a lifestyle that is subpar by any standards. Similar findings were reported by several other researchers (Kookana, Drechsel, Jamwal, & Vanderzalm, 2020), who discovered that slum dwellers lack access to safe water, sanitary facilities, and other essentials of life around the country. Similarly, Pierce (2017) argued that while most urban dwellers have similar challenges in accessing essential services, these challenges seem to be more pervasive and acute in slum areas.

Mamdani (2016) measured socioeconomic deprivation to understand its nature, severity, and manifestations. Primary information has been gathered from 497 families from 7 katchi abadis in Karachi. The results make it clear that almost 50 per cent of the families experience various forms of deprivation. The outcomes point out that all communities confront deprivation throughout all areas (education, socioeconomic, residential qualities, services deprivation, and healthcare deprivation). However, each colony has unique priorities for challenges and problems. According to the index of numerous deprivation, 49% of families earning less than US$1.25 per day encounter several lacks. In addition, Qureshi (2010) found that 40 per cent of the total of Karachi's population is poor and lives in slums, accounting for half of the people of the city. In addition, Khan (2022) reported that basic amenities like water delivery and proper sanitation in Karachi's slums are incredibly inadequate and fall short of the needs of the densely populated area.

According to Khan (2022), Orangi Town is a significant slum area in Karachi with several important environmental, social, and economic problems. One of these social and economic problems is the enormous and developing number of slum residents with limited employment opportunities. Due to their difficulty making ends meet, people in slums sometimes resort to desperate, "illegal" means of making money. The hardest-hit areas include those surrounding, including even Orangi Town, where citizens have been locked in a cycle of hunger due to a lack of access to essentials like energy and food and to progressively deteriorating climatic conditions.

R. Ahmed and Mustafa (2016) attempted to measure the qualitative characteristics and determine the severity of poverty within Faisalabad slum areas. The index indicates that 60% of dwellers of the slums of Faisalabad were deprived of socioeconomic services. They also found that many slum residents could not fulfil their basic needs. In addition, Faheem, Mehmood, and Shah (2016) aimed to pinpoint socioeconomic difficulties in Arifwala slums regions such as accommodation, healthcare, schooling, cleanliness, robbery, and unemployment. Based on the "Socioeconomic Opportunity Index" (SEOI), 48.3% of residents in Arifwala's slum regions lack basic socioeconomic amenities. The housing situation is deplorable; the drainage system must be better. The overwhelming majority of folks prefer open spaces for cooking. The study revealed that people's income is meagre, with 91% of adults living below the poverty limit. Finally, the

results indicated that the state or other non-governmental entities (NGOs) must address these issues to improve living conditions.

Jatoo and Saengkrod (2017) analyzed the socioeconomic aspect of dwellers of 14 slums in the district of Malir, Karachi. The study concluded that the socioeconomic condition of slum dwellers was vulnerable because of deficient public services. Many slum dwellers expend 50 per cent of their monthly income on getting an education, health facilities, and drinking water. In addition, Hossain (2014) many difficulties faced by slum dwellers in Bangladesh regarding housing, drinking water, sanitation, food intake, health, education, employment as well as income patterns. The result revealed that the socioeconomic condition of slum dwellers was deplorable, and low-salaried people reside in slums. Ahmad, Shafiq, and Gillani (2019) examined that foreign remittances increases the HRD in developing countries (Shafiq, Yang, & Nawaz, 2022). Furthermore, I. Ahmed (2014) studied the population's living standard in the Attara slum (Dhaka). The results revealed that the monthly expenditures on food and related products were 44.86%, 32.02% on house rent per month, 9.03% on education, and monthly health expenditure was 7.44%. They also found that slum dwellers were doing low-salaried jobs like Rickshaw drivers, labourers, etc.

Similarly, Tanni, Hasan, Azad, and Bakali (2014) found that slum dwellers faced many problems in the Kora slum, and their living standard was unsatisfactory. Most of the dwellers were illiterate and engaged in low-salaried jobs, and these dwellers could not improve their living standards due to low incomes. Moreover, Kamruzzaman and Hakim (2016) investigated the socioeconomic status and health condition of slum dwellers of slums in Dhaka. The study found that the socioeconomic situation of slum dwellers was not satisfactory, and slum dwellers were facing many problems like food, housing, poor sanitation, and lack of gas and electricity. The results also revealed that dwellers were facing many health and hygienic issues. More than half of the dwellers were illiterate, and 31% of slum dwellers were rickshaw pullers.

According to the literature review, In Pakistan, fewer studies have been done on slum areas of Islamabad, and these studies covered few aspects of well-being. Some studies focused on the socioeconomic conditions of slum dwellers; others emphasized water supply sources, drinking water, etc. In the selected review of literature, no study was found that considered all aspects of well-being. The present research argues that every study has its importance, so a more comprehensive analysis is needed to study slums. So, this study tries to conduct a thorough investigation, which may result in a deeper understanding of the well-being of people living in slum areas of Islamabad. We have included many aspects of well-being, such as education, household assets, means of transportation, income, expenditures, and housing, and calculated the poverty and dependency ratio.

Based on the literature review, numerous investigations have taken place on slums in Pakistan's major cities like Karachi since slum areas in Karachi are increasing rapidly (R. Ahmed & Mustafa, 2016; Jatoo & Saengkrod, 2017; Khan, 2022; Mamdani, 2016). Some studies focused on socioeconomic deprivation to understand its nature, severity, and manifestations. Other studies gave more importance to water supply sources and drinking water etc. However, little evidence is available about the well-being of all those residing in Islamabad's slum areas. Therefore, this study aimed to investigate the well-being of people living in 4 slum areas of Islamabad.

3. Data

This research is entirely a quantitative assessment of information collected through snowball sampling within each of the slum areas chosen for the research. The core rationale underpinning adopting this sampling procedure was to approach the intended audience with specific recommendations because it was tough to approach and locate the population sample

by ourselves, asserts (Zhang & Patone, 2017). In the beginning, the researcher contacted one or two possible households from the populace keen to participate in the survey and recommended us to additional slum dwellers who might be able to participate. If personally approached for an encounter, several slum residents might not be cooperative. This method worked best for investigation because it could be utilized as a referral and time-saving. The procedure was performed again until the requisite total sample was attained. This method was developed for interaction with slum residents who are more acquainted with the surrounding people. This method helped find the well-being of people living in four selected slum areas.

3.1 Challenges in Recruiting Participants

The researchers faced specific difficulties, such as a need for responses because participants were anxious about the safety and confidentiality of their answers. In the hopes of resolving this issue, the researchers assured respondents that their answers would be treated with the utmost privacy and kept to themselves. By making the data gathering adaptable, the researchers have also taken an additional step towards decreasing non - the response rate. For this reason, the researcher took various actions, such as gathering information at times that were feasible for the respondents. In addition, To counteract this bias, researchers distributed questionnaires at different times during the day, such as earlier enough every morning to contact the households they left for jobs or later in the evenings, encompassing both weekdays and holidays. Based on the following criteria, the researchers chose the respondents. Residents who have resided in slums for more than one year, Individuals who know household facilities and basic infrastructures are included. The distribution of sampled households is given in Table 2.

Table 2
Sampled Households

Area	Households	Individuals
100 quarter (F-6/2)	100	610
Faisal colony(G-7/2)	111	771
Hansa colony(G-8/1)	100	654
France colony(F-7/4)	100	692
Total	411	2727

Source: Author's survey

This study was based on primary data and was collected through questionnaires. The Questionnaire is given in Appendix A. The primary survey data contains information about 411 households comprising 2727 individuals. The data is collected simple random sample technique.

3.2 Demographic Profile

The survey respondents were selected from four slum areas of Islamabad, including 100 Quarter, Faisal, Hansa, and France. In the demographic profile of the dwellers, variables included such as gender, age, marital status, school enrollment, level of education, and employment. The following demographic variables of the respondents are considered. The sample distribution concerning gender revealed an almost equal proportion of males and females in all colonies. The percentage of males and females is reported in Table 3.

The ratio of males to females is an essential demographic component. As shown in Table 3, the male and female dwellers are approximately equal. About 50% of the slum population are males, and 50% are females. The distribution of sampled households concerning age is given in Table 4. Most individuals fall in the age bracket of 15 to 6 (63% to 65.5%). This group is usually an active population. The age-wise distribution of individuals reveals that a large proportion of individuals falls into group 2, which is generally economically active. Interestingly, the working-age population is higher in slum areas as compared to the working-age population in Islamabad overall. The distribution of individuals (with age 18 or more) concerning marital status is given

in Table 5. More than half of the slum dwellers are unmarried. This tendency is similar across the four slums. In this regard, this study considered a population between 4 and 15 years of age. This is a school-going age. The data given in Table 6 reports the enrollment of dwellers in education.

Table 3
Gender Distribution of Dwellers in Selected Slums of Islamabad

Colonies	Females		Males	
	Percentage	Frequency	Percentage	Frequency
100 Quarter (F-6/2)	50.30%	307	49.70%	303
Faisal Colony(G-7/2)	49%	378	51.00%	393
Hansa Colony(G-8/1)	48.80%	319	51.20%	335
France Colony(F-7/4)	50.70%	351	49.30%	341
Overall	49.68%	1355	50.31%	1372

Source: Author's calculation

Table 4
Age Composition of Slum Dwellers

Age	0-14	15-64	65 and above	Total
Colonies	Group 1	Group 2	Group 3	
100 Quarter (F-6/2)	190 (31.1%)	399 (65.4%)	21 (3.1%)	610
Faisal Colony(G-7/2)	247 (32%)	505 (65.5%)	19 (2.5%)	771
Hansa Colony(G-8/1)	227 (34.7%)	412 (63%)	15 (2.3%)	654
France Colony(F-7/4)	219 (31.6%)	447 (64.6)	26 (3.8%)	692
Overall	883(32.37%)	1763(64.64%)	81 (2.97%)	2727

Source: Author's surveys

Table 5
Slum-Wise Marital Status of Dwellers

Colonies Name	Married	Unmarried
100 Quarter (F-6/2)	46%	54%
Faisal Colony(G-7/2)	43%	57%
Hansa Colony(G-8/1)	43%	57%
France Colony(F-7/4)	48%	52%

Source: Author's calculation

Table 6
Percentage of Enrolled Population

Colony	Percentage of Enrolled Population (Aged 4 To 15 Years)
100 Quarter (F-6/2)	83.58
Faisal Colony (G-7/2)	88.41
Hansa Colony (G-8/1)	76.92
France Colony (F-7/4)	82.14
Total	82.87

Source: Author's calculation

The statistics reported in Table 6 reveal that more than 80% of the individuals with age between 4 to 15 are enrolled in different educational institutions. This is quite encouraging, as we are dealing with slum areas where a general perception of education is too low. It is also to be noted that the slums of Islamabad are in the city's central location. Access to public schools is very easy. Therefore, the dwellers are taking benefit of available facilities. This study considered eight education groups to determine the education profile of adults (age 16 and above) living in four selected slums of Islamabad. The statistics are reported in Table 7.

As shown in Table 7, a large proportion of the population is illiterate; they cannot read and write. Similarly, according to a report by "the Ministry of Human Rights" (UNICEF, 2020),70

percent of the people in Islamabad's slums have not achieved education. According to Michalos (2017), education is one of the essential dimensions of well-being. Earning more money, having more options in life, and generally being healthier are all benefits of education. As the education level increases, households' well-being increases (Zakar et al., 2020). Most of the dwellers are Christian, and a small proportion is Muslims. In a selected sample of 411 households, 383 households are Christian religion, and only 28 households are Muslim. The colony-wise distribution of households concerning religion is reported in Table 8. Asset holdings reflect the financial position of the household. This study considered six items: air conditioner ownership, fridge/refrigerator, and washing machine. The summary of asset holding is given in Table 9. Most sample households have assets like television, iron, mobile phone, washing machine, and fridge.

Table 7
Slum Wise Level of Education of Dweller

Level of Education	100 Quarter (F-6/2)	Faisal Colony (G-7/2)	Hansa Colony (G-8/1)	France Colony (F-7/4)	Overall
Illiterate	52.4	65.3	51.3	51.9	55.6
Below Primary	2.5	1.2	8.0	0.9	3.0
Primary	5.7	9.1	16.9	8.8	10.1
Middle	11.5	6.8	9.2	10.7	9.5
Matric	15.7	12.0	9.4	14.8	12.9
Intermediate	5.0	2.1	3.9	5.6	4.1
Bachelors	7.2	3.5	1.4	7.3	4.9

Source: Author's calculation

Table 8
Area-Wise Religion Status of Slum Household

(In percentage of households)	Christians	Muslims
100 Quarter (F-6/2)	100%	0
Faisal Colony (G-7/2)	81.8%	18.2%
Hansa Colony (G-8/1)	95%	5%
France Colony (F-7/4)	98%	2%
Overall	93.19%	6.8%

Source: Author's survey

Table 9
Household Assets among Slums Households

(in the percentage of households)	Television	Iron	Mobil Phone	Washin Machine	Fridge	Air Conditioner
100 Quarter (F-6/2)	95%	100%	100%	96%	89%	2%
Faisal Colony (G-7/2)	94.6%	100%	100%	94.6%	82.9%	0%
Hansa Colony (G-8/1)	100%	100%	100%	95%	74%	0%
France Colony(F-7/4)	100%	100%	100%	100%	96%	2%
Total	97.3%	100%	100%	96.3%	85.4%	0.97%

Source: Author's survey

4. Results and Discussion

4.1 Housing Information

This section explains the housing information of slum dwellers. Interestingly, almost all dwellers of selected slums live independently and do not share a home. Table 11 shows the source of drinking water in four selected slum areas.

The statistics reported in Table 11 are quite diversified. Most people in 100 quarters (F-6/2) drink water from filtration plants. The residents of Hansa Colony (G-8/1) and France Colony (F-7/4) mainly depend upon bored water. A very insignificant proportion of households boil water before drinking. Young et al. (2019) reported that, like all other indicators, the source of drinking

water is also a key indicator of well-being. In Pakistan, many children die from diarrhoea, often caused by impure drinking water (Fida, Li, Wang, Alam, & Nsabimana, 2022; Manetu, M'masi, & Recha, 2021). According to Abedin, Collins, Habiba, and Shaw (2019) state that the availability of clean drinking water is essential for health or well-being. The average number of rooms is another indicator that reflects the living standards. The distribution of households concerning the number of rooms in a house is given in Table 12.

Table 10
Percentage of Households Living Independently

Colony	Percentage of Household Living Independently
100 Quarter (F-6/2)	98.0%
Faisal Colony(G-7/2)	96.4%
Hansa Colony(G-8/1)	99.0%
France Colony(F-7/4)	99.0%
Total	98.0%

Source: Author's survey

Table 11
Distribution of Households Concerning Source of Drinking Water

Colony	Bore	Filter	Boil
100 Quarter(F-6/2)	16%	83%	1%
Faisal Colony(G-7/2)	22.5%	76.6%	0.9%
Hansa Colony(G-8/1)	70%	30%	0%
France Colony(F-7/4)	58%	41%	1%
Overall	41.1%	58.2%	0.7%

Source: Author's survey

Table 12
Distribution of Households Concerning the Number of Rooms

(In percentage of households)	1 Room	2 Rooms	3 Rooms	4 Rooms	5 Rooms or more
100 Quarter (F-6/2)	20%	50%	17%	12%	1%
Faisal Colony (G-7/2)	30%	31.5%	24.3%	9.9%	3.6%
Hansa Colony (G-8/1)	17%	52%	12%	9%	5%
France Colony (F-7/4)	12%	48%	24%	14%	2%
Overall	88%	185%	80%	46%	12%
Average	22%	46.25%	20%	11.5%	3%

Source: Author's survey

It is clear from the table that more than two-thirds of the houses have only one or at most two rooms. This indicates that space is one of the significant issues which residents of slums in Islamabad are facing. The distribution of households concerning the number of persons in a household is given in Table 13. This study found that 25% of the families have a household size of up to four members, and 75% of the slum dwellers have a household size of up to six. We found that, on average, 43% of households in slum areas have a household size of up to seven members. The household size in slum areas is more significant than in Islamabad overall. Usually, the facility of a separate kitchen is not available in slums. However, the situation is quite different for the slums of Islamabad. As per statistics reported in Table 14, most households have a separate kitchen. Specifically, 87% of homes in France Colony have a particular kitchen facility.

Table 15 reports the percentage of households with electricity and gas facilities. These statistics are the distinguishing feature of slums in Islamabad; almost all households have electricity facilities, and a significant proportion, except Hansa Colony, have a Gas connection. Churchill and Smyth (2017) reported that access to electricity is also one of the leading well-being indicators. Electricity has become a part of our lives, and it is challenging to survive; households are the primary consumers without electricity. Most appliances such as fridges, AC,

mobile phones, electric heaters, bulbs, mobile phones, laptops, and television all function because of electricity (Hannagan, Woszczeiko, Langstaff, Shen, & Rodwell, 2022; Ohler, Loomis, & Ilves, 2020).

Table 13
Distribution of Households Concerning the Number of Persons

(Percentage of households)	Two persons	Three persons	Four persons	Five persons	Six persons	Seven and more persons
100 quarter (F-6/2)	1.0%	7.0%	16.0%	19.0%	22.0%	35.0%
Faisal colony (G-7/2)	0.9%	1.8%	9.9%	20.7%	22.5%	44.1%
Hansa colony(G-8/1)	0.0%	6.0%	8.0%	14.0%	26.0%	46.0%
France colony(F-7/4)	2%	2.0%	7.0%	22.0%	19.0%	48.0%
Total	0.97%	4.1%	10.2%	10.9%	16.7%	43.1%

Source: Author's survey

Table 14
Percentage of Households Having Separate Kitchens

Colony	Separate Kitchen
100 Quarter (F-6/2)	39 %
Faisal Colony (G-7/2)	55 %
Hansa Colony (G-8/1)	65 %
France Colony (F-7/4)	87 %
Overall	61.34%

Source: Author's survey

Table 15
Percentage of Households Having Access to Electricity and Gas

Colony	Electricity Connection	Gas Connection
100 Quarter (F-6/2)	98%	26%
Faisal Colony (G-7/2)	99%	87%
Hansa Colony (G-8/1)	100%	3%
France Colony (F-7/4)	100%	93%
Overall	99.02%	53.21%

Source: Author's survey

4.2 Employment and Consumption

In this section, we shall discuss the income and employment status of households living in the slums of Islamabad City. It simply means that either a person is employed or not. In this regard, we considered all those individuals who are 15 years or above in age and are currently not enrolled in any educational institution. Table 16 reports the proportion of such adults who are employed.

Table 16
Slum-wise Percentage of Employed Persons (age 15 and above)

Colony	Overall	Females	Males
100 quarter(F-6/2)	50.23%	32.22%	67.77%
Faisal colony(G-7/2)	48.00%	21.11%	78.88%
Hansa colony(G-8/1)	50.00%	23.94%	76.05%
France colony(F-7/4)	49.47%	25.64%	74.35%
Overall	49.45	25.52%	74.47%

Source: Author's survey

The findings are interesting, especially for women. As per Household Integrated Income and Consumption Survey (2015-16), around 12% of women (age 15 or above and currently not enrolled) are employed in Pakistan. In our case, this percentage is almost double, indicating that women of selected slums are more inclined towards the job. The data revealed that women in

slums mainly engage in low-paid services like cleaning, housemaids, and helpers beauticians. They are influential in supporting their families' responsibilities and household income. The active community of slum areas was mainly confined to low-paid services such as sweepers, house cleaners, sanitary, and hairdressers/beauticians. Similarly, according to the UNICEF report on the profile of slums of Islamabad city, most slum residents in Islamabad serve as working class or engage in other low-salaried professions (UNICEF, 2020). We have classified them into nine major occupational groups. Table 17 summarizes the distribution of employed persons concerning their occupation.

Table 17
Occupational Distribution of Employed Persons (age 15 and above)

Occupations	Percentage of Employed Persons
Sanitary Workers and Sweepers	35.20
Maids	10.67
Shopkeepers and Salesmen	6.27
Tailors	2.64
Peon, Office Boy, and Related Occupations	3.63
Mechanics and Car Painters	2.42
Drivers	6.71
Beauticians and Workers in Parlor	2.97
Others	29.49

Source: Author's survey

The highest percentage of the population was engaged as sanitary workers. Many dwellers were house cleaners, shopkeepers, tailors, peons, office assistants, mechanics, car painters, drivers, salespersons, and beauticians. The remaining occupations were included in the last group, occupying a minimal percentage. This group comprises multiple fields, including electricians, Supervisors, masons, unskilled labour, teachers, clerks, receptionists, managers, policemen, policewomen, fitness trainers, lab attendants, and security guards. The dependency ratio gives the proportion of dependent members. We worked out the average dependency ratio for all households, and the results are presented in Table 19. The value of the dependency ratio lies between 0 and 1. The dependency ratio shows the working and the non-working population. As shown in Table 18, the dependency ratio is divided into four main groups.

Table 18
Distribution of Households Concerning Dependency Ratio

Colony	0-0.25	0.26-0.50	0.51-0.75	0.76-1.00
100 Quarter(F-6/2)	3.0 %	23.0 %	48.0 %	26.0 %
Faisal Colony(G-7/2)	0.0 %	18.0 %	53.2 %	28.8 %
Hansa Colony(G-8/1)	0.0 %	22.0 %	47.0 %	31.0 %
France Colony(F-7/4)	3.0 %	18.0 %	49.0 %	30.0 %
Overall	1.5 %	20.1 %	49.4 %	29.0 %

Source: Author's survey

We conclude that the dependency ratio is too high in slum areas. 78 % of households fall in the categories of 0.51 to 1. A low dependency ratio means enough working people who may help non-working people (dependent people). A higher dependency ratio illustrates the increased financial burden on the working population. Household income and expenditures are two critical measures of well-being. Expenditure is considered a better measure of well-being, as it is what the household has consumed. Higher the consumption, the greater the level of well-being and satisfaction. Moreover, consumers can hardly be underreported. The present study, therefore, has focused on the figures of consumption rather than income. The researchers have calculated Per-adult equivalent household consumption instead of per capita consumption. The Per capita unit has certain limitations, such as giving equal weight to all individuals and not incorporating age and gender, so we have used 'adult equivalent' as a unit of analysis that takes care of age and gender. The estimates are presented in Table 19.

Table 19
Per Adult Equivalent Household Monthly Consumption

Colony	Per Adult-equivalent Household Monthly Consumption
100 Quarter (F.6/2)	3811
Faisal Colony (G.7/2)	3317
Hansa Colony (G.8/1)	3397
France Colony (F.7/4)	4080
Overall	3651

Source: Author's calculations

As seen from Table 19, there are more minor differences in the monthly family expenditures per adult in each slum region. According to HIICS (2015–16), the monthly consumption per adult family in Pakistan is 6800 in urban regions and 6062 overall. However, in the current analysis of slum areas, the average per adult equivalent household monthly expenditures are around Rs 3600. Now compare the per-adult household monthly consumption expenditures of slum areas with the per-adult household consumption expenditures of urban areas of Pakistan. It reveals that the per-adult equivalent in slum areas is half as much as the per-adult equivalent expenditures in urban areas of Pakistan. It is interesting to note that in our analysis, employment is high, but average consumption expenditure is almost half of the urban areas of Pakistan. About half of the population is employed, and many women are working. The figures for the dependency ratio moreover are also not so bad, but the statistics per household consumption indicate that, in general, people are low-salaried. Their income level is low, so their expenditures are also expected.

In all the slum areas we have selected, the people living in these slum areas have built their own houses on government land, so the main advantage of slum dwellers is that there is no house rent. Now consider the house rent in urban areas in Pakistan. It is approximately one-fourth of the total expenditures, meaning that households living in urban areas pay 1700 in house rent, and average monthly per-adult expenditures, excluding house rent, are 5100 rupees, 50% higher than the slums of our study.

Another reason for the relatively low per adult household monthly expenditures in slum areas is the low transportation cost. Most of them do not own transport, as they work in nearby areas and those who own use bikes for travelling, which is relatively cheaper transportation. Moreover, the educational expenditures are also too low in slum areas, as almost all children attend government schools that do not have a fee and provide free books. Similarly, the slum areas have accessible dispensaries, reducing their expenditures. Even the nearby government hospitals such as Polyclinic, Pakistan Institute of Medical Sciences (PIMS), and Capital Development Authority Hospital (CDA) are free, where many dwellers of these slums work. Therefore, the absence of house rent, low transportation costs, and low health expenditures are the main reasons for low per-adult equivalent expenditures in the slums of Islamabad city.

4.3 Inequality

In this chapter, we will discuss the statistics of inequality and poverty in four selected slums of Islamabad. We presented the per-adult equivalent household monthly consumption expenditures in the previous chapter. Now we shall discuss the existence of consumption inequality. There are different measures to calculate consumption inequality. We have used the Gini coefficient to measure consumption inequalities in the present study. The analysis is carried out for four slum areas of Islamabad, namely 100 quarter (F.6/2), Faisal colony (G.7/2), Hansa colony (G.8/1), and France colony (F.7/4). The estimates of Per-adult equivalent consumption inequalities are reported in Table 20.

It can be seen from Table 20 that, in general, the estimates of the Gini Coefficient are too low for all slums. The overall Gini Coefficient is 0.16. The Gini coefficients are approximately the same for all the slum areas, which means that people living in slum areas have no difference

in living standards, and almost all dwellers are engaged with low-salaried occupations, sanitary workers, barbers, house cleaners, labourers, barbers, beauticians, etc. The other reasons for low inequality are that the socioeconomic condition of slum dwellers is approximately the same; moreover, the people living in slum areas belong to the same community, so their cultural, social, and economic preferences are identical.

Table 20
Consumption Inequality in Slums of Islamabad City

Colony	Consumption Inequality
100 Quarter (F-6/2)	0.17
Faisal Colony(G-7/2)	0.24
Hansa Colony(G-8/1)	0.14
France Colony (F-7/4)	0.12
Overall	0.16

Source: Author's calculations

According to Wright (2003), the dwellers residing in slum areas of Islamabad might be defined as a 'class' because dwellers have the same economic, social, and educational status. Environmental regulations also effect the health (Wang, Gillani, Nazir, & Razzaq, 2023). One other possible reason for almost the same and low inequality in slum areas is that they are living in the same environment; as a result, their lives are made up of the same routine or thinking, so they cannot improve their living standards.

4.4 Poverty

In 1990, the World Bank described poverty as ''the inability to attain a minimum standard of living'' As already mentioned, we have defined the poverty line. The poverty line is the level of individual expenditures necessary to buy a minimal basket of commodities to be out of poverty. The poverty line varies from country to country. In our study, households with per-adult equivalent expenditures below the poverty line are treated as poor, and households with per-adult equivalent expenditures above the poverty line are treated as non-poor. In other words, the poverty line is a benchmark that segregates people experiencing poverty from the non-poor. In this regard, we inflated the official poverty line of the Government of Pakistan. The inflated figures are 3609. Therefore, a household is considered poor if its per-adult equivalent expenditures are less than Rs.3609. The head count indices for all colonies are reported in Table 21.

Table 21
Poverty in Slums of Islamabad City

Colony	Head Count Index (in %age)
100 Quarter (F-6/2)	51.59 %
Faisal Colony(G-7/2)	70.04 %
Hansa Colony(G-8/1)	68.35 %
France Colony(F-7/4)	34.90 %
Overall	56.69 %

Source: Author's calculations

It can see from Table 22 that an overwhelming majoring of households living in the slums of Islamabad are poor; if we compare it with overall Pakistan, then we will find that poverty statistics in the slums of Islamabad are twice the poverty statistics of the country, as for Pakistan Based on HIICS (2015-16) Poverty Head Count is 24.3%. The highest percentage of poor people is found in the Hansa colony (70%), and the lowest is in France. The estimates given in Table 4.19 indicates large differences in poverty figures across the slum areas. One possible reason may be the sample biased. The result in Table 6.2 reveals that in all slum areas, poverty is much higher than poverty estimates at the national level. People living in slum areas are mostly poor.

There may be some possible reasons for poverty in these slum areas. Firstly, many people are in low-salaried occupations like sanitary workers, house cleaners, barbers, and drivers. Secondly, lower expenditure on education and low skills are the main reasons for poverty. The descriptive statistics also reveal that only 10 % of dwellers have completed their primary education, and fewer have secondary education. The people living in slum areas of Islamabad have little tendency towards acquiring education after matric. Their education level is low, so they are engaged in low-salaried jobs. Because of a low level of education and low-salaried occupations, people need help to fulfil their daily needs, resulting in poverty. Income or expenditure inequality may also cause poverty in these areas.

5. Conclusion

This study was based on four slum areas of Islamabad to determine the well-being of slum dwellers. The demographic profile of the dwellers reveals that almost 50 percent are males and 50 percent are females. Interestingly, the working-age population is higher in slum areas as compared to the working-age population in Islamabad overall. The education status of dwellers shows that about half of the population is illiterate. In these slum areas, few dwellers have completed their education after matric. Many slum dwellers are engaged in different occupations such as sanitary work, house cleaners, drivers, barbers, beauticians, etc. The highest percentage of dwellers are working as clean workers.

The study found that per-adult household consumption expenditures in slum areas of Islamabad are very low compared to the urban areas of Pakistan. Low expenditures on health and education, zero house rent, accessible dispensaries, low transportation costs, and low salaried occupations are the primary reasons for low per adult household monthly consumption expenditures in slum areas. This study has also measured expenditure inequality by using the Gini coefficient. The income inequalities are very low in all the slum areas, and there is no significant difference in inequality across the slums; the main reason is that they all have the same socioeconomic conditions; preferences and live in the same environment.

The present study also measured the poverty for each slum area and overall by using the Headcount index. In all slum areas, the poverty headcount is higher than the poverty headcount at the national level. The overall estimate of poverty shows that about 57% population is living below the poverty line in four slum areas of Islamabad. The present study is a preliminary effort to uncover various dimensions of well-being in the slums of Islamabad City.

Authors Contribution

Hira Mansoor: introduction, review, data collection, data analysis, writing-original draft
Afshan Iram: study design and concept, data interpretation, proofreading, critical revision

Conflict of Interests/Disclosures

The authors declared no potential conflicts of interest w.r.t the research, authorship and/or publication of this article.

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