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Assessing Healthcare Expenditures of the Residents of Bangladesh and the Non-Resident Bangladeshis Living in South Korea: A Comparative Study

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Abstract

If health care spending exceeds a predetermined threshold relative to their ability to pay, households can face financial hardship. This study compares the burden of health care expenditure between Bangladeshi residents and non-resident Bangladeshis (NRBs) living in South Korea. Respondents from Bangladesh were mostly male, married, and had low levels of education. Many were daily laborers or housewives and had annual incomes below BDT 200,000. By contrast, the Bangladeshi non-resident sample in South Korea consisted mostly of young males, most of whom earned more than BDT 300,000 annually, worked in service-related occupations, and had relatively high levels of education. The study finds that residents of Bangladesh had higher annual health expenditures. By comparison, most Bangladeshi non-residents in South Korea fell into the low-expenditure category. Health insurance coverage differed significantly between residents and non-residents. Furthermore, the relative expenditure burden (i.e., spending at least 10% of income on health care) was significantly higher among residents (59.2%) than among non-residents (2.9%). Among residents, annual health expenditure categories varied significantly by respondents' educational attainment, occupational status, and annual income. Another finding indicated that annual health expenditures among non-residents were not significantly associated with the socio-demographic and socio-economic characteristics examined in this study. The study highlights the need to expand affordable health care financing and insurance coverage to alleviate the substantial burden of out-of-pocket (OOP) health care expenditures among residents of Bangladesh compared with Bangladeshi non-residents residing in South Korea.

Keywords: Healthcare expenditure, Residents, Non-Residents, Bangladesh, South Korea

I. INTRODUCTION

Financing health services is a pillar of any health system, and its structure has a major impact on population health and financial well-being (Ahmed et al., 2018). Universal Health Coverage (UHC) is a key target of the Sustainable Development Goals (SDGs) to ensure that people are protected from financial risks when accessing quality health services at an affordable cost for all [WHO, 2025(a)]. It also strengthens health systems by promoting a comprehensive and coherent approach to health (Azzani et al., 2019). Therefore, UHC is a priority objective of the World Health Organization (WHO) for health reform in many countries, including Bangladesh (Rahman et al., 2013). It can also be used by WHO in its regional monitoring frameworks to track catastrophic health expenditure (CHE) under SDG target 3.8.2 [WHO 2025(b)]. Bangladesh is a lower-middle-income country that is struggling to achieve UHC due to high Out-of-pocket (OOP) expenditures, which account for a large share of its total health expenditure (Ahmed et al., 2018). OOP payments are healthcare payments not covered by a third party (e.g., the government, a health insurance fund, or private insurance) and paid by households (Van Doorslaer et al., 2007; Ahmed et al., 2016; Islam et al., 2017; Rahman et al., 2018; Rahman et al., 2022). In contrast, a high-income country like South Korea has achieved UHC with a compulsory social health insurance scheme (Yoo et al., 2025). However, inequalities in access to and spending on health care persist, especially for vulnerable groups such as migrants.

The Bangladeshi non-resident population (NRBs) in South Korea is a distinct group (Hafiz, 2022). They are a diaspora living in a highly developed health care system yet remain tied to their home country through cultural, social, and economic bonds, such as remittances and support for family members left behind (Hafiz, 2022). Although South Korea has a developed health care system, legal status, income level, insurance coverage, and cultural preferences can influence NRBs' health care-seeking behavior and expenditure patterns (Kang et al., 2022; Koo, 2015). Studies show that South Korea achieved UHC in 1989 (Kwon, 2009; Kwon et al., 2015). However, NRBs may face unique barriers, including language difficulties, unfamiliarity with the system, and job insecurity. Undocumented migrants are not covered by national health insurance, which may result in different patterns of health care utilization and expenditure than those of the native population (Kang et al., 2022; Koo, 2015). Even among those covered, OOP payments remain a policy concern in Korea (Kwon et al., 2015). Migrants elsewhere also often turn to health resources in their home country when barriers to local care arise (Wang & Kwak, 2015). In contrast, the high cost of OOP payments is a well-documented crisis in Bangladesh, where OOP payments have risen steadily and nearly a quarter of households faced catastrophic health expenditure when the threshold was set at 10% of total expenditure (Ahmed et al., 2022). Yet the extent to which the experiences of NRBs differ from those of their counterparts at home, and what these differences imply about the effectiveness of each system for its constituents, has not been explored. This lack of comparative evidence impedes the development of focused policies to enhance financial protection for both residents of Bangladesh and its diaspora. The present study attempts to address this gap by systematically comparing the health care expenditures of residents in Bangladesh and NRBs in South Korea. The comparison will clarify how different health system structures affect individual financial risk and will provide both countries with evidence-based recommendations.

II. LITERATURE REVIEW

The Bangladesh Ministry of Health and Family Welfare (MOHFW) maintains a comprehensive health infrastructure that provides services at the national, divisional, district, upazila, union, and ward levels (Ahmed et al., 2015). Promotive, preventive, and curative health services are delivered at the primary, secondary, and tertiary levels, including outpatient, inpatient, and emergency care (Ahmed et al., 2015). Urban primary health care services in Bangladesh fall under the Ministry of Local Government, Rural Development and Cooperatives (Munsur et al., 2009). Private health insurance has limited access in Bangladesh's formal sector. There are also no community financing and risk-pooling arrangements (Saha et al., 2025). However, non-governmental organizations (NGOs) have made several attempts within the microcredit program, with contributions of less than 1% of total health expenditures (Mahmood, 2015). Voluntary health insurance schemes in business entities provide (or reimburse) about 5% of total health expenditures (Health Economics Unit, 2015). In Bangladesh, the private-dominated insurance sector accounted for less than 0.2% of total health expenditures in 2007 (Molla et al., 2017). Households are considered to be in financial hardship when health expenditures exceed a predetermined threshold of their ability to pay (Russell, 1996; Xu et al., 2003). In particular, catastrophic health expenditure (CHE), defined as health expenditures greater than 10% of total household expenditures or income, may occur when health expenditures exceed the ability to pay (Wagstaff & van Doorslaer, 2003; Xu et al., 2003). Bangladesh has made significant progress in many health indicators, but in 2011 about 15.6% of households experienced financial catastrophe (Islam et al., 2017; Rahman et al., 2018). Furthermore, 5% of non-poor households became poor, and 7% had distressed financing, including borrowing money, taking loans, and selling assets to cope with unpredictable OOP payments (Islam et al., 2017; Rahman et al., 2018). OOP is the direct cost of medical expenditures borne by the household at the time of using services and constitutes 68.5% of total health expenditures in Bangladesh (Health Economics Unit, 2017). This forces households to reduce consumption of necessities such as food, clothing, housing, or education, which can move them below the poverty line (Khan et al., 2017; Rahman et al., 2013).

At the national level, the Korean Ministry of Health and Welfare (MOHW) is responsible for health policy and planning (Kwon et al., 2015). At the subnational level, public health planning decisions are made by regional governments and municipalities (Kwon et al., 2015). Municipalities also operate public health centers that provide basic medical services (Kim et al., 2018). The South Korean health care system has two tiers: the National Health Insurance (NHI) system, which covers 97% of the population, and the Medical Aid Program (MAP), which covers 3% of the population (Lee et al., 2016). These schemes are designed to protect against CHE and provide access to necessary health services, yet OOP spending still financed about 29% of health expenditure in 2021, among the highest shares in the OECD (OECD, 2023). In 2008, the Long-Term Care Insurance (LTCI) program provided long-term care for the elderly, those 65 years old and over, and individuals under 65 with certain diseases (Heo, 2017). Citizens can also purchase a voluntary health insurance policy (VHI), also known as private health insurance (Lee et al., 2016). VHI is often bundled with life insurance. However, in 2011, VHI accounted for only about 5% of total health expenditures, although its role is increasing (Jones, 2023; Kwon et al., 2015).

According to the Embassy of South Korea in Bangladesh, 5, 891 Bangladeshi workers were admitted to South Korea through its Employment Permit System (EPS) in the 2022 fiscal year (The Business Standard, 2023). Between 2008 and 2022, the number of workers admitted

under EPS reached 28,697 between 2008 and 2022 (The Business Standard, 2023). South Korea, as an East Asian country, is a popular destination for Bangladeshi workers, who can earn a minimum wage of $ 1, 420 per month (Rasul, 2019). This is the legally guaranteed minimum wage in South Korea, according to the Korean Mission of Bangladesh (The Business Standard, 2023). In addition, workers are encouraged to subscribe to four types of social security insurance, including accident insurance for foreign workers (The Business Standard, 2023). Thus, healthcare expenditures are a vital issue for Bangladeshi workers residing in South Korea, who are significant remittance earners (Hafiz, 2022). However, the retrieved literature addresses health expenditure in Bangladesh and South Korea separately, with very little directly comparing Bangladeshi residents with non- resident Bangladeshis in South Korea. Moreover, South Korean financial protection research rarely focuses on foreign residents, migrants, or non-resident Bangladeshis, even though migration status is an underrepresented equity variable in the broader high-income-country literature. Related migrant health studies show that access depends on visa status, insurance eligibility, and administrative rules, and that foreigners can face substantial OOP barriers (Kang et al., 2022; Koo, 2015). This makes migrant- specific health expenditure in South Korea an important gap rather than an already settled question. The likely novelty of the target paper is comparative rather than descriptive: it would need to connect two different financing environments and show how that shapes household spending. Therefore, the present study aims to address this research gap by comparing healthcare expenditures and the associated financial burden among residents and non- residents of Bangladesh, which remain insufficiently explored.

III. OBJECTIVE OF THE STUDY

The study mainly aimed to compare the healthcare expenditures incurred by the residents of Bangladesh and non-resident Bangladeshis living in South Korea. Besides, the study assessed differences in health expenditure-related financial burden between these two groups.

It further tried to identify the major factors influencing healthcare expenditure of these two communities.

IV. RESEARCH METHOD

a. Research Approach

This study adopted a quantitative, cross-sectional, comparative design to assess and compare healthcare expenditures between two groups: Bangladeshi residents and Non-Resident Bangladeshis (NRBs) living in South Korea. A quantitative approach suits the study because healthcare expenditure, income, and catastrophic spending are measurable, numerical phenomena. Such data allow objective comparison between groups and statistical testing of associations between expenditure patterns and their possible determinants.

b. Study Area and Population

The study was conducted in two settings. The first was South Korea, where Bangladeshi migrant communities are concentrated in industrial and urban areas. The second was the urban areas of Gaibandha district, in the Rangpur Division of northern Bangladesh. Gaibandha was chosen for its accessibility and because it represents a typical urban setting in a developing region. The unit of analysis was the individual respondent or, where relevant, the respondent's household. Eligible respondents were adults (aged 18 years or above) who consented to take part. Collecting data from both groups at a single point in time made it possible to compare how

healthcare costs, financial burden, and insurance coverage differ between people living in a high-income host country and people living in the home country.

c. Sampling

Because the two groups differ in accessibility and in the availability of a sampling frame, different sampling techniques were used. No complete list of Bangladeshi nationals in South Korea was available, and the population is dispersed and hard to reach. Snowball sampling**,** a non-probability technique, was therefore used to select non-resident Bangladeshis in South Korea. Initial respondents were identified through community networks, associations, and social media groups. They were then asked to refer other eligible Bangladeshis from their own networks, and the sample was expanded through successive referrals until the desired sample size was achieved. A simple random sampling technique was used for selection of respondents among the urban residents of Gaibandha. A list of eligible urban households or individuals was prepared, and the respondents were selected at random so that every member of the population had an equal chance of being selected. This reduces selection bias and maximizes representativeness. A total of 233 respondents were included, comprising 103 NRBs in South Korea and 130 urban residents of Gaibandha.

d. Sources of Data

All data were primary data, collected directly from respondents using a structured questionnaire. The questionnaire was developed based on a comprehensive literature review concerning OOP health expenditure, health insurance, and catastrophic health expenditure. It was divided into: socio-demographic information, socio-economic information, healthcare expenditure, and health insurance financial burden. The questionnaire was pre-tested on a few respondents and revised for clarity, wording, and sequence. It was administered in Bengali and in English where appropriate. For respondents in South Korea, data were collected through face-to-face interviews/ online forms/ both, depending on respondents' availability. For respondents in Gaibandha, data were collected through face-to-face interviews. Participation was voluntary, informed consent was obtained, and the anonymity and confidentiality of all responses were assured.

e. Variables

Dependent Variable

The dependent variable was total healthcare expenditure**,** defined as the sum of all costs incurred for healthcare within a specified recall period (e.g., the past 12 months). It included direct medical costs (consultation fees, medicines, diagnostics, hospitalization, surgery) and, where applicable, non-medical costs (transport, accommodation, caregiver costs). It was measured separately for the NRB and resident groups and expressed in a common currency to allow comparison.

Independent Variables

Category	Variables
Socio-demographic	Age, gender, marital status, education level
Socio-economic	Occupation, annual income
Health insurance	Participation in any health insurance scheme (yes/no)
Financial hardship	Catastrophic health expenditure (CHE), i.e., whether healthcare spending exceeded a defined share of income

f. Data Analysis

After collection, the data were checked for completeness and consistency, coded, and entered into IBM SPSS Statistics version 26 for analysis. Data tabulation and preparation of tables and charts were done using Microsoft Excel. Descriptive statistics were used to provide an overview of socio-demographic and socio-economic characteristics, healthcare expenditure, insurance coverage, and the prevalence of catastrophic health expenditure in the two groups in terms of frequencies and percentages. Besides, cross-tabulations were used to examine the association of categorical variables like education level and income category with annual health expenditure. Moreover, the chi-square test for independence was used to test whether the relationships seen in the cross-tabulations were statistically significant. The level of significance was set at $p < 0.05$.

g. Ethical Considerations

The study was conducted according to the ethical principles for research involving human participants. The participants were informed about the purpose of the study and that their participation was voluntary and that they could withdraw at any time without penalty. Informed consent was obtained (written or verbal), personal identifiers were not recorded, and data were used for academic purposes only.

V. FINDINGS

a. Socio-demographic and Socio-economic Profile of the Sampled Respondents

The socio-demographic and socio-economic profile of respondents as residents of Bangladesh revealed that most of the respondents were male (74.6%), whereas the females constituted 25.4% of the sample. Regarding age distribution, 37.7% were 45 years and older, 33.1% were younger than 30 years, and 29.2% were 31–45 years. Most of the respondents were married (95.4%), and only 4.6% were unmarried, widowed, or divorced. Almost half (48.5%) had completed primary education, and 20.0% had no formal education. The sample comprised 16.9% respondents with secondary or higher secondary education and 14.6% respondents with a bachelor's or master's degree. The largest group was daily laborers and housewives together (36.2%), followed by service holders (35.4%) and business people (28.4%). The annual income distribution was: 44.6% earned below BDT 200,000, 35.4% earned from BDT 200,000 to BDT

300,000, and 20.0% earned above BDT 300,000.

Table 1: Socio-demographic and Socio-Economic Profile of the Sampled Respondents

Resident		
Variables	**Frequency (n)**	**Percentage**
Gender		
Male	97	74.6
Female	33	25.4
Age		
<30	43	33.1
31-45	38	29.2
45 above	49	37.7
Marital Status		
Married	124	95.4
Unmarried/ Widow/Divorce	6	4.6
Education		
Bachelor / Masters	19	14.6
Secondary and Higher Secondary	22	16.9
Primary	63	48.5
No education	26	20.0
Occupation		
Service holder	46	35.4
Business	37	28.4
Daily labor/Housewife	47	36.2
Annual income		
<200000	58	44.6
200000-300000	46	35.4
>300000	26	20.0

Non-resident		
Variables	**Frequency (n)**	**Percentage**
Gender		
Male	97	94.2
Female	06	5.8
Age		
<30	69	67.0
31-45	34	33.0
45 above	0	0
Marital Status		
Married	76	73.8
Unmarried/ Widow/Divorce	27	26.2
Education		
Bachelor / Masters	34	33
Secondary and Higher Secondary	69	67
Primary	0	0
No education	0	0
Occupation		
Service holder	93	90.3
Business/Daily Labor/Housewife	10	9.7
Annual income		
<200000	0	0
200000-300000	2	1.9
>300000	101	98.1

In contrast, the Bangladeshi non-residents living in South Korea confirmed that the majority of them were male (94.2%) and only 5.8% of the sample were female. Age below 30 years were 67.0% and remaining 33.0% were in the age group of 31–45 years. There were no respondents aged 45 years or above in the age distribution. The majority of the respondents were married (73.8%), and the remaining 26.2% were either unmarried, widowed, or divorced. In terms of educational attainment, 67.0% had completed secondary or higher secondary education and 33.0% had obtained a bachelor's or master's degree. None of the respondents had primary education or no formal education. Most of the respondents (90.3%) were service holders and business people; daily laborers and housewives were only 9.7% in the sample. The majority of respondents (98.1%) had an annual income of more than BDT 300,000. No respondent had an annual income less than BDT 200,000, and 1.9% of respondents reported an annual income between BDT 200,000 and BDT 300,000. This demonstrates that most of the sampled Bangladeshi non-residents in South Korea were in the highest annual income category defined in this study.

b. Health Expenditures of the Sampled Respondents

The prevalence of low annual health expenditures (<BDT 20,000) and medium annual health expenditures (BDT 20,000-30,000) among the resident respondents in Bangladesh was 16.9% and 33.1%, respectively. The other 50.0% had high annual health expenditure, amounting to more than BDT 30,000. Conversely, 60.2% of Bangladeshi non-residents residing in South Korea had low annual health expenses (less than BDT 20,000), 12.6% had medium health expenses (BDT 20,000–30,000), and 27.2% had high health expenses (more than BDT 30,000).

Table 2: Health Expenditures of the Sampled Respondents

Resident		
Variables	**Frequency (n)**	**Percentage**
Annual Health Expenditures		
<20000 (Low)	22	16.9
20000-30000 (Medium)	43	33.1
>30000 (High)	65	50.0

Non-resident		
Variables	**Frequency (n)**	**Percentage**
Annual Health Expenditures		
<20000	62	60.2
20000-30000	13	12.6
>30000	28	27.2

c. Health Expenditures as a Percentage of Income

Among residents, 23.1% spent less than 10% of their income on healthcare, while 59.2% spent 10–20% and 17.7% spent more than 20%. In contrast, 97.1% of non-residents spent less than 10% of their income on healthcare, and only 2.9% spent 10–20%; none reported spending more than 20%. Thus, 59.2% of residents, compared with 2.9% of non-residents, allocated at least 10% of their income to healthcare, suggesting a substantially greater relative expenditure burden among residents.

Table 3: Health Expenditures as a Percentage of Income

Resident		
Variables	**Frequency (n)**	**Percentage**
Health Expenditures as a Percentage of Income		
<10	30	23.1
10-20	77	59.2
>20	23	17.7

Non-resident		
Variables	**Frequency (n)**	**Percentage**
Health Expenditures as a Percentage of Income		
<10	100	97.1
10-20	3	2.9
>20	0	0

d. Health Insurance Status of the Sampled Respondents

In the sampled area of Bangladesh, only 6.9% of residents were enrolled in some form of insurance scheme. In contrast, all non-residents (100%) in South Korea reported being covered by an insurance scheme.

Table 4: Health Insurance Status of the Sampled Respondents

Resident		
Variables	**Frequency (n)**	**Percentage**
Insurance enrolment	9	6.9

Non-resident		
Variables	**Frequency (n)**	**Percentage**
Insurance enrolment	103	100

e. Cross-tabulation Results

The cross-tabulation results for residents and non-residents show the distribution of annual health expenditure across six (06) independent variables among 130 and 103 respondents, respectively.

Table 5: Cross-tabulation Results

	Resident			**Non-resident**		
Variables	**Annual Health Expenditures N (%)**			**Annual Health Expenditures N (%)**		
	<20000 (**Low**) 22 (16.9)	20000-30000 (**Medium**) 43 (33.1)	>30000 (**High**) 65 (50.0)	<20000 (**Low**) 62 (60.2)	20000-30000 (**Medium**) 13 (12.6)	>30000 (**High**) 28 (27.2)
Gender						
Male	19(86.4)	30(69.8)	48(73.8)	57(91.9)	13(100)	27(96.4)
Female	3(13.6)	13(30.2)	17(26.2)	5(8.1)	0(0)	1(3.6)
Age (Years)						
<30	6(27.3)	15(34.9)	22(33.8)	40(64.5)	7(53.8)	22(78.6)
31-45	7(31.8)	13(30.2)	18(27.7)	22(35.5)	6(46.2)	6(21.4)
45 and above	9(40.9)	15(34.9)	25(38.5)	-	-	-
Marital Status						
Married	20(90.9)	41(95.3)	63(96.9)	46(74.2)	10(76.9)	20(71.4)
Unmarried/ Widow/Divorce	2(9.1)	2(4.7)	2(3.1)	16(25.8)	3(23.1)	8(28.6)
Education						
Bachelor / Masters	3(13.6)	5(11.6)	23(35.4)	22(35.5)	3(23.1)	9(32.1)
Secondary and Higher	7(31.8)	8(18.6)	20(30.8)	40(64.5)	10(76.9)	19(67.9)
Primary	10(45.5)	24(55.8)	17(26.2)	-	-	-
No education	2(9.1)	6(14.0)	5(7.7)	-	-	-
Occupation						
Service holder	3(13.6)	10(23.3)	33(50.8)	58(93.5)	10(76.9)	25(89.3)
Business	14(63.6)	9(20.9)	14(21.5)	4(6.5)	3(23.1)	3(10.7)
Daily labor/Housewife	5(22.7)	24(55.8)	18(27.7)	-	-	-
Annual income						
<200000	15(68.2)	24(55.8)	19(29.2)	-	-	-

Resident				Non-resident		
Variables	**Annual Health Expenditures N (%)**			**Annual Health Expenditures N (%)**		
	<20000 (**Low**) 22 (16.9)	20000-30000 (**Medium**) 43 (33.1)	>30000 (**High**) 65 (50.0)	<20000 (**Low**) 62 (60.2)	20000-30000 (**Medium**) 13 (12.6)	>30000 (**High**) 28 (27.2)
200000-300000	7(31.8)	18(41.9)	21(32.3)	2(3.2)	0	0
>300000	0(0)	1(2.3)	25(38.5)	60(96.8)	13(100)	28(100)

Among residents, 22 of 130 respondents reported annual health expenditures below BDT 20,000, of whom 86.4% were male and 13.6% were female. Similarly, among the 43 respondents spending BDT 20,000–30,000 annually, males accounted for 69.8%, while females represented 30.2%. A total of 65 residents spent more than BDT 30,000 annually, with males accounting for 73.8% and females for 26.2%. Among non-residents, males accounted for 91.9% of those spending less than BDT 20,000, while females accounted for only 8.1%. Males accounted for 100% of those in the BDT 20,000–30,000 expenditure category and 96.4% of those who spent more than BDT 30,000 on treatment. The results indicate that in both groups, males are dominant across all spending categories. Among those who spent less than BDT 20,000 annually on healthcare, 40.9% were above 45 years old. Similarly, respondents aged above 45 years represented the largest share (38.5%) of those spending more than BDT 30,000, while those aged below 30 years represented 33.8% of this category.

Among non-residents, respondents below 30 years constituted the majority across all expenditure categories, accounting for 64.5% of those spending less than BDT 20,000, 53.8% spending BDT 20,000–30,000, and 78.6% spending more than BDT 30,000 annually on treatment. But respondents above 30 years constituted 21.4% of the highest expenditure category compared to 35.5% and 46.2% of the lower and middle categories, respectively. These results suggest that among non-residents, younger respondents were overrepresented in the highest treatment expenditure group. Married respondents among residents constituted the majority in all three health expenditure categories, accounting for 90.9% of those spending less than BDT 20,000, 95.3% of those spending BDT 20,000–30,000, and 96.9% of those spending more than BDT 30,000. The proportion of married resident respondents was therefore slightly higher in the higher expenditure categories. Married non-resident respondents accounted for 74.2% of those spending less than BDT 20,000, 76.9% of those spending BDT 20,000–30,000, and 71.4% of those spending more than BDT 30,000 on treatment.

In contrast, the proportion of unmarried, widowed, or divorced respondents was highest in the expenditure category above BDT 30,000 (28.6%). Overall, the prevalence of married respondents was found across all expenditure categories. Among resident respondents spending less than BDT 20,000 annually, the largest proportion (45.5%) had primary education, followed by 31.8% who had secondary or higher secondary education, 13.6% had a bachelor's or master's degree, and 9.1% had no education. Among those who of them spending BDT 20,000–30,000, the largest proportion (55.8%) had primary education, while 18.6% had secondary or higher secondary education, having no education with 14%, and 11.6% had a bachelor's or master's degree. The respondents of them with a bachelor's or master's degree accounted for the largest proportion (35.4%) of respondents spending more than BDT 30,000, followed by those with secondary or higher secondary education (30.8%); 26.2% had primary education, and 7.7% had

no education. In non-residents, secondary or higher secondary education was the most prevalent category in all expenditure categories (64.5% in spending < BDT 20,000, 76.9% in spending BDT 20,000-30,000 and 67.9% in spending > BDT 30,000 for treatment).

Conversely, the expenditure categories were accounted for by 35.5% and 23.1% of respondents with bachelor and master degrees respectively. Among the residents who spent less than BDT 20,000 on health care annually, business persons were the largest group (63.6%). The highest share of daily laborers was found in the expenditure range of BDT 20,000–30,000 (55.8%), while the highest share of respondents who spent more than BDT 30,000 was service holders (50.8%). The results indicate that there are differences in health care spending for residents across occupational groups. In all expenditure categories, the majority of non-residents were service holders; 93.5% in the group spending less than BDT 20,000, 76.9% in the group spending BDT 20,000–30,000 and 89.3% in the group spending more than BDT 30,000 per year for treatment. In contrast, respondents engaged in business, daily labor, or homemaking represented 23.1% of the middle expenditure category, compared with 6.5% and 10.7% in the lower and higher categories, respectively For resident respondents earning less than BDT 200,000, 68.2% spent less than BDT 20,000 on healthcare, while 55.8% of those in this income group spent BDT 20,000–30,000, and 29.2% spent BDT 30,000 and above annually.

In contrast, among respondents earning more than BDT 300,000 annually, 38.5% belonged to the highest health expenditure category (BDT 30,000 and above). Respondents earning BDT 200,000–300,000 were distributed across the expenditure categories, with 41.9% spending BDT 20,000–30,000 and 32.3% spending more than BDT 30,000. Thus, a positive relationship existed between annual income and health expenditure among residents, as higher-income respondents were more likely to be in the highest expenditure category. 96.8% of those who spent below BDT 20,000 and 100% of those who spent BDT 20,000–30,000 and above BDT 30,000 on treatment were non-resident respondents earning above BDT 300,000. Both respondents in the lower-income category belonged to the lowest treatment expenditure group. These findings are largely a reflection of the overwhelming concentration of respondents in the higher income category and do not provide sufficient evidence to establish a relationship between income and treatment expenditure.

f. **Chi-square Test Results**

The Chi-square test was used to examine the associations between annual health expenditure categories and socio-demographic and socio-economic variables among the respondents. These associations were assessed for residents of Bangladesh and Bangladeshi non-residents living in South Korea separately. Statistical significance was determined using a p-value of less than 0.05.

Table 6: Chi-square Test Results

	Residents		Non-residents	
Variables	**Chi-square**	**P-value**	**Chi-square**	**P-value**
Gender	2.157	.340	1.630	.443
Age	.557	.968	2.886	.236
Marital Status	1.351	.509	.152	.927
Education	16.042	.014**	.761	.683

Residents			Non-residents	
Variables	**Chi-square**	**P-value**	**Chi-square**	**P-value**
Occupation	27.573	.000**	3.433	.180
Annual Income	30.351	.000**	1.349	.509

****P significant at 0.05 for the Chi-square test**

The Chi-square test showed statistically significant associations between annual health expenditure and education ($\chi^2 = 16.042$, $p = 0.014$), occupation ($\chi^2 = 27.573$, $p < 0.001$), and annual income ($\chi^2 = 30.351$, $p < 0.001$) among residents of Bangladesh. These findings suggest that annual health expenditure categories varied significantly according to respondents' educational attainment, occupational status, and annual income. In contrast, annual health expenditure was not significantly associated with gender ($\chi^2 = 2.157$, $p = 0.340$), age ($\chi^2 = 0.557$, $p = 0.968$), or marital status ($\chi^2 = 1.351$, $p = 0.509$). In contrast, the Chi-square test showed no statistically significant association between annual health expenditure and the observed sociodemographic variables among Bangladeshi non-residents living in South Korea ($p > 0.05$). Specifically, gender ($\chi^2 = 1.630$, $p = 0.443$), age ($\chi^2 = 2.886$, $p = 0.236$), marital status ($\chi^2 = 0.152$, $p = 0.927$), education ($\chi^2 = 0.761$, $p = 0.683$), occupation ($\chi^2 = 3.433$, $p = 0.180$), and annual income ($\chi^2 = 1.349$, $p = 0.509$) were not significantly associated with annual health expenditure categories. These findings suggest that annual health expenditure among non-resident respondents was not significantly associated with the sociodemographic variables examined in this study

VI. DISCUSSION

There were big differences in socio-demographic and socio-economic characteristics of Bangladeshi residents and Bangladeshi non-residents living in South Korea. The respondents from Bangladesh were predominantly male and married, with a relatively low level of education and mostly employed as daily laborers or homemakers, with annual incomes below BDT 200,000 among the residents. Conversely, Bangladeshi non-residents were mainly young males, relatively well educated, mainly engaged in service-related occupations and most of them reported an annual income of above BDT 300,000. Most of the non-residents were in the low-expenditure category, while a higher percentage of residents reported high annual expenditure on health. There also were very large differences in health insurance coverage between these two groups. Residents also suffered a significantly greater relative burden of healthcare expenditures. 59.2% of residents had spent at least 10% of their income on healthcare, compared to just 2.9% of non-residents. The results therefore indicate differences in socio-economic circumstances and in annual health care costs between the two groups.

Previous studies have also identified the financial burden of healthcare expenditures in Bangladesh. According to the Household Income and Expenditure Survey, 2016, 24.6% of the households faced catastrophic health expenditure (CHE), which is defined as 10% of total healthcare expenditure (Ahmed et al., 2022). Healthcare utilization, chronic illness and geographical location were found to be significant predictors of financial hardship. Another study revealed that CHE and impoverishment were due to OOP payments and emphasized the need for financial protection against high healthcare costs in Bangladesh (Khan et al., 2017). Thus a clear rationale was established for investigating the possible financial vulnerability of residents and non-residents. Cross-tabulation analysis showed that male respondents were found to be majority in all categories of annual health expenditure for both residents and non-residents.

This finding is in line with the study in Bangladesh where gender was found to be an important factor of healthcare expenditure and utilization (Mahumud et al., 2023). However, there was no statistically significant association between gender and health expenditures among these two groups.

Older respondents were relatively more represented in the highest expenditure category, which reflected increased healthcare needs associated with ageing and chronic conditions for residents. Conversely, non-residents aged below 30 years were predominant across all annual treatment expenditure categories, which highlights their healthcare needs, treatment-seeking behavior, or access to healthcare services. However, the relatively lower representation of respondents above 30 years in the highest expenditure category contrasts with the commonly observed relationship between increasing age and healthcare needs. A study in Bangladesh identified age as an important factor influencing OOP expenditure in healthcare, which is similar to the present study (Mahumud et al., 2017; Molla et al., 2017). The prevalence of married respondents in all annual health expenditure categories reflected their family-related healthcare responsibilities for residents and non-residents. Previous research in Bangladesh has also examined marital status as a factor associated with OOP expenditure in healthcare (Molla et al., 2017). However, there was no statistically significant association between marital status and health expenditures for these two groups.

Higher educational attainment was associated with higher annual health expenditure for residents. Conversely, secondary and higher secondary education predominated across all annual treatment expenditure categories. Health awareness and healthcare-seeking behavior among educated respondents may be linked to greater healthcare expenditure. Mahumud et al. (2017) and Sarker et al. (2022) identified higher educational level as a significant factor associated with increased OOP healthcare expenditure in Bangladesh. Similarly, recent evidence from Bangladesh indicates that the education level of household heads is associated with healthcare expenditure, which supports the findings of the present study (Khan et al., 2025). However, a statistically significant association was found between education and health expenditures for residents rather than non-residents.

The higher representation of service holders in the highest expenditure category may reflect differences in income, healthcare access, or utilization, whereas the concentration of daily laborers in the middle expenditure category may be related to their economic circumstances and healthcare needs. On the other hand, the higher representation of service holders, rather than very low representation of businesspeople/daily labors/ housewives in all expenditure categories was found for non-residents. Their employment status may influence healthcare expenditures through income stability, healthcare access, and employment-related health benefits. Mahumud et al. (2017) identified employment status as a factor associated with OOP healthcare expenditure in Bangladesh, which highlights the importance of socio-economic factors in determining healthcare expenditures. Khan et al. (2025) found that the number of employed household members was associated with healthcare expenditure. The findings reveal variations and a statistically significant association in annual health expenditure across occupational groups for residents rather than non-residents.

A statistically significant relationship was found between annual income and health expenditure among the residents and not among the non-residents. The present study reflects the greater financial ability of higher income individuals to access health care services, including those that are more expensive. But greater spending could mean greater healthcare needs.

However, most non-resident respondents with high annual income (over BDT 300,000) reported the highest healthcare expenditures (under BDT 20,000) in comparison. The remaining respondents were in the two higher groups of treatment expenditure. The results do not suggest a positive relationship between income and treatment expenditure. Recent studies in Bangladesh have identified household income, chronic illness, and health shocks as important factors affecting CHE (Mahumud et al., 2017; Molla et al., 2017). The strong correlation with the income and health expenditure categories could be the result of differences in financial capacity. Education and occupation may be associated with the health awareness and working conditions of the residents of Bangladesh. In contrast, the absence of statistically significant associations does not mean that these factors do not influence CHE categories. Other factors, however, may affect CHE, including utilization patterns, access to health care services, and insurance coverage.

Insurance coverage can reduce direct OOP payments in healthcare financing. Disparity in enrolment in health insurance may have important implications for comparing healthcare expenditures between these two groups. Khan et al. (2017) identified the heavy reliance on OOP expenditures in healthcare financing and the risk of CHE among households in Bangladesh. However, coverage may vary by type of healthcare services, reimbursement limits, co-payments, and exclusions. Enrolling in an insurance scheme revealed differences in the financial burden experienced by these two groups. Thus, the importance of expanding health insurance coverage in Bangladesh was highlighted; ensuring comprehensive benefits, adequate reimbursement, and effective financial protection was suggested.

The results show that there is a large difference between residents and non-residents in terms of health insurance coverage. Non-residents are covered by the National Health Insurance (NHI) scheme in South Korea, which covers a wide range of health care services. In Bangladesh, residents have limited insurance coverage and are more dependent on OOP payments. This difference may be one factor contributing to differences in financial protection and healthcare expenditure between the two groups. Previous studies have shown that high OOP payments drive Bangladeshi households toward CHE and impoverishment (Khan et al., 2017; Sarker et al., 2022). The findings highlight the need for wider equitable coverage of health insurance and greater public financing of health care in Bangladesh to enhance financial protection and progress toward UHC.

VII. RECOMMENDATIONS

There is a need to give priority to healthcare services for the residents of Bangladesh to empower them with equal access and financial protection as compared to the non-resident Bangladeshis living in South Korea. The study especially focused on groups who experienced higher healthcare expenditures and limited utilization due to financial constraints. The study highlights the need for expanding affordable health financing and insurance mechanisms to reduce the high burden of OOP payments among the residents in Bangladesh. The study has policy implications for the design of health financing mechanisms, taking into consideration the differences in healthcare expenditure levels and utilization patterns of the residents and non-residents. Therefore, specific measures in terms of more equitable and financially protective healthcare are important to reduce OOP payments and CHE in Bangladesh.

VIII. LIMITATIONS OF THE STUDY

The study highlighted the healthcare expenditures in receiving healthcare services among residents of Bangladesh and non-residents Bangladeshi living in South Korea. However,

the expenditures may vary with other non-resident people who live in South Korea based on their demographic characteristics, creating an obstacle to generalizing the issue. Moreover, the researcher notes that the sample size was small, as the snowball sampling procedure was applied to collect information from non-residents. On the other hand, the study focused on urban populations in one urban area of Bangladesh. As a result, the findings cannot necessarily be generalized to the entire country. For more representative samples, the study area has been selected randomly. However, the study provides a valuable observation comparing the financial burden between these two types of people, although the data were collected from different countries.

IX. CONCLUSION

This study examines the financial burden of healthcare expenditures among residents and non-residents of Bangladesh, particularly focusing on differences in healthcare expenditures. Besides, the study assesses disparities in insurance enrolment between these two groups. Thus, the study identified financial barriers to accessing healthcare and addressing the healthcare needs of these two communities. Moreover, the study provides insights into the socio-economic and healthcare-related factors influencing expenditure patterns in these two groups. Thus, the study provides evidence to help policymakers to understand healthcare expenditure inequalities and assess differences in financial protection. Above all, improving accessibility and reducing the financial burden of healthcare among these two groups need to be ensured. Further analysis of insurance benefits, healthcare utilization, and OOP payments would help determine whether the socio-demographic differences contribute to the observed variation in healthcare expenditure between the two groups.

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