

Usage of English in Healthcare Settings: A Study on Patients' Experiences and Language Preference in Bangladesh

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Abstract: This study investigated the influence of English on patients' experiences in healthcare settings in Bangladesh. A survey was conducted among the patients to explore their English proficiency levels, comfort, and language preferences in medical settings. Statistical analyses showed a highly significant correlation between English proficiency and comfort level ($r = 0.797$, $p < 0.001$), indicating that individuals with higher English proficiency levels felt more comfortable receiving medical services. It is important to note that other factors contributed to this relationship. The study also found that women reported lower levels of comfort with medical documents and drug labelling in English ($t(48) = 2.770$, $p < 0.05$). Additionally, level of education was found to be a significant factor influencing comfort levels ($F(5.44) = 7.85$, $p < 0.001$), with individuals with lower levels of education reporting more discomfort. Furthermore, this study provides strong evidence supporting a distinct preference for the native language Bangla in medical communication ($\chi^2(2) = 38.680$, $p < 0.001$), particularly among individuals with lower levels of education. These findings emphasize the urgent need to implement healthcare policy improvements in Bangladesh that actively promote and foster native languages. This would ensure that all patients, regardless of their language proficiency or demographic background, receive equitable high-quality care in healthcare settings. Moreover, this study contributes to the ongoing discourse and discussion surrounding healthcare communication in multilingual societies, and strongly advocates the implementation of policies that prioritize and accommodate the linguistic preferences of patients.

Keywords: Language Proficiency, Patient Comfort, Healthcare Communication, Language Barrier, Patient-centred care

Introduction

Bangladesh, located in South Asia, shares its borders with India to the west, north, and east; Myanmar to the southeast; and the Bay of Bengal to the south. The region's strategic position and fertile land have historically attracted significant attention, resulting in a rich cultural and historical heritage. British colonial rule covertly or overtly from 1757 to 1947 (Schendel, 2020) deeply influenced socioeconomic and political structures, leading to the widespread use of English in Bangladeshi society. English was established as the language of instruction in educational institutions and the official language of governance and trade during the British colonial period. This historical legacy has continued to make English prominent in various sectors including healthcare.

Despite Bangla [i.e. Bengali] being the national language, English is widely used in medical documentation, prescriptions, and diagnostic reports. However, this practice presents challenges, particularly for patients with limited English proficiency, which hinders effective healthcare delivery and contributes to disparities in health. Globalization has further emphasized the importance of understanding the relationship between language proficiency and patient experience, particularly in linguistically diverse countries such as Bangladesh. The use of English in the healthcare sector, such as in medical prescriptions and documentation, often poses barriers to effective communication and healthcare delivery, especially for patients who primarily speak Bengali. The linguistic diversity of Bangladesh, including numerous indigenous languages and dialects, requires a healthcare system that can accommodate multiple languages in order to ensure effective communication and care delivery. The continued use of English in healthcare, influenced by both historical and global factors, presents complex challenges that must be addressed to improve delivery and ensure equitable access to healthcare services in Bangladesh.

Literature review

Language is an essential factor in healthcare as it impacts patient-provider communication, health literacy, and access to health services. Results from multiple studies have been compiled that underscore the importance of language in healthcare practices worldwide. Woloshin et al. (1997) highlighted the role of language as a medium for patients to obtain health-related information and make informed

decisions. Diviet et al. (2007) and Pytel et al. (2009) in the United States, Al-Khathami et al. (2010) in Saudi Arabia, Bischoff and Denhaerynck (2010) in Switzerland, Hannouna (2012) in the United Arab Emirates, Albrecht et al. (2013) in Germany, Friebe (2017) in Egypt, Ali and Watson (2018) in England, and de Moissac and Bowen (2019) in Canada all support the notion that language barriers can hinder effective healthcare delivery. They emphasized the importance of addressing language disparities in healthcare to ensure equitable access to quality care.

According to Yeo (2004), language serves a dual purpose as a means of communication and tool for exploring patients' health-related beliefs and attitudes. This perspective facilitates the integration of diverse belief systems in the healthcare domain. Additionally, the implementation of the National Standards for Culturally and Linguistically Appropriate Services (CLAS) in the United States in 2001 responded to the challenges posed by linguistic diversity in healthcare. The goal of these standards is to rectify disparities in healthcare provision by guaranteeing that all patients, regardless of their linguistic backgrounds, receive customized services that are responsive to their individual needs.

Language Barriers in Healthcare

The issue of language barriers in healthcare is a pressing concern with significant implications for patient care across multiple systems. These challenges are especially acute in multilingual societies where English is frequently used as the primary language in medical settings. According to previous research, language barriers can have a negative impact on patients' comprehension, satisfaction, and overall care quality. Wolz (2015) found that language barriers can hinder the delivery of high-quality healthcare, resulting in difficulties in healthcare interactions. Therefore, it is recommended that professional interpreters improve patient satisfaction and communication. Hilal et al. (2020) also supported this viewpoint, stating that language barriers can lead to miscommunication, reduced satisfaction, reduced healthcare quality, and compromised patient safety. However, they acknowledged that the use of interpreter services can increase costs and treatment duration, whereas online translation tools may enhance healthcare quality and satisfaction.

According to Pancho et al. (1998), language barriers in healthcare are a complex issue that necessitate careful consideration of factors such as accessibility, cost, and service excellence. They emphasized the importance of providing

interpreter services in both inpatient and outpatient settings as well as the significance of interpreter certification and adherence to standardized protocols.

Relevant research on language barriers and patient outcomes includes a study by Squires et al. (2022), which found that patients receiving home care who preferred a language other than English faced a higher risk of hospital readmission after home healthcare, particularly those with limited English proficiency. This group of patients had a significantly higher readmission rate than English-speaking patients. Squires et al. (2022) found a similar trend and suggested that specialized care coordination services may be crucial in reducing readmission risks, particularly for Spanish-speaking patients who experience the highest rates of readmission. Studies have consistently shown that discordance in language between healthcare providers and patients exacerbates challenges in multilingual societies. Evidence supports the implementation of effective language services, including the use of professional interpreters and digital tools, to mitigate the negative impacts of language barriers on patient care and safety. These interventions are essential to ensure equitable and high-quality healthcare in increasingly diverse linguistic contexts.

English Proficiency and Patient Experiences

Recent studies have examined the dynamics of English proficiency in healthcare interactions, particularly its influence on patient experiences and outcomes. Paredes et al. (2018) emphasized the significant impact of English proficiency on patient-provider communication and shared decision-making, noting that lower levels are often associated with negative experiences. Yeheskal and Rawal (2019) analysed the patient experience of individuals with limited English proficiency (LEP) and identified communication barriers, issues with healthcare professional relationships, experiences of discrimination, and cultural safety concerns as major issues affecting their care. Chua et al. (2022) addressed the lack of comprehensive information on English proficiency and patient experiences, finding that LEP patients tend to have longer hospital stays but noted that LEP is not independently associated with ICU death, length of ICU stay, or the timing of palliative care consultation.

Squires et al. (2023) investigated the experiences of patients with limited English proficiency in the United States, focusing specifically on the challenges posed by language barriers and potential risks to patient safety. Additionally,

this study highlights the factors that can enhance patient safety and security in these situations. Similarly, Latif et al. (2022) examined the role of medical interpreters in palliative care and the experiences of patients with limited proficiency in English. They found a lack of information regarding patient experiences related to English proficiency and shed light on the challenges resulting from the absence of a verbatim interpretation of the term “palliative care.” The studies reviewed here indicate that English proficiency is a critical factor in healthcare interactions and affects communication, patient-provider relationships, treatment outcomes, and hospital stays. The need for effective language interpretation services and educational initiatives targeting healthcare professionals is clear, emphasizing the importance of addressing language barriers to ensure equitable and safe healthcare for all patients regardless of their English proficiency.

Gender Disparities in Healthcare Communication

The interaction between gender and language proficiency is a unique obstacle in the healthcare communication domain. Gendered experiences in educational and societal settings influence individuals’ English proficiency, and consequently, their healthcare experiences. In the healthcare sector, language proficiency plays a crucial role in ensuring effective communication and quality care for patients with limited English proficiency (LEP). Studies have shown that language barriers can lead to disparities in access to healthcare and health outcomes among older adults (Ponce et al., 2006). Patients with LEP who received interpreter services were more likely to be female, highlighting a gender difference in access to language services (Blay et al., 2018). Furthermore, a lack of cultural and linguistic competency can create barriers between LEP patients and the healthcare system, emphasizing the importance of addressing language needs in healthcare settings (Messias et al., 2009).

Research has also explored the impact of English language proficiency on health care outcomes among different groups. While current health literacy research often focuses on individuals with limited English proficiency, the effects of health literacy on health care outcomes at various English proficiency levels remain relatively unknown (Sarkar et al., 2015). Additionally, a study of the academic performance of medical students found that gender and English language proficiency can influence academic success, indicating broader implications of language proficiency beyond healthcare settings (Al-Mously et al., 2013).

Educational attainment and English linguistic Proficiency of Patients

The level of education and English linguistic proficiency of patients are closely related and have a significant impact on patient outcomes and the overall healthcare experience. Patients with limited English proficiency face significant barriers in accessing healthcare, leading to extended wait times, delayed referrals, inequitable treatment, higher rates of adverse events, and ultimately, poorer health outcomes compared to patients who are proficient in English (Messias et al., 2009).

The association between level of education and linguistic proficiency is well established, with higher levels of education often corresponding to greater English proficiency. Todorova and Hristova's (2022) study showed an association between the level of education and its impact on the lifestyle of patients undergoing haemodialysis, emphasizing the significance of education in equipping patients with vital information to effectively manage their condition and follow necessary guidelines. Knowledge acquisition plays a crucial role in enabling patients to adapt to new circumstances and enhances their overall quality of life.

Research question

In the context of globalized healthcare, the significance of language in patient-care provider interactions and its impact on healthcare results are becoming increasingly important, particularly in multilingual countries where English, although commonly used in the medical sector, may not be the primary language of the majority of the population. This study focused on Bangladesh, a country in which Bangla is the predominant language; however, English is frequently encountered in healthcare settings. Against this backdrop, this study addressed the following question:

To what extent does the prevalence of English in the medical sector and the level of English proficiency among patients influence their understanding of medical information, experiences, and satisfaction with healthcare services in the predominantly Bangla [Bengali]-speaking population?

Therefore, this study aimed to determine the complexities of language barriers in healthcare, and their impact on patient care and satisfaction.

Methodology

Statistical Methodology

The dataset was compiled from individuals representing various demographic characteristics including age, sex, and educational qualifications. Inferential statistical methods were used to analyse the data. Pearson's correlation analysis was applied to assess the relationship between English proficiency and comfort levels in medical settings, while Analysis of Variance (ANOVA) was used to explore the variations in comfort levels across different educational attainment levels. Furthermore, Chi-square tests were conducted to examine the association between language choice and educational level.

Study Design

This study used a quantitative method to investigate the relationship between English proficiency and demographic factors on patient experiences in healthcare settings where English is the predominant language. Moreover, it investigates the impact of linguistic proficiency on patient interactions and perceptions in the medical context.

Participants

The study was conducted at Rajshahi Medical College Hospital, located in Rajshahi District, Bangladesh. A survey of 50 participants was conducted by random sampling. The participants were adults aged 18 years or older who were chosen to create a diverse group in terms of age, gender, and education level. This method was adopted to explore the influence of English language proficiency on healthcare delivery and patient outcomes in a specific setting.

Data Collection Method

In this study, data were collected using a structured questionnaire designed to examine various aspects of the participants' interactions with English in healthcare settings. The questionnaire is divided into several sections. The first section collected demographic information such as age, gender, and education level of the participants. The second section focused on English proficiency, in which participants self-rated their language skills based on a spectrum of non-native proficiencies. The third section examined participants' encounters with English in healthcare using

a 5-point Likert scale to measure the frequency of these encounters. Subsequent sections assessed participants' comfort levels in English-dominated healthcare environments and their perceptions of the quality of healthcare received, both rated on a 5-point Likert scale. To ensure wide accessibility and accommodate diverse respondent preferences, the questionnaire was disseminated in a paper format, allowing participation from a broad cross-section of patients. This method investigated the role of English in healthcare experiences among the Bangladeshi population.

Data Analysis Tools

The collected data were subsequently transformed into a SPSS file, which enabled us to conduct the required tests and analyses. Graphs and tables were generated using SPSS 25 and Excel to enhance the accessibility and visual interest of the data. The analysis produced valuable insights into the dataset, thus facilitating decision-making.

Research Ethics

This study strictly followed the ethical principles governing research involving human subjects. Prior to the survey, each individual provided informed consent, ensuring their complete understanding of the study's purpose, right to withdraw at any time, and confidentiality of their responses (Arellano et al., 2023).

Data analysis and result

The data collected through the questionnaire were subjected to thorough analysis using a combination of descriptive and inferential statistical methods. Descriptive statistics were used to summarize the demographic data and delineate the distribution patterns of the responses. Additionally, several inferential statistical techniques were employed to explore the relationships and impacts within the data. Pearson's correlation analysis was conducted to evaluate the association between the participants' English proficiency and their comfort level in English-dominated healthcare settings. Furthermore, Analysis of Variance (ANOVA) was applied to investigate potential variations in comfort levels among participants with different educational backgrounds. Statistical significance was set at a threshold of $P < 0.05$. These analytical tests revealed a comprehensive and strong relationship between language proficiency and healthcare experience in Bangladesh.

Socio-demographic Characteristic of the Participants

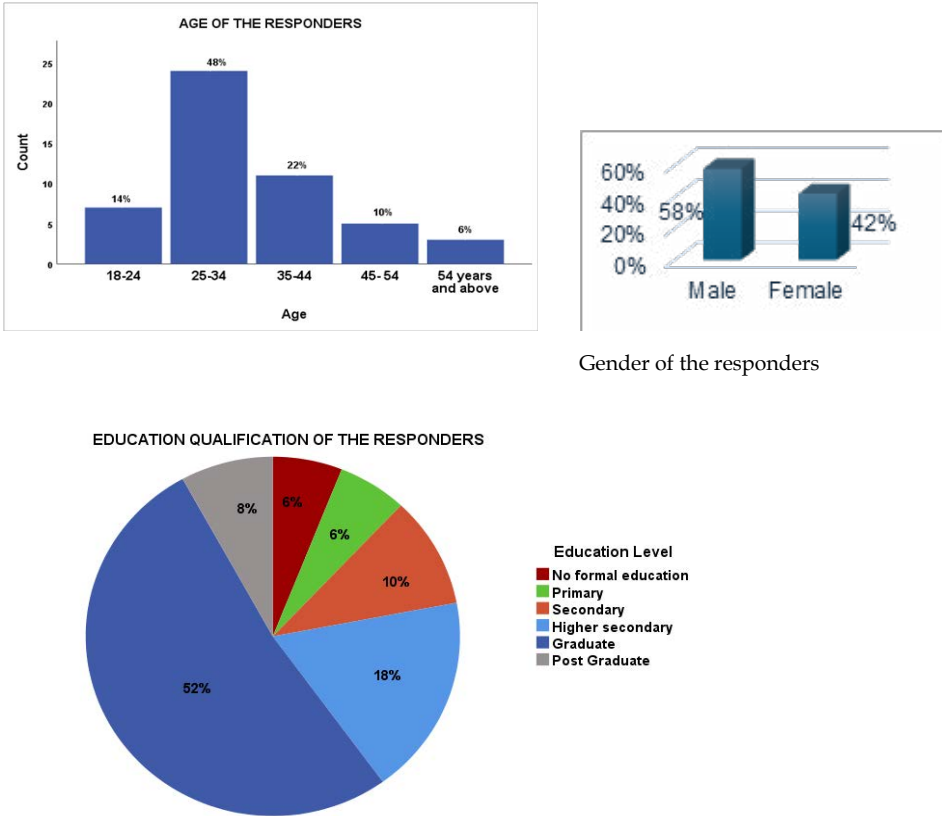


Figure 1: Sociodemographic characteristic of the participants

A thorough investigation into the demographic characteristics of a population subset originating from Bangladesh involved a meticulous analysis of a sample consisting of 50 patients. This sample was carefully selected to reflect the adult demographic composition of the nation accurately. Figure 1 shows the sociodemographic characteristics of the participants. Regarding sex distribution, the representative population demonstrated near-equilibrium, with males comprising 58% and females accounting for 42% of the sample. This balanced representation is essential to enhance the external validity of the study’s conclusions across gender divisions.

The age distribution of the study participants demonstrated a marked inclination towards younger age groups, which aligns with the normal demographic trends observed in Bangladesh. According to the Bangladesh Bureau of Statistics (BBS), Bangladesh Sample Vital Statistics 2020 reported that 54.9% of the population was aged between 15-49 years (Population & Housing Census 2022, Primary Report, 2022). Eighty percent of the respondents fell within the young adult bracket, ranging in age from 18 to 34 years. The predominance of youth demographics is vital to understanding the societal and cultural dimensions relevant to the interpretative framework of this study's findings.

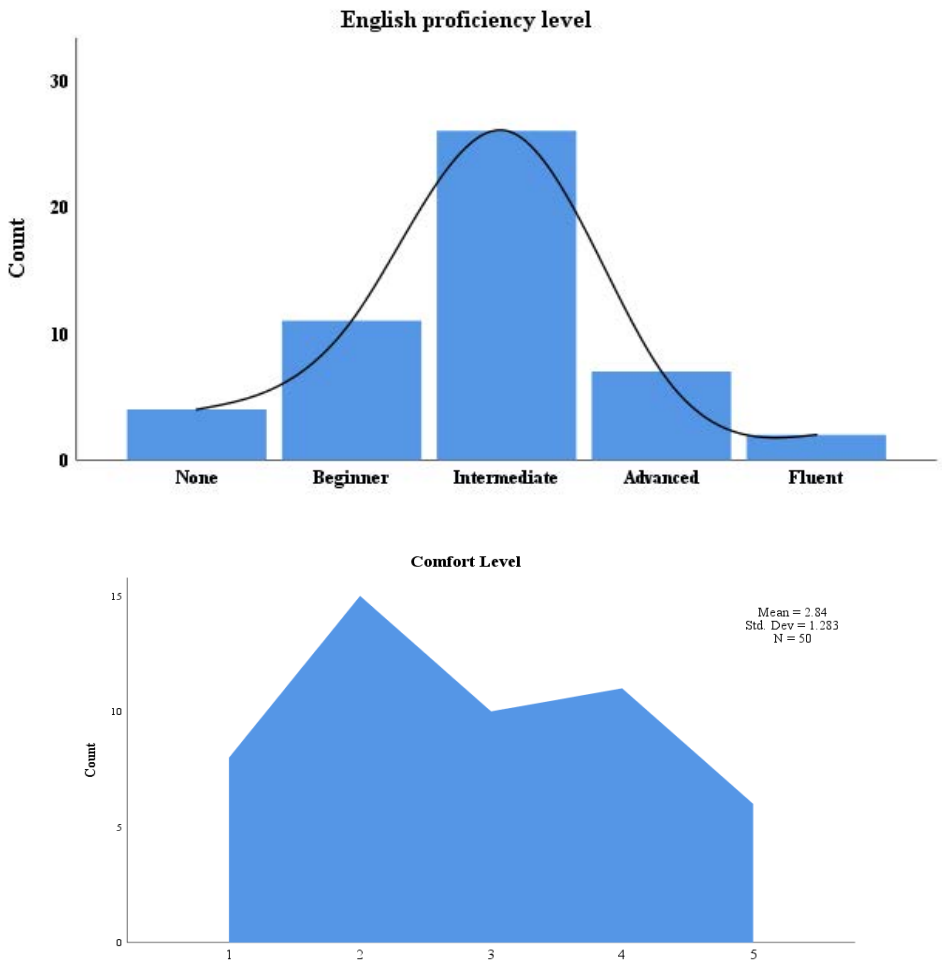


Figure 2: English proficiency and comfort level of the participants

Additionally, the educational backgrounds of the participants were characterized by considerable diversity. The sample encompassed a wide spectrum of education; 52% of the participants had completed undergraduate education, 18% had attained higher secondary education, and 8% held post-graduate qualifications. This heterogeneity in educational level is essential for a broad understanding of the effects of English linguistic dominance across various educational levels within the population.

Figure 2 presents the distribution of participants' English proficiency and comfort levels. The left panel of Figure 2 shows that the majority of participants (52%) self-reported their English proficiency as intermediate. Additionally, 14% of the participants indicated an advanced level of proficiency, whereas 4% categorized themselves as fluent. Conversely, 8% of the participants reported no proficiency in English and 22% were beginners. The right panel of Figure 2 shows the distribution of comfort levels in English in the medical setting. The data showed a left-skewed distribution, indicating that despite possessing a reasonable level of English proficiency, a substantial number of participants reported lower comfort levels when required to use English in medical contexts. The mean comfort level was moderately low, 2.8 on a 5-point scale.

These findings underscore a notable disparity between general English proficiency and comfort levels in medical settings, highlighting potential challenges in healthcare communication. Although a significant proportion of participants possessed an intermediate level of English proficiency, this did not necessarily correlate with higher comfort levels in specialized, high-pressure medical environments. This difference emphasizes the significant consequences of addressing language comfort, in addition to proficiency in enhancing patient experiences and outcomes in healthcare settings.

Perception on Uses of English in Medical Sector

Statement	Never	Rarely	Sometimes	Often	Always
Regularity of encountering English	4%	10%	2%	40%	44%

Table 1: Frequency of encountering English in medical sector N = 50

Table 1 presents the frequency of encountering English in the medical sector. Among the respondents (N = 50), 4% reported that they had never encountered

English, while 10% indicated that they had rarely encountered English. Only 2% of the participants sometimes encountered English. A significant proportion (40%) often encountered English and the highest percentage (44%) always encountered English. This suggests that English was frequently encountered by the majority of the respondents in the medical sector.

Statement	Yes	No	Unsure
Predominance of English in the medical sector creates a barrier	70%	18%	12%

Table 2: English prevents patients from receiving quality treatment N = 50

Table 2 presents the data on respondents' perceptions of whether English creates a barrier that prevents patients from receiving high-quality treatment. The majority of participants (70%) opined that the dominance of English in the medical field was a disadvantage for non-native English speakers. A total of 12% participants were unsure about the impact of English on the quality of treatment, while 18% believed that it posed no significant issue.

Preferred Language for Medical Document

Statement	Mean	Std. Deviation	Very Unimportant	Unimportant	Neutral	Important	Very Important
Importance of medical documents to be available in Bangla	3.60	0.990	2%	7%	22%	46%	16%

Table 3: Preference towards the language of medical documents N = 50

Table 3 shows the importance of the medical documents [i.e., reports, prescriptions, and informational brochures] available in Bangla, with a mean of 3.60 (S.D = 0.990). A total of 46% of the respondents found it important to have documents in their mother language, while 16% rated it as "very important." This

suggests that the respondents emphasized the availability of medical documents in Bangla. As per the respondents, the use of English in the medical sector poses a threat to the quality of treatment. To mitigate this impact, patients preferred Bangla medical documents.

English Proficiency and Comfort Level in Medical Service

The scatterplot presented in Figure 3 illustrates the relationship between self-reported English proficiency and comfort levels in English-dominated medical settings among the study participants. The data showed an upward trend from left to right, indicating a positive correlation between English proficiency and comfort levels in the healthcare context. To quantify the strength and direction of this relationship, Pearson’s correlation coefficient was calculated.

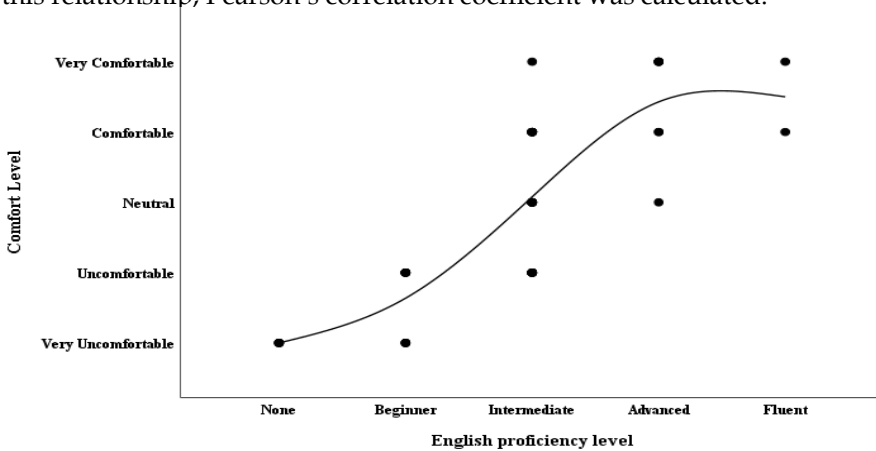


Figure 3: Scatterplot of English Proficiency vs. Comfort Level

The scatterplot demonstrates a clear positive relationship between English proficiency and comfort levels in medical settings, suggesting that higher English proficiency levels are associated with greater comfort. Pearson’s correlation analysis was conducted to examine the relationship between English proficiency and comfort levels in medical settings. As shown in Table 4, the results indicated a strong positive correlation, suggesting that higher English proficiency is significantly associated with greater comfort in English-dominated medical settings.

Table 4 shows a statistically significant and strong positive correlation ($r = .797$) This finding suggests that individuals with higher English proficiency

are more comfortable with English-dominated medical environments. This correlation emphasizes the importance of language proficiency in patient comfort, indicating that improving patients' English skills could enhance their healthcare experiences and outcomes.

		Comfort Level
English proficiency level	Pearson Correlation	.797
	Sig. (2-tailed)	.000

Table 4: Correlation between English proficiency and comfort level N = 50

Gender and Comfort Level with English in Communication

An independent-samples t-test was conducted to examine gender differences in comfort in English in medical settings. The results indicated a statistically significant difference between male and female participants. Levene's test for Equality of Variances confirmed that the assumption of homogeneity of variances was met, $F(1, 48) = 0.746, p = .392$. Assuming equal variances, the t-test for Equality of Means showed $t(48) = 2.770, p = .008$, with a mean difference of 0.956, $SE = 0.345$, and a 95% CI [0.262, 1.649]. These results indicate that female participants reported significantly lower comfort levels in English than male participants. This significant gender difference in comfort with English in medical contexts suggests a need for gender-sensitive communication strategies in healthcare to ensure equitable patient experiences and outcomes.

		Levene's Test for Equality of Variances		t-test for equality of means			
		F	Sig	t	Sig (2-tailed)	Mean difference	Std Error Difference
Comfort Level	Equal variances assumed	.746	.392	2.770	.008	.956	.345
	Equal variances not assumed	3.08	1.33	2.702	.010	.965	.354

Table 5: t-test for Gender Differences in Comfort with English in Medical Settings

The assumption of homogeneity of variances was fulfilled, as indicated by the non-significant Levene’s test ($p = .392$). This result validates the use of the t-test to compare the means of the two different groups, highlighting a statistically significant lower comfort level with English among female participants compared to male participants.

Comfort Level in Medical Service across Different Education Levels

In the test of comfort levels in English in healthcare settings, Analysis of Variance (ANOVA) was used to determine disparities among individuals with different educational backgrounds. Figure 3 shows a set of boxplots that provide a graphical representation of the distribution of comfort levels categorized by education level.

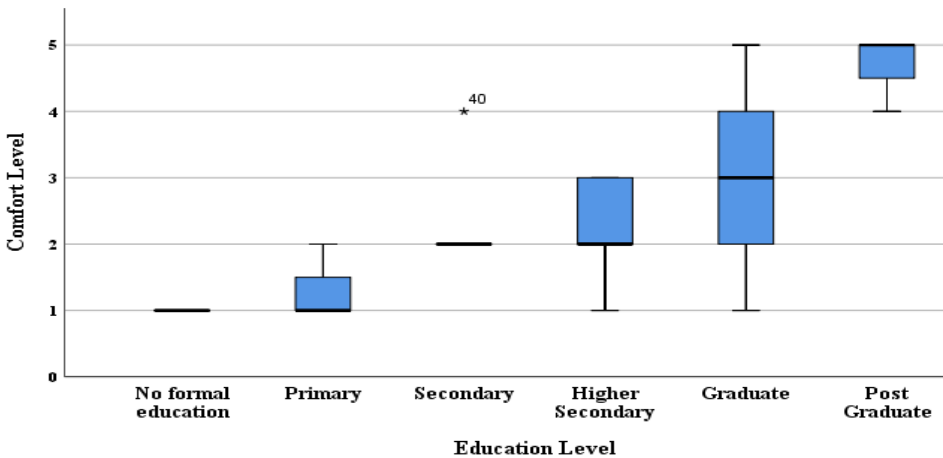


Figure 3: Boxplot of educational background by Comfort Level

The boxplots depicted in Figure 3 show a notable pattern, indicating that individuals with graduate and post-graduate qualifications reported higher levels of comfort than those with primary and secondary educational backgrounds. Moreover, one-way analysis of variance (ANOVA) was conducted to examine the differences in comfort levels with English in medical settings across various levels of education.

Comfort Level	Sum of Squares	df	Mean square	F	Sig
Between Groups	38.065	5	7.613	7.853	.000
Within Groups	42.655	44	.969		
Total	80.720	49			

Table 6: ANOVA table of level of education level and comfort

Table 6 presents the ANOVA results for the relationship between level of education and comfort with English in medical settings. The analysis found a significant F-ratio, $F(5, 44) = 7.853$, $p < .001$, indicating that there were significant differences in comfort levels among the different educational groups. This indicates that level of education significantly influences how comfortable individuals feel about using English in medical environments. Higher educational levels are likely to be associated with greater comfort in these settings, emphasizing the importance of educational interventions to improve linguistic comfort in healthcare contexts. Therefore, a post hoc analysis using Tukey's HSD was conducted to further explore the differences in comfort levels with English in medical settings across various education levels.

Multiple Comparisons				
Dependent Variable: Comfort Level				
Tukey HSD				
(I) Education Level	(J) Education Level	Mean Difference (I-J)	95% Confidence Interval	
			Lower Bound	Upper Bound
No formal education	Primary	-.333	-2.73	2.06
	Secondary	-1.400	-3.54	.74
	Higher Secondary	-1.333	-3.29	.62
	Graduate	-2.192*	-3.98	-.40
	Post Graduate	-3.750*	-5.99	-1.51

Primary	No formal education	.333	-2.06	2.73
	Secondary	-1.067	-3.21	1.08
	Higher Secondary	-1.000	-2.96	.96
	Graduate	-1.859*	-3.65	-.07
	Post Graduate	-3.417*	-5.66	-1.18
Secondary	No formal education	1.400	-.74	3.54
	Primary	1.067	-1.08	3.21
	Higher Secondary	.067	-1.57	1.70
	Graduate	-.792	-2.22	.64
	Post Graduate	-2.350*	-4.32	-.38
Higher Secondary	No formal education	1.333	-.62	3.29
	Primary	1.000	-.96	2.96
	Secondary	-.067	-1.70	1.57
	Graduate	-.859	-1.99	.28
	Post Graduate	-2.417*	-4.18	-.65
Graduate	No formal education	2.192*	.40	3.98
	Primary	1.859*	.07	3.65
	Secondary	.792	-.64	2.22
	Higher Secondary	.859	-.28	1.99
	Post Graduate	-1.558	-3.13	.02
Post Graduate	No formal education	3.750*	1.51	5.99
	Primary	3.417*	1.18	5.66
	Secondary	2.350*	.38	4.32
	Higher Secondary	2.417*	.65	4.18
	Graduate	1.558	-.02	3.13
*. The mean difference is significant at the 0.05 level				

Table 7: Post-hoc analyses of comfort level across different education level

A Post-hoc analysis using Tukey's HSD test revealed significant differences in comfort levels with English across various educational levels (see Table 7). Specifically, individuals with no formal education reported significantly lower comfort levels than those with graduate (Mean Difference = -2.192, $p = .008$) and post-graduate (Mean Difference = -3.750, $p < .001$) education. Additionally, participants with primary education exhibited significantly lower comfort levels than those with graduate (Mean Difference = -1.859, $p = .037$) and post-graduate

(Mean Difference = -3.417, $p = .001$) education. Similarly, secondary education level participants showed significantly lower comfort levels than post-graduate individuals (Mean Difference = -2.350, $p = .011$). Participants with higher secondary education levels also reported significantly lower comfort levels than post-graduates (Mean Difference = -2.417, $p = .002$). These findings underscore the significant impact of educational attainment on comfort in English in medical settings, suggesting that higher educational level is associated with greater comfort. This highlights the necessity for educational interventions to enhance linguistic comfort in healthcare contexts, potentially improving communication and patient outcomes.

Language Preferences in Medical Communication and the Level of Education

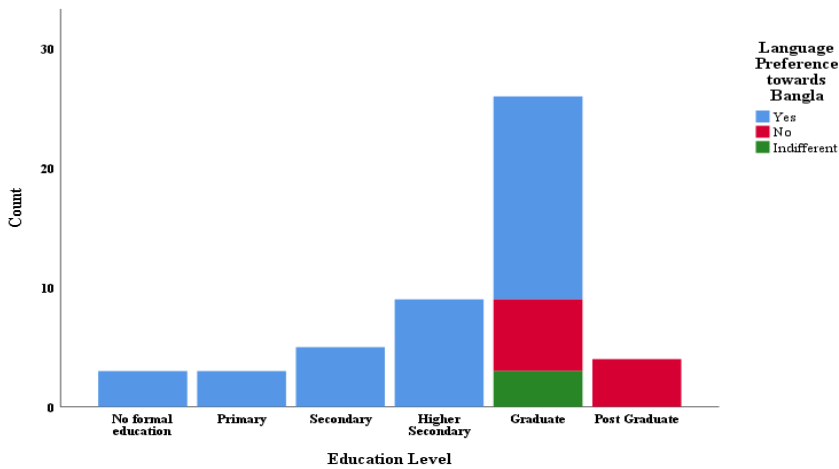


Figure 4: Histogram of Language Preference by Education Level

Figure 4 shows a visual representation of the distribution of language preferences relative to educational attainment among study participants. This indicates a trend wherein patients with higher levels of education showed a decrease in their preference for Bangla as a preferred language within the medical sector. Furthermore, a Chi-square test was conducted to examine the association between language preferences for medical communication and educational level.

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	24.740	10	.006	.016	.000	.000
Likelihood Ratio	26.352	10	.003	.001		
Fisher's Exact Test	17.499			.016		
Linear-by-Linear Association	8.519	1	.004	.003		

Table 8: Association between language preference for medical communication and education level N = 50

Table 8 shows the results of the chi-square test, which indicated a significant association between language preference for medical communication and educational level, $\chi^2(10, N = 50) = 24.740, p = .006$. The Likelihood Ratio test also supported this finding, $\chi^2(10, N = 50) = 26.352, p = .003$. Fisher's Exact Test further confirmed this association, with an exact significance level of $p = .016$. Additionally, the Linear-by-Linear Association test revealed a significant linear trend, $\chi^2(1, N = 50) = 8.519, p = .004$. These results indicate that educational level significantly influences language preferences for medical communication. Higher education levels are likely to be associated with different language preferences, emphasizing the need for healthcare providers to consider educational backgrounds when addressing language needs in medical settings.

Patients' Language Preference for Medical Communication

When studying language choices for medical communication in Bangladesh, it was found that patients strongly prefer to communicate in their native language, Bangla. A significant majority of the study participants (74%) expressed a preference for Bangla over English in their medical interactions (see Table 9). Specifically, 37 of the 50 participants preferred Bangla for healthcare communication, highlighting its significant cultural preference.

Language Preference	Frequency	Percent	Observed N	Expected N	Residual
Yes	37	74.0	37	16.7	20.3
No	10	20.0	10	16.7	-6.7
Indifferent	3	6.0	3	16.7	-13.7

Table 9: Patients Language Preference for Medical Communication N = 50

Table 9 provides a comprehensive overview of the patients' language preferences for medical communication. The data indicates a strong preference for Bangla, with the majority of participants expressing a preference for this language in the medical context. Only 20% of the participants preferred not to use Bangla and 6% were indifferent to the language used. Residual analysis further elucidates these preferences. The number of patients preferring Bangla (37) was significantly higher than expected (16.7), resulting in a positive residual of 20.3. Conversely, the numbers of patients who preferred not to use Bangla (10) and those who were indifferent (3) are both lower than the expected values, with negative residuals of -6.7 and -13.7, respectively.

These results highlight a clear preference for using Bangla in medical interactions with the patients. Moreover, a one-sample chi-square test was conducted to examine whether there was a significant preference for language use in medical communication with the patients. The results are summarized in Table 10.

	Language Preference towards Bangla
Chi-Square	38.680 ^a
Df	2
Asymp. Sig.	.000

Table 10: One-Sample Chi-Square Test on Language Preference in Medical Communication

The results of the one-sample chi-square test, $\chi^2(2, N = 50) = 38.680, p < .001$, indicate a statistically significant preference for Bangla in medical communication. This specifies that there is a significant language preference of patients, which is Bangla. The observed frequencies of language preferences differed significantly from the expected frequencies.

Validating and Reliability

The data analysis included all 50 cases in the dataset. This ensured the availability of a complete dataset for a strong analysis. All 50 cases were valid and represented 100% of the sample. No cases were excluded, resulting in a comprehensive dataset for subsequent statistical analysis. Cronbach's alpha was calculated to assess the internal consistency and reliability of the scale. The results, displayed in Table 11.

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.714	.709	7

Table 11: *Reliability Analysis of Patient Experience with English in Medical Sector Scale*

Cronbach's alpha was used to examine the internal consistency and reliability of the seven-item scale designed to measure experience of the influence of English usage in the medical sector and patient experience with language. A Cronbach's alpha of .714, indicating good and relatively high (Taber, 2018). The scale comprises seven items.

According to Norman (2010), parametric statistics can be appropriately applied to Likert data, even in cases involving small sample sizes, unequal variances, and non-normal distributions, without the concern of erroneous results, suggesting that parametric tests with ordinal data are accepted. Moreover, the representation of the distribution of English proficiency and comfort levels was provided through both visual and statistical assessments. The inferential statistical analysis was initially visualized through graphs, and subsequently, the findings were presented in tabular form to affirm their reliability.

Conclusion

There is a significant language barrier to the use of English in medical settings in Bangladesh depending on the level of education. According to the Bangladesh Bureau of Statistics (2022), the literacy rate among women in Bangladesh is lower than that of men. This has resulted in women relying on others for assistance with medical appointments and prescribed medications. Consequently, women often feel less comfortable in medical settings. Moreover, rural literacy is lower than urban literacy (Bangladesh Bureau of Statistics, 2022). Therefore, it is estimated that people from rural areas with limited educational opportunities have more difficulty navigating healthcare. Physicians should use native languages in rural areas, particularly when dispensing medications, writing prescriptions, and providing diagnostic reports, to address these linguistic barriers effectively. Moreover, pharmaceutical companies should label drugs in the local language to ensure the linguistic rights of consumers. A strong preference for Bangla also predicts that using this language can

enhance patient comfort, understanding, and satisfaction in medical settings, ultimately contributing to a more effective healthcare delivery and improved patient outcomes. These initiatives have the potential to close the communication gap between healthcare providers and patients, thereby ensuring their comfort with treatment. This approach respects patients' language preferences while adhering to the principles of patient-centred care, which emphasizes the importance of clarity and understanding in patient-physician interactions. To foster linguistic human rights for all walks of people in Bangladesh, policymakers should promote native [regional, indigenous] languages, which can ensure the rights of consumers, equity in receiving medical services, and save patients from mistakes in drug consumption. The study has some limitations, primarily the small sample size and the exclusive use of quantitative methods without any qualitative approach. Future research could include qualitative methods to gain a deeper understanding of patients' perceptions and insights.

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