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Comparison of Public and Private Healthcare Seekers in a Resource-Limited Country: Utility Indices, Consequences, Associations, and Predictors

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Abstract

Even with free 24-hour public healthcare (PHC), many choose not to access healthcare. This study explored the use/non-use of PHC, the consequences of non-utilisation, and the factors associated with and predictors of PHC access. The study included 308 adults seeking medical attention using prescriptions or seeking over-the-counter medications at pharmacies for personal use. Through convenience sampling, data were collected face-to-face at selected pharmacies from 10 March to 31 May 2024 using an 18-item questionnaire. Data were analysed using SPSS based on descriptive and inferential methods. Most participants were female; many reported comorbidities, including depression, overweight, diabetes mellitus, and hypertension. The utility index (PHC) was 0.296; the affordability index was 0.328. The absolute non-affordability index was 0.603. The affordability of private healthcare was limited to one-third of participants and was strongly associated with higher income and socioeconomic status. Place of treatment (public or private) was associated with education level, employment status, and monthly income. Consequences that were higher among non-afforders included being less able to engage in vacations/socializing/leisure time because of funds, increased burden on family who may have to use their own funds, interruptions to daily routines or activities of daily living, and reduced hobbies/activities. Many reported resorting to home remedies or alternative treatments. The low utility index of PHC and low affordability reflect systemic imbalances in the health systems of a resource-limited country. Negative consequences were particularly prevalent among non-afforders.

Keywords: Healthcare Access, Utility Index, Affordability Index, Non-Afforders, Negative Consequences

1. Introduction

Many countries provide free 24-hour public healthcare (PHC) services to improve access to healthcare. Gulliford et al. (2002) emphasised the complex nature of access and conceptualised access as comprising four aspects of evaluation: availability, adequate supply, opportunity to access services, and having access to services. However, Levesque et al. (2013) described access as 'health systems with dimensions of approachability, acceptability, availability/accommodation, affordability and appropriateness'. The World Health Organization (WHO) describes access as 'people's perceptions to their ease in reaching health services or health facilities in terms of location, time, and ease of approach' (World Health Organization, n.d.).

The WHO emphasises access as a quality outcome and reflects the overall state of health received. It is based on 'the timely use of personal health services to achieve the best possible health outcomes' (Institute of Medicine, 1993). Our study defines access narrowly as patients presenting themselves 'to receive the treatment required' (National Academies of Sciences, Engineering, and Medicine, 2018). Although PHC is free in many countries, private healthcare (PrHC) use remains significant: for instance, countries like Pakistan (82.5%) (Khalid et al., 2021) and Nigeria (52%) (Basu et al., 2012) report significant rates of PrHC use. PrHCs in Canada and USA account for 28.8% (Canadian Institute for Health Information, 2024) and 40% (Centers for Medicare and Medicaid Services, n.d.), respectively of the total health budget. PrHC users, especially non-afforders, may face additional challenges and consequences such as financial (Smolderen et al., 2010), social, and disease complications (Gordon et al., 2020; Smolderen et al., 2010).

Similar to the rest of the world, healthcare research in Trinidad and Tobago has focused on PHC users with little emphasis on non-users. PrHC users remain outside the scope of most healthcare analyses, policies, and practical developments (Hoon et al., 2017). Although utilisation is a pre-requisite for initiation of optimisation of healthcare (Oladipo, 2014), understanding and improving successful access has not yet been emphasised. PrHC non-afforders suffer additional unfair infringement, resulting in treatment delays and financial and social problems. Many are forced to make decisions that may harm them (Allegheny County Health Department, n.d.) or their loved ones (Allegheny County Health Department, n.d.). PrHC users end up paying out-of-pocket (Institute of Medicine, 2003), or using their savings (Agha & Lyford, n.d.) and their children's savings (Agha & Lyford, n.d.) to obtain healthcare. Other consequences include unnecessary treatment delays (Allegheny County Health Department, n.d.), disease complications (Dockstader, 2023), need for more medications (Dockstader, 2023) and even death (Dockstader, 2023). The lack of prompt treatment affects employment, leisure, social life, and the overall quality of life (Martin et al., 2005). This study explores the utility of health services and the consequences of non-affordability and identifies key associations and predictors in a resource-limited country.

2. Methods

This cross-sectional study included persons aged 18 years and older seeking medication at five selected pharmacies in South Trinidad using at least one prescription originating from PHC or PrHC, or seeking over-the-counter (OTC) self-medication. This methodology is similar to another study on barriers to healthcare conducted by the authors. An 18 item-questionnaire measuring sociodemographic variables (9 items), medical conditions and lifestyle diseases (1 item), type of healthcare received (3 items), and consequences (1 item: disease, treatment, social, or financial) was used. Data were collected over a ten-week period from 10 March to 31 May 2024 via face-to-face interviews. Data analysis comprised both descriptive and inferential statistical methods. The former included frequencies and percentages, graphs, and/or charts for qualitative variables as well as minimum and maximum values, medians, and means with corresponding standard deviations (SD) for providing single number summaries of quantitative variables. Inferential methods included 95% Confidence Intervals (CIs) for means and proportions and hypothesis testing at the 5% significance level, including Analysis of Variance (ANOVA) and Multiple Comparison procedures.

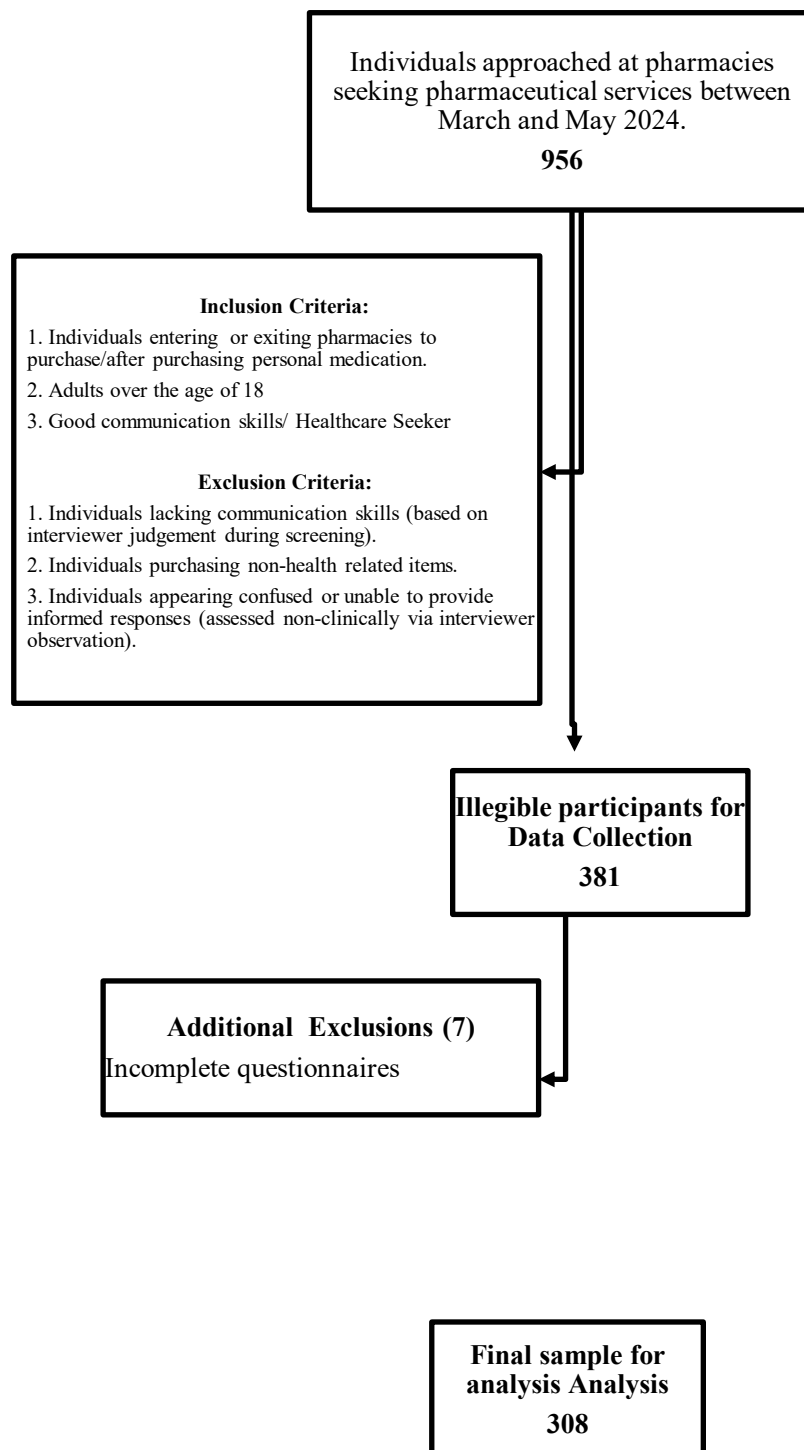


Figure 1: Participant selection process and determination of study sample

2.1 Definition: Indices

- 1) Utility Index (PHC): The proportion of participants who exclusively used the public healthcare (PHC) system.
- 2) Non-Utility Index (PHC): The proportion of participants who did not use the public system ($1 - \text{Utility Index}$).
- 3) Affordability Index: The proportion of participants who reported that they can afford private healthcare.
- 4) Relative non-Affordability Index: The proportion of participants who receive (opt for) private healthcare despite reporting 'being unable to afford healthcare and experience challenges in seeking private care'.
- 5) Absolute non-affordability Index: The proportion of participants who either receive public healthcare or receive private healthcare despite reporting being unable to afford it.

2.2 Other definitions

Afforders were defined as patients who could fund their private hospital stay without difficulty or assistance. Non-afforders were patients who faced financial difficulties when paying for their healthcare.

2.3 Ethics

Ethical approval for the study was obtained from the Ethics Committee of the University of the West Indies on 21 March 2024. All participants provided verbal consent to participate in the study; participants were not rewarded for participation.

3. Results

3.1 Section I

3.1.1 Descriptive Statistics

Usable data were obtained from 308 participants. Women ($n = 195$; 63.3%), aged 30–50 years ($n = 136$; 44.2%), and Indo-Trinbagonians ($n = 150$; 48.7%) comprised the largest group in the various categories. Table 1. More than half of the participants ($n = 155$; 51.3%) had a tertiary level education, and 205 (66.6%) were employed.

Table 1: Distribution of socio-demographic variables

Variable	n	%
Age group		
< 30	75	24.4
30-50	136	44.2
> 50	91	30.1
No response	6	1.9
Gender		
Male	113	36.7
Female	195	63.3
Ethnicity		
Afro-Trinbagonian	69	22.4
Indo-Trinbagonian	150	48.7
Mixed	83	26.9
Other	4	1.3
No response	2	0.6

Highest level of education		
No formal education	2	0.6
Primary	22	7.1
Secondary	123	39.9
Tertiary	155	51.3
No response	3	1.0
Employment status		
Employed	205	66.6
Unemployed	46	14.9
Retired	49	16.1
Never employed	4	1.3
No response	4	1.3
Lives alone		
No	250	81.2
Yes	55	17.9
No response	3	1.0
Monthly income (\$TT)		
< 5000	66	21.4
≥ 5000	96	31.2
No response	146	47.4

Figure 2 shows that 18.0% (n = 55) of the study participants lived alone; and 16.3% (n = 50) lived with a spouse.

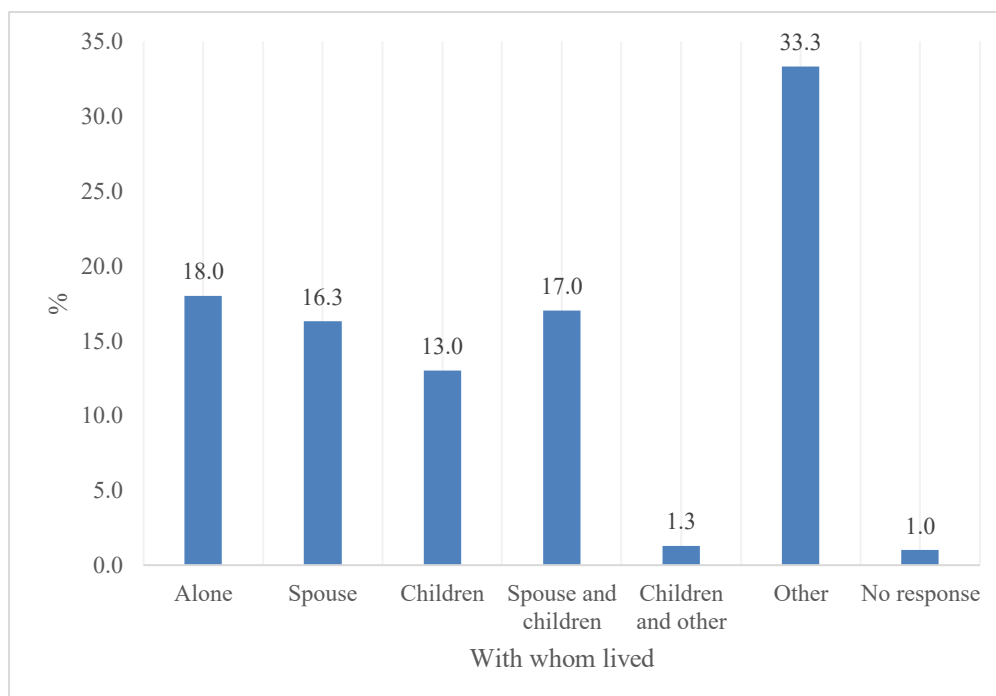


Figure 2: With whom patient lived

Table 2: Distribution of participants by type of care

Type of Healthcare	n	%
Private healthcare (afforders)	101	32.8
Private healthcare (non-afforders)	103	33.4
Public healthcare (PHC)	91	29.6
Other (self-medicated without clinic or hospital intervention)	13	4.2

Table 3 shows the frequency and percentage distribution of participants' sociodemographic characteristics by type of care, with p-values from association tests. Highest level of education, (Chi-square = 19.975, df = 3, $p \leq 0.001$), employment status, (Chi-square = 715.072, df = 3, $p = 0.010$), and monthly income (Chi-square = 8.055, df = 2, $p = 0.018$) were the only socio-demographic variables that were associated with healthcare category. However, ordinal and nominal logistic regression analyses showed that none of these three variables predicted the type of healthcare category.

Table 3: Type of care by socio-demographic characteristics

Variable	n	Type of hospital			p-value
		Private		Public	
		Afforders	Non-afforders		
Age group	302				
< 30		29 (38.7)	20 (26.7)	18 (24.0)	0.063
30-50		42 (31.6)	41 (30.1)	35 (25.7)	
> 50		26 (29.7)	22(24.2)	37 (40.7)	
Gender	308				
Male		42 (37.2)	38 (33.6)	33 (29.2)	0.297
Female		57 (29.2)	80 (41.0)	58 (29.7)	
Ethnicity	306				
Afro-Trinbagonian		25 (36.2)	21 (30.4)	22 (31.9)	0.494
Indo Trinbagonian		46 (30.7)	55 (36.7)	48 (32.0)	
Mixed		26 (31.3)	36 (43.4)	21 (25.3)	
Other		1 (25.0)	3 (75.0)	0 (0.0)	
Level of education	305				
Primary		1 (4.5)	5 (22.7)	16 (72.7)	≤ 0.001
Secondary		28 (22.8)	47 (38.2)	46 (37.4)	
Tertiary		68 (43.0)	63 (39.9)	27(17.1)	
None		1 (50.0)	0 (0.0)	1 (50.0)	
Employment status	304				
Employed		76 (37.1)	82 (40.0)	45 (22.0)	0.010
Unemployed		10 (21.7)	16 (34.8)	20 (43.5)	
Never employed		0 (0.0)	2 (50.0)	2 (50.0)	
Retired		13 (25.6)	15 (30.6)	21 (42.9)	
Monthly income					
< TT\$5,000	162	13 (19.7)	40 (60.6)	13 (19.7)	0.018
TT\$5000 and over		39 (40.6)	45 (46.9)	12 (12.5)	

3.1.2 Presenting Health Conditions

Figure 3 shows that depression (n = 86; 27.9%), overweight (n = 82; 26.6%), diabetes mellitus (n = 61, 19.8%), and hypertension (n = 61; 19.8%) were the four main self-reported health conditions among participants intending to fill a prescription or to purchase OTC medication.

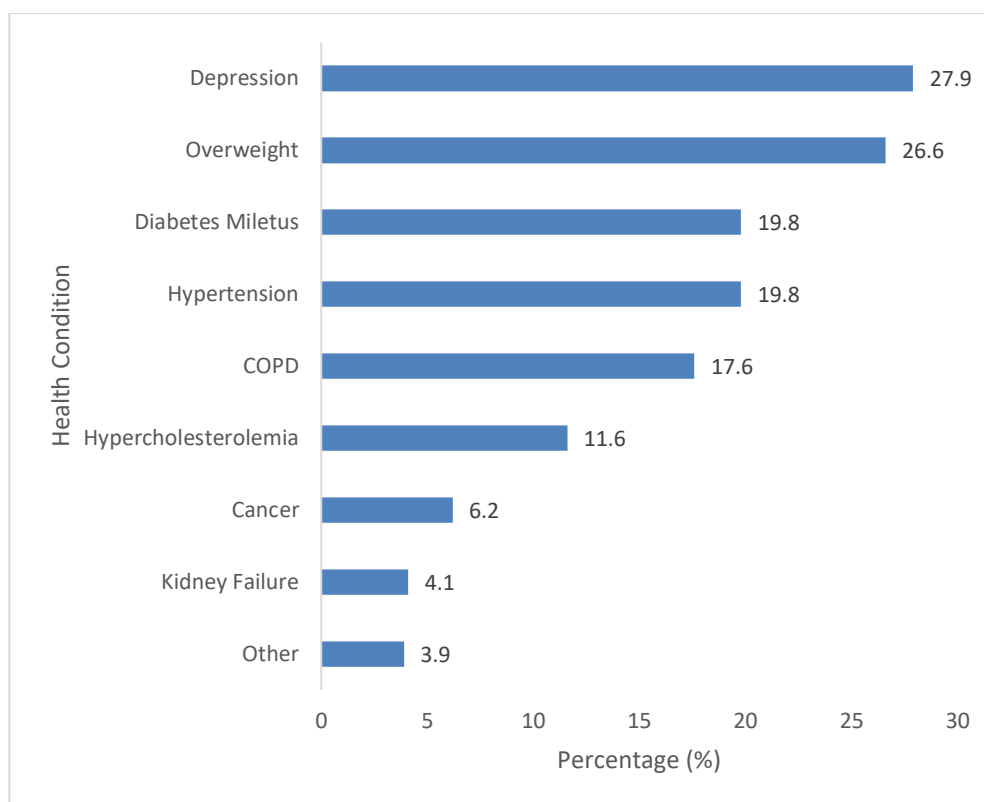


Figure 3: Percentage distribution of health conditions

Among afforders, personal savings ($n = 90$, 81.1%) was the main source of funding, followed by medical insurance ($n = 72$, 64.9%). Among non-afforders, personal savings ($n = 85$, 85.0%) was also the main funding source. The difference between the number of afforders and non afforders using personal savings was not statistically significant.

3.1.3 Utility Indices

The Utility Index (PHC) was 0.296, and the Non-Utility Index PHC (= 1-Utility Index) was 0.704, with an affordability index of 0.328.

Table 4: Selected healthcare indices

Index	Numerator (a)	Denominator (n)	Index (a/n)
1. Utility index (PHC)	91	308	0.296
2. Non-utility index (PHC) (= 1-utility index)	217	308	0.704
3. Affordability index	101	308	0.328
4. Relative non-affordability index	103	308	0.334
5. Absolute non-affordability index	194	308	0.630

3.2 Section II

3.2.1 Consequences

The non-afforders of PrHC reported the most common consequences. These included increased burden on family who may need to use personal savings ($n = 63$; 54.3%); reduced hobbies/activities ($n = 62$; 53.4%); reduced

financial ability to engage in vacations/socializing/leisure (n = 61; 52.6%); use of home remedies or alternative treatment (n = 61; 52.6%); and interruptions to daily routine or activities of daily living (n = 61; 52.6%).

Table 5: Consequences faced by patients due to barriers in healthcare

Variable	Consequence	PHC	Afforders	Non-Afforders	All
		n, %	n, %	n, %	n, %
Treatment	1. Delay/less effective/ treatment	5 (5.5)	11 (11.1)	48 (41.4)	64 (20.8)
	2. Use home remedies or alternative treatment	17 (18.7)	34 (34.3)	61 (52.6)	112(35.3)
	3. Did not receive treatment	5 (5.5)	12 (12.1)	30 (35.9)	47 (15.3)
Disease	1. Longer time to improve health/or get better	11 (12.1)	18 (8.2)	49 (42.2)	78 (25.3)
	2. Worsening of medical condition/development of complications	5 (5.5)	13 (13.1)	36 (31.0)	54 (17.5)
	3. Development of physical problems such as mobility/vision problems	6(6.6)	10(10.1)	16 (13.8)	32 (10.4)
Other (social/financial)	1. Less able to engage in vacations/socializing/leisure time because of funds	9(9.9)	34 (34.3)	61 (52.6)	104 (33.8)
	2. Increased burden on the family who may have to use their own funds	7 (7.7)	31 (31.3)	63 (54.3)	101(32.8)
	3. Interruptions to daily routine or activities of daily living	8 (8.8)	34 (34.3)	61 (52.6)	103 (33.4)
	4. Cut down on hobbies/activities	8 (8.8)	30 (30.3)	62 (53.4)	100 (33.5)
	5. Cut down on use of basic items (food, clothing, etc.) because of diversion	5 (5.5)	28 (28.3)	58 (50.0)	91 (29.5)
	6. Cut down on schooling/housing because of diversion of finances to healthcare	5 (5.5)	25 (25.3)	43 (37.1)	73 (23.7)
	7. Other (not specified)	5(5.5)	22 (22.4)	45 (39.4)	72 (23.4)

All three pairs of the total consequence scores were correlated pairwise. Analysis of Variance (ANOVA) of total number of consequences showed that type of hospital care was the only variable with significant pairwise differences among mean scores ($p \leq 0.001$). Specifically, afforders' mean number of consequences was lower than that of non-afforders ($p = 0.003$); additionally, non-afforders' mean number of consequences was higher than that of public care patients ($p \leq 0.001$). Table 6.

Table 6: Pairwise correlations

Consequences	Consequences		
	Disease	Treatment	Financial
Disease	1	0.668 (≤ 0.001)	0.491 (≤ 0.001)
Treatment	0.668 (≤ 0.001)	1	0.528 (≤ 0.001)
Financial	0.491(≤ 0.001)	0.528 (≤ 0.001)	1

4. Discussion

4.1 Section 1

4.1.1 Demographics and Association with Type of Healthcare

Participants were mostly female ($n = 195$, 63.3%) aged 30–50 years ($n = 136$, 44.2%). In a similar study conducted in 2015 in rural Nigeria, the respondents were primarily male, and 34.4% were aged 41–50 years (Omonona et al., 2015). The most common co-morbidities were depression ($n = 86$; 27.9%), overweight ($n = 82$; 26.6%), diabetes mellitus ($n = 61$, 19.8%), and hypertension ($n = 61$; 19.8%), similar to the findings reported by Gabrani et al. (2020). More than two-thirds (63%) of the respondents reported suffering from at least one chronic illness. In Canada and USA (Blackwell et al., 2009), the prevalence of overweight as a risk factor is 32.7% and 32.5% respectively.

Most participants ($n = 204$; 66.2%) in our study were healthy (Table 2), equally distributed between afforders ($n = 101$, 32.8%) and non-afforders ($n = 103$, 33.4%). Similarly, Rout et al. (2019) found that in India, the use of PrHCs was nearly three times greater than that of PHC. Conversely, in China (Tang et al., 2016), nearly 78.9 % preferred large public hospitals to private hospitals.

Our findings revealed that education level ($p < 0.001$), employment status ($p = 0.010$), and monthly income ($p = 0.018$) were associated with the type/place of healthcare (PHC or PrHC). Afforders had higher education levels, and they were employed; thus, they were wealthier than their non-afforders or PHC counterparts. This is consistent with the findings reported by Awoke et al. (2017), highlighting the correlation between higher education and private care services, stating that the use of private healthcare providers increased with wealth in Ghana. Similarly, a study (Bourne et al., 2010) assessing trends in PrHC and PHC among Jamaicans highlighted the increased use of PrHC with increasing wealth and showed that using public services is still much cheaper overall; thus, people with lower incomes tended to choose more affordable public options. In contrast to other studies, there was no association with patients' residence, type of support, or source of funding by user type (Awoke et al., 2017; Hossain et al., 2021).

4.1.2 Utility indices

In this study, the utility index (PHC) was 0.296 (or 29.6%), that is, those who sought PHC. This contradicts a study conducted in India in which the reliance on the public sector for outpatient care ranged as low as 8.5% in Punjab to 78.8% in Assam (Rout et al., 2019). This is similar to a study in Brazil (Bastos et al., 2011) whereby the use of PHC was 42.0%. Further, 70.45% of patients resort to non-PHC or PrHC (Non-Utility Index (PHC) is 0.704), which contrasts with another study which reported that 17.8% of people seek PrHC (Awoke et al., 2017). Further, Wambiya et al. (2021) found that 47% used private facilities and a further 20% used complementary medicine. This compares well with a study by Bagchi et al., which revealed that 88% reported that their family members did not use public healthcare (Bagchi et al., 2022).

Affordability index (0.328 or 32.8%) compares well with other high-income countries such as USA (30.7%, 2016) (Emanuel et al., 2017). Affordability may be related to private insurance availability and a relatively high disposable income. In our study, 31.2% ($n = 96$) earned more than \$5000 per month; this population may reflect afforders of PrHC (32.8%, $n = 101$). The absolute non-affordability index is 63% ($n = 194$); this may reflect non-afforders of PrHC or PHC users who may earn less than \$5000/month (21.4%, $n = 66$).

The users of PHC and the non-afforders of PrHCs exhibit continual oscillations, similar to that of a pendulum between the two sectors, contingent on prevailing financial and social circumstances. During periods of financial stability, such individuals may be inclined to access PrHCs in pursuit of higher-quality services or expedited care.

Conversely, economic constraints may necessitate a return to PHC, thereby interrupting the continuity of care. PHC users may also seek PrHCs because of the unavailability of resources offered at public facilities.

4.2 Section 2

4.2.1 Consequences

Our findings reveal that the major complications caused by the failure to access PHC are patients being 'less able to engage in vacations/socializing/leisure time because of funds' (n = 104, 33.8%), or experiencing 'increased burden on the family who may have to use their own funds' (n = 101, 32.8%), 'interruptions to daily routine or activities of daily living' (n = 103, 33.4%) and having to 'cut down on hobbies/activities' (n = 100, 32.5%'. Kissoon (2016) also reported increased burden on family and emphasised that emotional and financial stress affect family dynamics and overall wellbeing (Kissoon, 2016).

Disease-related consequences included a longer time to improve health/or get better (n = 78, 25.3%) and worsening of medical conditions/development of complications (n = 54, 17.5%). Schwarz et al. (2022) reported that patients with chronic illnesses encountered barriers such as poor care coordination, long waiting times, and financial constraints. These in turn contributed to delayed diagnosis and treatment, leading to treatment delays, disease progression, and adverse social and financial effects. Similarly, another study reported that 'increases in privatisation frequently corresponded with worse health outcomes for patients' (Goodair & Reeves, 2024). The psychological consequences of such health-related outcomes have not been studied.

In our study, many participants resorted to CAM as alternative or complimentary treatment, including home remedies (n = 112, 36.3%). Similarly, in Switzerland, 64.4% of patients used home remedies and 38.5% did so to avoid PHC (Winkler et al., 2022). However, this was not significantly associated with the types of healthcare accessed.

5. Conclusion

In our study, only approximately one-third of healthcare seekers were afforders. The majority (about two-thirds) used either PHC or PrHC with difficulty in similar proportions. Non-afforders seeking PrHC experience major problems that affect or limit their participation in social, leisure, or recreational activities, increase their financial burden on family members, and disrupt their daily functioning. The systemic imbalance in the receipt of public healthcare has led to inequity. This is corroborated by another study, which reported that, '...health disparities are not only based on racial, ethnic, and cultural differences within the population. Lifestyle choices, age, sexual orientation, lack of access, and personal, socioeconomic, and environmental characteristics are also to be included' (Riley, 2012). Therefore, the low affordability index with its consequences and inequity necessitates an even better PHC system to ensure the availability of quality healthcare.

6. Limitations

The limitations of this study must be acknowledged. First, our study did not include patients seeking dental care. Second, the selected pharmacies may not be representative. Third, because of the small sample size, sub-analysis was not possible. Fourth, a subset of the population, termed 'self-carers', may opt **not** to engage with formal healthcare services. Instead of seeking PHC or PrHC, these individuals rely on self-directed care, including home remedies, OTC medication, traditional medicine, and alternative therapies.

Author Contributions: MB conceptualised, designed, conducted, and reviewed the study, and wrote and revised the manuscript. GL assisted in statistical analyses and review of manuscript.

Funding: None.

Conflicts of Interest: The authors declare no conflict of interest.

Informed Consent Statement/Ethics Approval: Ethics approval for the study was obtained from the Ethics Committee of the University of the West Indies on March 21st, 2024. All participants gave verbal consent to participate in the study; and participants were given no rewards for participation.

Data Availability Statement: Data supporting the findings of this study will be made available from the corresponding author upon reasonable request.

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