



ORIGINAL ARTICLE

Financial burden associated with attendance at a public hospital emergency department in Johannesburg

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ABSTRACT

Introduction: More than half of South Africans live below the poverty line. Indirect medical costs can contribute significantly to the financial burden of patients seeking medical care. The aim of this study was to determine the expenses incurred by patients and/or their escorts during a visit to the emergency centre (EC).

Methods: Patients and/or their escorts presenting to an EC in Johannesburg were asked to complete the study questionnaire relating to expenses incurred during a visit to the EC.

Results: Of the total 396 participants that completed the questionnaire, 108 (27.2%) did not have any source of income, 146 (36.9%) were the sole breadwinner in their household and 36 (9.1%) belonged to zero-income households. Among those earning \leq R2000 per month, the mean expenses relating to the EC visit was R240 (SD R372), equating to an average of 33.2% of mean monthly income. Transport costs were the most common expense ($n=302$, 76.3%), while general practitioner (GP) fees incurred prior to the EC visit accounted for the bulk of the expenses (median R450, IQR 350–820). Participants that earned $>$ R2000 per month were significantly more likely to incur GP fees ($p=0.012$), while those earning \leq R2000 per month were significantly more likely to take a loan to cover EC related expenses ($p=0.014$).

Conclusion: A visit to the EC can have a substantial financial impact on patients and their accompanying escorts in South Africa. Strategies should be aimed at identifying and assisting those that are in need of financial assistance to cover indirect healthcare costs.

Introduction

Poverty and inequality are two of the most significant issues affecting people living in South Africa. As per the Gini coefficient, which is an economic measure of income distribution across a population [1], South Africa, with a Gini coefficient of around 0.6, has consistently been ranked as one of the top five most unequal countries in the world [2].

In South Africa, the extreme/food poverty line (FPL), which is the amount required by an individual to afford the minimum daily required energy intake, was set at R561 per person per month, while the lower-bound poverty line (LBPL) which comprises the FPL plus the average amount derived from non-food items of households whose total expenditure is equal to the FPL was set at R810 per person per month and the upper-bound poverty line (UBPL) which comprises the FPL plus the average amount derived from non-food items of households whose food expenditure is equal to the FPL was set at R1227 per person per month [3]. It is estimated that more than half of South Africans live below the UBPL [4]. These figures are likely to be higher as a result of the current COVID-19 pandemic and its effects on unemployment and the economy [5].

Healthcare systems are also victim to inequality, with healthcare being more easily accessible by the rich in South Africa [6]. As per a 2005 report by the World Health Organization (WHO), catastrophic health care expenditure (CHCE) which can be defined as out-of-pocket expenditure on medical care that leads to a severe financial burden for the individual or the household, affected 150 million individuals from 44 million households globally [7]. Various individual studies have also indicated that CHCE is a global problem [8–12], with those living in low-income regions being most affected [13].

Costs involved when attending healthcare services have the potential to create a significant financial burden on a patient, or even the person accompanying a patient to the hospital. Costs incurred by patients can be categorised into three main categories that include direct medical costs, direct non-medical costs and indirect costs [14].

To our knowledge, no local studies have evaluated the cost incurred by patients during a visit to the emergency centre (EC). Hence, the primary aim of this study was to determine the EC visit related expenses incurred by patients and/or their escorts.

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Methods

This was a prospective cross-sectional study that was conducted at the Charlotte Maxeke Johannesburg Academic Hospital (CMJAH) EC during the month of November 2019. The hospital is a 1088 bed tertiary academic facility affiliated to the University of the Witwatersrand and serves the population residing in the Johannesburg inner city and surrounding suburban areas. Approximately 3500 patients attend the EC every month [15]. Permission to conduct the study was obtained from the hospital manager as well as the head of the EC. The study was approved by the Human Research Ethics Committee (Medical) of the University of the Witwatersrand (clearance certificate no. M180739).

The study population comprised a convenience sample of adult patients attending the EC and/or their accompanying escort/s. All study participants were over the age of 18 years. Patients requiring urgent medical treatment were excluded from the study. Data were collected by the primary investigator at random times during both day and night shifts. During periods of data collection, alternate patients and/or their escorts waiting in the triage area of the EC were first handed a study information leaflet and thereafter asked to participate in the study. Consenting participants were requested to complete the study questionnaire. The questionnaire included data pertaining to demographic information, employment, income earned (ZAR), mode of transport to the hospital and expenses relating to the current EC visit.

Collected data were captured and analysed in Microsoft® Excel® (Microsoft 365, Version 2107). Variables were described using frequency and percentage. Since the Kolmogorov-Smirnov test indicated that data were not normally distributed ($p < 0.05$), the median and interquartile range (IQR) of the total and individual expenses relating to the current EC visit were calculated. The Mann-Whitney U test was used to determine if there were significant differences between the various expenses of participants with an income of $\leq R2000$ per month and those with an income of $> R2000$ per month. The median and IQR as well as the mean and standard deviation (SD) for total monthly income and expenses relating to the EC visit were calculated for both participants with an income of $\leq R2000$ per month as well as those with an income of $> R2000$ per month.

Results

Of the 419 potential study participants that were approached, 396 consented to study participation and were included in the final study sample. Of these, 292 (73.7%) were patients and 104 (26.3%) were patient escorts. The median age of study participants was 41 (IQR 30.0 – 54.0) years. Most participants were female ($n=245$, 61.9%), South African citizens ($n=322$, 81.3%) and resided outside the drainage area of the hospital ($n=163$, 55.8%). Total monthly income was $\leq R1228$ (UBPL) in approximately a third ($n=128$, 32.3%) of study participants, of which the majority ($n=108$, 27.3%) were unemployed with zero income. More than a third ($n=146$, 36.9%) indicated that they were the sole breadwinner in their household and 36 (9.1%) indicated that they belonged to a household with zero income. These and other characteristics of study participants are described in Table 1.

Among participants earning $\leq R2000$ per month (including participants with zero income), the median monthly income was R0 while the median indirect expenses relating to the EC visit were R60 (IQR R8 – R258). The mean monthly income for this group was R723 (SD R839), while the mean indirect expenses relating to the EC visit were R240 (SD R372), equating to an average of 33.2% of the mean monthly income being spent on the EC visit.

Among participants earning $> R2000$ /month, the median monthly income was R5000 (IQR R3500 – R9800), while the median indirect expenses relating to the EC visit was R150 (IQR R31 – 603). The mean monthly income for this group was R8159 (SD R9240), while the mean indirect expenses relating to the EC visit were R642 (SD R1557), equat-

Table 1
Characteristics of study participants.

	n (%)
Sex	
Male	151 (38.1)
Female	245 (61.9)
Nationality	
South African	322 (81.3)
Foreign national	74 (18.7)
Monthly income	
$\leq R1227$ per month (upper bound poverty line)	128 (32.3)
R1228 to R5000 per month	179 (45.2)
$> R5000$ per month	84 (21.0)
Did not disclose income	5 (1.3)
Sole breadwinner in the household	146 (36.9)
Households with zero income	36 (9.1)
Resides within hospital drainage area (patients only)	129 (44.2)
Self-referral to the hospital (patients only)	87 (29.8)
Mode of transport to the hospital	
Private car	176 (44.4)
Minibus taxi	120 (30.3)
E-Hailing service (e.g., Uber)	56 (14.1)
Hospital transport	21 (5.3)
Bus	13 (3.3)
Hired car	7 (1.8)
Walked	2 (0.5)
Bicycle	1 (0.3)

ing to an average of 7.9% of the mean monthly income being spent on the EC visit.

Tables 2 and 3 compare the expenses incurred between participants earning $> R2000$ per month and those earning $\leq R2000$ per month. Overall, transport costs were the most common expense incurred ($n=302$, 76.3%), while general practitioner (GP) fees incurred prior to the EC visit accounted for the bulk of the expenses (median R450, IQR 350–820). Participants that earned $> R2000$ per month were significantly more likely to incur GP fees ($p=0.012$) and to sustain a loss of their daily income ($p < 0.001$), while those earning $\leq R2000$ per month were significantly more likely to take a loan to cover their EC related expenses ($p=0.014$) (Table 2). Total EC visit related expenditure ($p < 0.001$), money loaned ($p=0.021$) and loss of daily income ($p=0.027$) were significantly higher among participants that earned $> R2000$ per month (Table 3).

Discussion

To our knowledge, this is the first study to have determined the financial burden associated with a visit to a public hospital EC in South Africa. Notable findings of this study are that a relatively high proportion of study participants were unemployed, were living below the poverty line and were the sole breadwinners in their household.

The percentage of unemployed individuals in this study (27.3%) was similar to the national unemployment rate of 29.1% [16]. Similarly, the percentage of study participants living below the poverty line (32.3%) was similar to the estimated figure in the Province of Gauteng (29.3%) [17], where the study was conducted. Although direct healthcare costs (e.g., medication, consultation fees) at public healthcare facilities in South Africa are minimal or negligible for citizens who are unemployed or are earning a low income, there is a need to develop strategies that will identify and assist those that are in need of financial assistance to cover indirect healthcare costs (e.g., transport fees to the hospital) that are incurred during a visit to the hospital. For example, the social grant system could potentially be utilised to identify and reimburse deserving individuals in South Africa. However, corruption, which already mars the social grant system, is a potential obstacle in this regard [18,19]. In some countries that have universal healthcare systems in place, citizens are reimbursed for a range of healthcare expenses including EC consultation fees [20]. Other countries have implemented a card-based system to identify low-income earning citizens qualifying for an exemption of their healthcare-related costs [21].

Table 2

Comparison of expenses incurred (n, %) between participants earning >R2000 per month and those earning ≤R2000 per month.

Type of expense	Entire cohort (n, %)	Income ≤R2000 per month (n, %)	Income >R2000 per month(n, %)	P-value
Total	396 (100)	202 (51.0)	194 (49.0)	0.569
Transport cost	302 (76.3)	146 (72.3)	156 (80.4)	0.057
Food	135 (34.1)	63 (31.2)	72 (37.1)	0.214
*General practitioner	89 (22.5)	35 (17.3)	54 (27.8)	0.012
Loan	86 (21.7)	54 (26.7)	32 (16.5)	0.014
Loss of daily income	66 (16.7)	12 (5.9)	54 (27.8)	<0.001

*general practitioner consultation fee related to the current illness and incurred prior to the EC visit.

Table 3

Comparison of expenses incurred (ZAR) between participants earning >R2000 per month and those earning ≤R2000 per month.

Type of expense	Entire cohort (R)(median, IQR)	Income ≤R2000 per month (R) (median, IQR)	Income >R2000 per month (R) (median, IQR)	P-value
Total (n=396)	84 (18 – 428)	60 (8 – 258)	150 (31 – 603)	<0.001
Transport cost (n=302)	19 (5 – 43)	25 (14 – 50)	29 (14 – 50)	0.478
Food (n=135)	40 (20 – 60)	35 (20 – 50)	50 (20 – 70)	0.208
*General practitioner (n=89)	450 (350 – 820)	450 (350 – 800)	500 (350 – 955)	0.379
Loan (n=86)	150 (100 – 215)	100 (50 – 200)	200 (100 – 325)	0.021
Loss of daily income (n=66)	250 (150 – 600)	150 (58 – 285)	280 (185 – 600)	0.027

R, Rand (ZAR); IQR, interquartile range; *, general practitioner consultation fee related to the current illness and incurred prior to the EC visit.

Transport fees to the hospital was the most common expense incurred by most (76.3%) study participants. Other studies conducted in South Africa, Kenya and Zambia also confirm that transport-related costs were significant contributors to indirect healthcare costs for those seeking medical care [22–24]. To address this problem, strategies should be directed at arranging free transport services to and from the hospital for the unemployed, retired, elderly and those earning a low income. It is of concern that over half the number of study participants (55.8%) resided outside the drainage area of the hospital, which also would have contributed to higher transport costs. Reasons for bypassing their local hospital were not explored but may be as a result of inappropriate referrals by primary care providers or perhaps due to a previous unpleasant experience at their local hospital.

Since receiving treatment at a public primary healthcare (PHC) facility is free of charge across South Africa [25], it is concerning that approximately a quarter of study participants (22.5%) indicated that they had visited a GP prior to attending the EC and thereby incurred a median consultation fee of R450. Additionally, some GPs do not dispense medication, which may have resulted in additional medical costs to the patient. It is estimated that even among patients earning less than R6000 per month, 22.4% still attended a GP instead of a PHC clinic [25]. Previous studies conducted in South Africa have reported that long waiting times, dysfunctional PHC facilities, medication stock-outs, lack of experienced staff, wanting to be treated by a medical doctor instead of a trained PHC nurse, lack of continuity of care, poor staff attitude, limited clinic hours, lack of public transport, lack of knowledge regarding the referral system, perception of superior care or resource availability at hospitals and the hospital being the nearest health facility were barriers to attending a PHC clinic [26–28].

In this study, 29.8% of study patients were self-referred. A study conducted at a district hospital in Free State, South Africa, reported that 60% of interviewed patients were self-referred, and overall 38% of EC attendees who were interviewed could have been managed at a PHC clinic [28]. A study conducted in Kenya concluded that distrust of PHC facilities often led patients to avoid these facilities and to rather seek care at a higher level facility [22]. Hence, implementing strategies to streamline the referral process will also reduce indirect healthcare expenditure as well as decrease the number of EC presentations. Countries in Europe have recently implemented strategies such as telephone triage, medical advice centres and primary care cooperatives which have resulted in fewer face-to-face contacts, fewer house calls, significantly less money spent on after hours services and a reduction in EC presentations [29–32]. South Africa would benefit from similar reforms to improve patient care. Recently the health amendment bill proposed to

keep all local PHC facilities open 24-hours a day [33]. However, due to budgetary constraints and other reasons, this bill was rejected [34].

Studies conducted in South Africa focussing on out-of-pocket expenditure for various medical conditions all concluded that healthcare expenses disproportionately affected the poor [35–37]. Similarly, among participants earning less than R2000 per month, the expenditure associated with the current EC visit accounted for an average of 33.2% of their monthly income. This is compounded by the fact that 21.7% of study participants had to resort to loaning money to cover the costs of attending the EC. A study on the economic consequences relating to healthcare costs in low- and middle-income countries reported that healthcare associated debt may remain for a considerable length of time after attending the hospital, placing further strain on the patient and their family [38].

Overall, the findings of this study indicate that a simple visit to the EC can have a substantial financial impact on patients living below the poverty line in South Africa. The importance of moving away from reliance on out-of-pocket expenditure and towards a system that incorporates a greater element of risk pooling and as such affords more protection to the poor has been emphasised [39]. It remains to be seen whether implementation of the proposed National Health Insurance (NHI) plan will address the issues identified in this study [40].

There are some limitations to this study. Firstly, although participants were encouraged to be as accurate as possible in their responses, recall bias may have influenced the accuracy of our data. Secondly, we did not account for other costs, including the loss of further income in patients requiring hospital admission, additional transport costs incurred when returning home or travelling to an alternate facility and attending future follow-up appointments. Therefore, it is fair to postulate that the actual amount spent when visiting the EC may in fact be far more than reported in this study.

Conclusion

A visit to the EC can have a substantial financial impact on patients and their accompanying escorts in South Africa. Strategies should be aimed at identifying and assisting those that are in need of financial assistance to cover indirect healthcare costs as well as reducing these costs by optimising clinical referral systems and improving the services at PHC facilities.

Declaration of Competing Interest

The authors hereby certify that this submission is not under publication consideration elsewhere and is free of conflict of interest.

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Dissemination of results

Results from this study were shared with staff members at the data collection site through an informal presentation.

Author contributions

Authors contributed as follow to the conception and design of the work; the acquisition, analysis, or interpretation of data for the work; and drafting the work or revising it critically for important intellectual content: JM contributed 60% and AL contributed 40%. All authors approved the version to be published and agreed to be accountable for all aspects of the work.

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