Financial burden incurred by patients and their accompanying escorts during a visit to the Emergency Department

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DECLARATION

I, James John Morrow, hereby declare that this research report is my own work and has not been submitted or presented for any other degree or professional qualification at this or any other Institute. This research was undertaken in the Division of Emergency Medicine, University of the Witwatersrand, Johannesburg.

Signature of Student:  Date:06/12/2021

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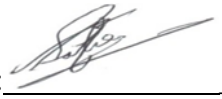
Signature of Supervisor 1:  Date:06/12/2021

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To my supervisor Prof Abdullah Ebrahim Laher, thank you for your continual support, guidance, time, patience, dedication, and endless motivation.

SUBMISSION FORMAT OF THIS RESEARCH REPORT

As per University of the Witwatersrand Faculty of Health Sciences guidelines, this research report is being submitted in the publication ready format. The article has been submitted to The African Journal of Emergency Medicine (AFJEM) and is currently under publication consideration.

TABLE OF CONTENTS

ABBREVIATIONS

SA: South Africa

FPL: Food Poverty Line

LBPL: Lower Bound Poverty Line

UBPL: Upper Bound Poverty Line

WHO: World Health Organization

CHCE: Catastrophic Healthcare Expenditure

ED: Emergency Department

CMJAH: Charlotte Maxeke Johannesburg Academic Hospital

GP: General Practitioner

MANUSCRIPT FOR SUBMISSION

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ABSTRACT

Background: More than half of South Africans lives below the poverty line. Indirect medical costs can contribute significantly to the financial burden of by patients seeking medical care.

Objective: To determine the expenses incurred by patients and/ or their escorts during a visit to the emergency department (ED).

Methods: A prospective, cross-sectional and questionnaire-based study was conducted among patients and / or their escorts presenting to an ED in Johannesburg.

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 ≤R2000/month, the mean expenses relating to the ED visit was R240 (SD R372), equating to an average of 33.2% of mean monthly income. Transport costs was the most common expense (n=302, 76.3%), while general practitioner (GP) fees incurred prior to the ED visit accounted for the bulk of the expenses (median R450, IQR 350-820). Participants that earned >R2000/ month were significantly more likely to incur GP fees (p =0.012), while those earning ≤R2000/ month were significantly more likely to take a loan to cover their ED related expenses.

Conclusion: A visit to the ED can have a substantial financial impact on patients and their accompanying escorts in South Africa. This study adds to a growing body of literature which indicates that catastrophic healthcare expenditure is a significant problem in South Africa and mostly those already living in poverty. This study shows that both direct as well as indirect costs can contribute to healthcare expenses. Strategies should be aimed at optimising clinical referral systems and improving the services at primary health care facilities.

Keywords: out-of-pocket expenses; catastrophic healthcare expenditure; financial burden; healthcare costs; indirect medical 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 has consistently been ranked as one of the top five most unequal countries with a Gini coefficient of around 0.6 [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]. At the time of data collection the national unemployment rate was estimated at 29.1% [6].

Healthcare systems are also victim to inequality with healthcare being more easily accessible by the rich in South Africa [7]. 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 44 million individuals from 150 million households globally [8]. Various individual studies have also indicated that CHCE is a global problem [9–13], with those living in low-income regions being most affected [14].

Costs involved when attending a hospital has 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 categorized into three main categories that include direct medical costs, direct non-medical costs and indirect costs [15].

Direct costs refer to expenses due to the use of a health care intervention or disease. These include costs associated with diagnosis, treatment, and rehabilitation. Examples of direct costs include consultation fees, cost of in- or outpatient visits, as well as Emergency Department (ED) visits. Direct non-medical costs refers to non-healthcare related costs such as transport costs, household expenditure, relocating, property losses and informal care of any kind. Indirect costs refer to productivity loss and therefore a loss of income due to healthcare use [16].

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

METHODS

This was a prospective cross-sectional study that was conducted at the Charlotte Maxeke Johannesburg Academic Hospital (CMJAH) ED 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 ED every month [17]. Permission to conduct the study was obtained from the hospital manager as well as the head

of the ED. 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 and/ or their accompanying escort attending the ED. All study participants were over the age of 18 years. Patients requiring urgent medical treatment were excluded from the study. Data was 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 ED were handed a study information leaflet and thereafter requested to participate in the study. Consenting participants were requested to complete the study questionnaire.

The questionnaire was developed by incorporating elements of previous studies conducted in this field. As most previous studies predominantly looked at expenses pertaining to specific diseases or at healthcare as a whole, changes were made to adequately reflect costs specific to an ED visit. The questionnaire was divided into 3 main categories which included demographic information, factors and expenses related to the current ED visit (including mode of transport to the hospital) and employment information. The questionnaire was simplified for ease of use by using mostly closed questions. Simple questions were asked at the beginning while more sensitive questions pertaining to income were asked at the end.

A small pilot study comprising of 5 individuals known to the main researcher, was performed prior to the initiation of data collection. These participants were from similar socio-economic backgrounds than patients attending the ED. Minor changes were made to the wording of certain questions, however, the questionnaire remained mostly unchanged.

The questionnaire included data pertaining to demographic information, employment, income earned (ZAR), mode of transport to the hospital and expenses relating to the current ED visit.

Collected data was 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 was not normally distributed ($p<0.05$), the median and interquartile range (IQR) of the total and individual expenses relating to the current ED 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 ≤R2000/ month and those with an income of >R2000/ month. The mean and standard deviation (SD) of the monthly income as well as the expenditure for a single ED visit were also determined for participants with an income of ≤R2000/ month as well as for those with an income of >R2000/ 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 black (n=322, 81.3%), 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 ≤R1228 (upper bound poverty line) in approximately a third (n=128, 32.3%) of study participants, of which the majority (n=108, 27.3%) were unemployed. 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.

Table 1: Characteristics of study participants

	n (%)
Sex	
Male	151 (38.1)
Female	245 (61.9)
Nationality	
South African	322 (81.3)
Non – South African	74 (18.7)
Race	
Black	315 (79.4)
White	41 (10.4)
Asian	20 (5.1)
Mixed race	20 (5.1)
Monthly income	
≤R1227/ month (upper bound poverty line)	128 (32.3)
R1228 to R5000/ month	179 (45.2)
>R5000/ month	84 (21.0)
Did not disclose income	5 (1.3)
Sole breadwinner in 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)

Among those earning ≤R2000/ month, the mean monthly income was R723 (SD R839), while the mean indirect expenses relating to the ED visit was R240 (SD R372), equating to an average of 33.2% of their mean monthly income spent for a single ED visit. Among participants earning >R2000/ month, the mean monthly income was R8159 (SD R9240),

while the mean indirect expenses relating to the ED visit was R642 (SD R1557), equating to an average of 7.9% of their mean monthly income spent for a single ED visit. A breakdown of the various indirect expenses relating to a visit to the ED is described in table 2. Overall, transport costs was the most common expense incurred (n=302, 76.3%), while general practitioner (GP) fees incurred prior to the ED visit accounted for the bulk of the expenses (median R450, IQR 350-820). Participants that earned >R2000/ month were significantly more likely to incur GP fees ($p = 0.012$), while those earning ≤R2000/ month were significantly more likely to take a loan to cover the ED related expenses. Total ED visit related expenditure ($p < 0.001$), money loaned ($p = 0.021$) and loss of daily income ($p = 0.027$) was significantly higher among participants that earned >R2000/ month.

Table 2: Breakdown of emergency department related expenses/ losses incurred by study participants

Type of expense	**Entire cohort**		**Income ≤R2000/ month**	**Income >R2000/ month**	**P-value**	**Income ≤R2000/ month**	**Income >R2000/ month**	**P-value**
	n (%)	**Expenditure (R) (median, IQR)**	**n (%)**	**n (%)**		**Expenditure (R) (median, IQR)**	**Expenditure (R) (median, IQR)**	
Total	396 (100)	122 (32 – 471)	202 (51.0)	194 (49.0)	0.569	88 (16 – 302)	209 (54 – 632)	**<0.001**
Transport cost	302 (76.3)	19 (5 – 43)	146 (72.3)	156 (80.4)	0.057	25 (14 – 50)	29 (14 – 50)	0.478
Food	135 (34.1)	40 (20 – 60)	63 (31.2)	72 (37.1)	0.214	35 (20 – 50)	50 (20 – 70)	0.208
*General practitioner	89 (22.5)	450 (350 – 820)	35 (17.3)	54 (27.8)	**0.012**	450 (350 – 800)	500 (350 – 955)	0.379
Loan	86 (21.7)	150 (100 – 215)	54 (26.7)	32 (16.5)	**0.014**	100 (50 – 200)	200 (100 – 325)	**0.021**
Loss of daily income	66 (16.7)	250 (150 – 600)	12 (5.9)	54 (27.8)	<0.001	150 (58 – 285)	280 (185 – 600)	**0.027**

*General practitioner consultation fee related to the current illness and incurred prior to the ED visit

Figure 1 describes the median total expenses incurred for the ED visit in relation to the time of ED arrival. Of note, expenditure was the highest during 12:00 and 17h59 (median R126 (IQR R41 – R526) followed by 06:00 and 11:59 (median R120 (R30 – R475).

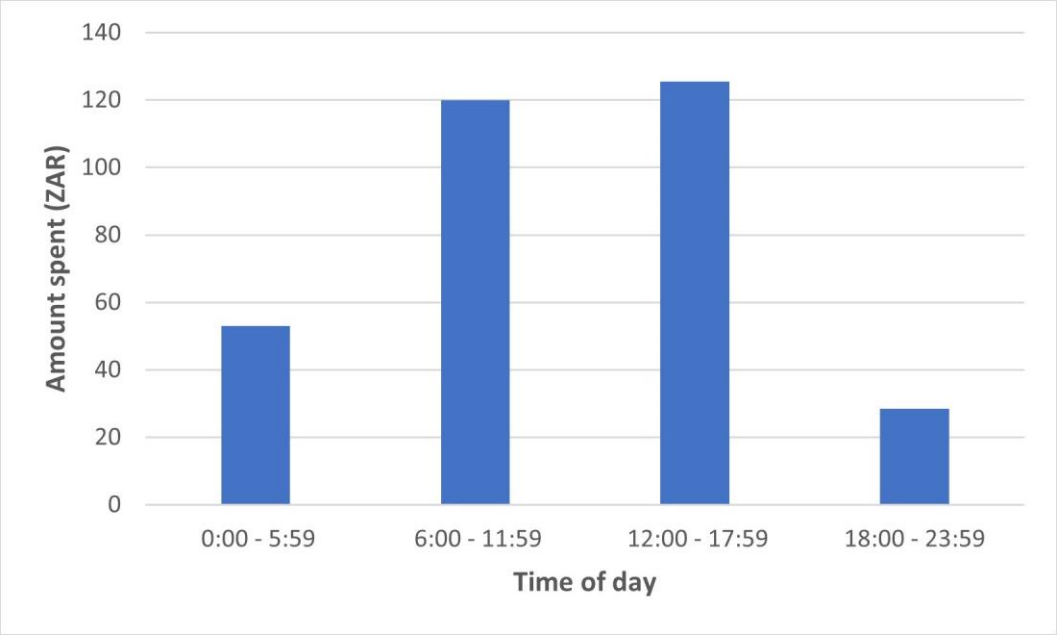

Figure 1: Median total expenses incurred for the emergency department visit in relation to the time of arrival

DISCUSSION

To our knowledge, this is the first study to have determined the financial burden associated with a visit to a public hospital ED 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. Furthermore, among individuals earning a low income, on average, a third of their income was spent on indirect costs relating to the ED visit. The percentage of unemployed individuals in this study (27.3%) was similar to the national unemployment rate of 29.1% [6]. Similarly, the percentage of study participants living below the poverty line (32.3%) was similar to the estimated figure in

the Gauteng Province (29.3%) where this study was conducted [18]. Although direct healthcare costs 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 that are incurred during a visit to the hospital. For example, the social grant system could potentially be utilized to identify and reimburse deserving individuals in South Africa. However, corruption, which already mars the social grant system may be a potential obstacle in this regard [19,20]. In some countries that have universal healthcare systems in place, citizens are reimbursed for a range of healthcare expenses including ED consultation fees [21]. Other countries have implemented a card-based system to identify low-income earning citizens qualifying for an exemption of their healthcare related costs [22].

Transport fees to the hospital was the most common expense that was incurred by most (76.3%) study participants. Other studies conducted in South Africa, Kenya and Zambia also confirm that transport costs are significant contributors to indirect healthcare costs for those seeking medical care [23–25]. To address this problem, strategies should ideally be directed at arranging free transport services to and from the hospital for the unemployed, retired, elderly and those earning a low income. Although this may not be feasible, in an already financially constrained healthcare system, these and other solutions need to be considered. Consideration also needs to be given to subsidising transport costs in conjunction with existing transport services such as the bus and taxi industries. However, appropriate measures need to be in place to avoid abuse of the system.

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. This may point to the fact that patients may be bypassing local hospitals and primary healthcare clinics or may also be due to inappropriate referrals by primary care providers (general practitioner or primary healthcare clinic (PHC)). Alternatively, it is possible that instead of attending their local PHC, the patient may have decided to attend a PHC that falls withing the catchment area of the hospital where the study took place.

Since receiving treatment at a PHC facility is free of charge across South Africa [26], it is concerning that approximately a quarter of study participants (22.5%) indicated that they had visited a GP prior to attending the ED and incurred a median consultation fee of R450. Additionally, some GPs don't dispense medication, which would have resulted in additional medical costs. It was estimated that even among patients earning less than R6000 per month, 22.4% still attended a GP instead of a PHC clinic [27]. 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 attend a PHC clinic [28–30].

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 ED attendees who were interviewed could have been managed at a PHC clinic [30]. A study conducted in Kenya concluded that a distrust of PHC facilities

often led patients to avoid these facilities and to rather seek care at a higher level facility [23]. Hence, implementing strategies to streamline the referral process will also reduce indirect healthcare expenditure as well as decrease the number of ED presentations. Countries in Europe have recently implemented strategies such as telephone triage, medical advice centers and primary care cooperatives which have resulted in fewer face-to-face contacts, fewer house calls, significantly less money spent on after hour services and a reduction in ED presentations [31–34]. South Africa would benefit from similar reforms to improve patient care. Notably, telephonic triage has been proposed as a means to regulate referrals to tertiary and secondary facilities, prevent patients from wasting money by travelling to their primary facility for issues that could be addressed telephonically and to reduce ED patient loads after hours, on weekends and on public holidays. There are risks described with the implementation of such a system, hence, all role players will need to be well trained if this is to be implemented [35]. Recently the health amendment bill that proposed to keep all local PHC facilities open 24-hours a day [36], was rejected, due to budgetary constraints and other reasons [37].

Studies conducted in South Africa focussing on out-of-pocket expenditure for various medical conditions, all conclude that healthcare expenses disproportionately affected the poor [38–40]. Similarly, among participants earning less than R2000 per month, the expenditure associated with the current ED 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 ED. A study on the economic consequences relating to healthcare costs in a low- and middle-income countries reported that a healthcare associated debt may remain for a considerable length of time after attending the hospital, placing further strain on the patient and their family [41].

Overall, the findings of this study indicate that a simple visit to the ED 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 which incorporates a greater element of risk pooling and as such afford more protection to the poor has been emphasized [42]. It remains to be seen whether implementation of the proposed National Health Insurance (NHI) plan will address the issues identified in this study [43].

LIMITATIONS

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 influence 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 ED may in fact be far more than reported in this study. Thirdly, since convenience sampling was used, one may not be able to generalize the results to the entire population. There may also be under- or over-representation of the population. This however is unlikely as patients were adequately randomised and very few patients who were approached had declined to take part in the study.

CONCLUSION

A visit to the ED can have a substantial financial impact on patients and their accompanying escorts in South Africa. This study adds to a growing body of literature which indicates that catastrophic healthcare expenditure is a significant problem in South Africa and mostly those

already living in poverty. This study shows that both direct as well as indirect costs can contribute to healthcare expenses. Strategies should be aimed at as reducing costs to patients by optimising clinical referral systems and improving the services at PHC facilities.

DISSEMINATION OF RESULTS

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

AUTHOR CONTRIBUTIONS

JM – Primary author, study design, data collection, data analysis, manuscript write up and approval of the final manuscript.

AL – Assisted with study design, data analysis, interpretation of results, editing of manuscript, approval of the final manuscript and is the corresponding author.

CONFLICTS OF 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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RESEARCH PROTOCOL

Financial burden incurred by patients and their accompanying escorts during a visit to the Emergency Department

Research protocol in partial fulfilment for the degree of Master of Medicine in Emergency Medicine

Dr James John Morrow

Student number: 2296325

Supervisor: Prof A Laher

INTRODUCTION

Despite its advanced infrastructure, its array of rich natural resources and progress (albeit slow) in improving education rates, South Africa is still listed as a developing country. Unfortunately, there are also multiple deep-seated issues that are inhibiting further and faster growth and development, all of which contribute to poverty [1,2].

There are multiple parameters that may be used to determine whether people "live in poverty" or not. The measure used most often in South African policy decision making, is the upper and lower bound poverty line. This parameter considers the minimum amount of money required by a person to meet their dietary as well as basic daily needs. According to data collected in 2015 and 2017, approximately 30 million South Africans live below the upper bound poverty line and a further 21.9 million below the lower bound poverty line [3].

Financial constraints due to poverty is a big contributing factor as to why sick patients do not seek medical attention. A study that was conducted in 2013 in South Africa found that 24% of the elderly and 54% of younger patients did not seek medical attention due to a "lack of funds" [4]. Arguably, a more concerning fact is that receiving healthcare can itself be a contributor towards poverty. This is known as catastrophic healthcare expenditure (CHCE), defined as out-of-pocket spending for health care that exceeds a certain proportion of a household's income with the consequence that households suffer the burden of disease [5]. In 2010, Wagstaff et al. found that 808 million people across 94 countries incurred CHCE [6].

There are many costs involved when attending a hospital. All these costs have the potential to create a significant financial burden to a patient, or even the person accompanying a patient to the hospital. Costs incurred by patients can be categorized into three main categories: direct medical costs, direct non-medical costs as well as indirect costs [7].

Multiple studies have examined the different contributors to CHCE, which is especially relevant in Africa. A cross-sectional study that was conducted at a university hospital in Ethiopia examined this phenomenon and found that the median amount spent during a visit to the hospital amounted to 22 USD (United states dollar). This study focused on patients utilizing outpatient departments as well as those visiting the pharmacy to pick up medication [8].

Out-of-pocket spending when seeking medical care has been studied in multiple settings, countries and environments. Studies done in countries like Laos among HIV-positive patients, [9] Haiti among patients receiving free breast cancer care [10] and Bangladesh

among children with respiratory syncytial virus [11], all confirm that CHCE is a global problem with its greatest effects on the poor patients.

All studies mentioned consistently report factors such as travel, direct medical costs and employment status as good predictors of CHCE irrespective of country of residence or disease entity. Unfortunately, the poor are disproportionately affected as a high percentage of their income is used to obtain medical care [12].

Three studies were identified that examined out-of-pocket expenditure in South Africa. These studies focussed on patients with malaria [13], patients seeking assisted reproduction [14] and patients with epilepsy [15]. All three studies confirmed that CHCE is indeed a problem in South Africa and that it affects the poor much more than the rich. Approximately 9-13% of households in which a member contracted malaria had suffered CHCE [13], while assisted reproductive techniques led to catastrophic spending in 22% of the total patients studied but occurred in 51% of the poor people enrolled [14]. The annual cost incurred due to epilepsy was 58 USD per year which equates to approximately R860 [15].

It is a known fact that patient attending public hospitals in South Africa comprises largely of those who are victims of inequality and poverty. Hence, even a single hospital visit will likely cause a significant financial burden. It can be assumed that the majority of patients visiting public hospitals do not have access to a car and make use of public transport. When an ambulance is unavailable, as is occasionally the case in South Africa, relatives or friends of a patient often rent a car from a willing neighbour in order to transport a sick patient to the hospital. Since patients seldom visits the ED on their own but are often accompanied by an escort in the form of friends or family members, the financial burden of a hospital visit thus

extends to this escort who needs to make similar financial sacrifices when accompanying the patient.

Contributing factors to CHCE as well as costs to patients have been studied, however, there are no studies that specifically examined the cost of visiting the ED in an urban environment in South Africa. This is important as most hospital visits start in the ED.

RATIONALE FOR THE STUDY

As an emergency medicine clinician, having worked and rotated through various state hospital EDs, wards and theatres, my anecdotal perception is that a large number of professional staff often do not consider the cost burden that a patient incurs during a visit to the hospital, despite the fact that the biopsychosocial model was emphasized throughout our medical training. Since many of our patients are from a low socio-economic status, a simple visit to the hospital could be responsible for causing a significant financial burden.

STUDY AIM AND OBJECTIVES

Study Aim

To describe the financial burden experienced by patients and their accompanying escorts during a visit to the Charlotte Maxeke Johannesburg Academic Hospital (CMJAH) ED.

Objectives

1. To describe the demographic details of patients
2. To describe the expenses incurred by patients and their accompanying escorts during a visit to the ED
3. To describe the loss of income incurred by patients and their accompanying escorts during a visit to the ED

4. To describe the proportion of monthly income spent by patients and their accompanying escorts during a visit to the ED

METHODLOGY

Study design

The study will be a prospective, cross-sectional study and will make use of a questionnaire to collect data.

Study site

The study will be conducted at the triage area of the CMJAH ED.

Study population

Adult patients and their escorts presenting to the CMJAH ED.

Sample size

A convenience sampling will be used. An attempt will be made to collect at least 300 participants over a 2-week period.

Inclusion Criteria

Adult patients and their accompanying escorts (>18 years) attending the CMJAH ED.

Data Collection

- Data collection will commence after hospital permission and ethics approval have been obtained.
- Data will be collected over a two-week period. But will be extended if needed

- Data will be collected between 7am – 7pm during the first week and between 7pm – 7am during the second week.
- Starting at the back of the triage queue, alternate patients will be approached for possible participation in the study.
- Potential study subjects (patients and their accompanying escorts) will each be given an information leaflet (Appendix A) and will thereafter be requested to sign the informed consent form if they are willing to participate (Appendix B).
- They will then be allocated a subject number to maintain anonymity.
- Both the patient and their accompanying escorts will be requested to each fill in a questionnaire (Appendix C).
- To avoid language problems only patients or their escorts who are able to converse in the English language will be requested to fill in the questionnaire.
- Once completed the questionnaires will be collected.
- Privacy and confidentially will always be maintained.
- Where required, the primary researcher will collect additional data (demographic, triage score and disposition) from the triage form (Appendix C)

STATISTICAL ANALYSIS

Test of Skew will be applied to numerical data (e.g., income, cost, age, percentage of income spent) and will be analysed and described using the means and standard deviation, or median and interquartile range depending on whether the results are parametric or non-parametric. Categorical variables (e.g., race, sex) will be described using frequency and percentage. Comparison of variables between high- and low-income brackets will be described using the Mann-Whitney, Student T Tests, Fisher-exact test or the Chi-square test as appropriate.

ETHICAL ISSUES

All participants will be asked to sign an informed consent form. Permission to conduct the study will be obtained from the head of the ED as well as the CEO of CMJAH (Appendix 2). Ethics approval will be obtained from the Human Research Ethics Committee of the

University of the Witwatersrand. Patient care will be given priority and will not be compromised at any time while performing the study. The confidentiality of all patients will also be respected in that no identifying data of the patient will be included in the data collection sheet or in the study. As questions regarding income could be potentially sensitive, utmost care will be taken to ensure patient comfort with the subject matter.

TIMING

January-June 2019: Prepare protocol

July-September 2019: Protocol assessment

October-December 2019: Ethics application

January-July 2020: Data collection

August-December 2020: Data Analysis and writing-up of report

FUNDING

This research project will be self-funded with an estimated cost as follows:

Stationery and printing – R900.00

Travel expenses (petrol) – R700.00

Total cost – R1600

LIMITATIONS

- Due to the sensitive nature of a person's income, patients may be unwilling to take part in the study.
- Due to reliance on patients providing accurate estimates of income without providing proof, this study is susceptible to recall bias

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APPENDIX A: SUBJECT INFORMATION SHEET

Good day, my name is Dr James Morrow. I am a medical doctor conducting a research project. Thank you for taking the time to read this information sheet.

Study Title: *Financial burden incurred by patients and their accompanying escorts during a visit to the Emergency Department*

Invitation to participate: I am inviting you to voluntarily take part in this research project.

Introduction: I would like to invite you to voluntarily take part in this research project. My research project relates to finding out the cost to a patient and their accompanying escort to visit the emergency department. We would like to know how much it has cost you to visit the hospital today.

What is involved in the study: This study will take approximately five minutes of your time. My study is being done in the form of a questionnaire that I kindly request you fill in. You will keep your place in the queue.

Benefits: The information obtained may be useful for future patients as we may then be able to better understand their circumstances. Hopefully this will increase our awareness about the possible financial challenges patients and family members face when visiting the hospital.

Risks: This study is completely safe; no cost on your part and no side effects or risk of any harm.

Confidentiality: All your information is anonymous and cannot be later linked to you. Every effort will be made to keep your information confidential.

Participation is voluntary: You may choose to withdraw from the study at any time. Your treatment was not and will not be affected if you take part, do not take part or at any time decide you no longer want to take part in the study. If you decide not to take part, your information will not be used for this study.

Reimbursements: There will be no money paid to you for participating in the study. The results of the study will be available to you once the study has been completed.

Ethics: This study has been approved by the Human Research Ethics Committee (Medical) of the University of the Witwatersrand. Any queries may be directed to them at hrec-medical.researchoffice.ac.za. The results of the study will be submitted for publication once the study has been completed.

I really appreciate your time and help if you choose to volunteer for my research project. Please feel free to contact me if you have any questions on 0824539546 or email me: jamesjmorrow@gmail.com

Sincerely yours
Doctor James Morrow

APPENDIX B: CONSENT TO ACT AS A PARTICIPANT IN RESEARCH

I, _____, who is 18 years or older, consent to participate in the research project entitled:

Financial burden incurred by patients and their accompanying escorts during a visit to the Emergency Department

The questionnaire I am going to fill in has been explained to me and I understand and appreciate their purpose, and the extent of my involvement.

I have read and understand the attached patient information leaflet.

I understand that the research forms part of a research project and may not provide any direct benefit to me.

I am aware that my participation is voluntary, and that I am free to withdraw from the project at any time without prejudice.

_____	_____
Date	Date
_____	_James Morrow
Subject Name	Researcher
_____	_____
Subject Signature	Researcher Signature

Contact details of researcher:
Cell: 0824539546
Email: jamesjmorrow@gmail.com

APPENDIX C: DATA COLLECTION SHEET

Subject number:		Questionnaire completed by: Patient / Escort	
Gender: Male / Female	Age:	Citizenship: South African / Non-South African	
Race: Black / Asian / White / Coloured / Other (specify):			
Number of escorts accompanying patient:		Relationship of escorts to patient:	
Residential suburb of patient:		Closest hospital:	
Hospital arrival time:		Triage time:	
Did you have to come to the Emergency department as an emergency or did you have some time to plan this visit?			
Financial impact of visiting the Emergency Department today			
How did you get to the hospital today? (tick all that apply to you)		Private Car ☐ Taxi ☐ Hired Car ☐ Other ☐ If other, please specify:	
How much did transport to the hospital cost you?		R_____	
Will being at the hospital today result in a loss of income to you or your family?? If so, how much?		Yes ☐ No ☐	How much: R_____
Where you referred here today and if so by whom?		Yes ☐ No ☐	By whom? Private Doctor ☐ Clinic ☐ Other Hospital ☐ Other ☐ If other, please specify:
If referred by a private doctor/GP how much did it cost to see him/her?		R_____	
How much did it cost to get to this doctor (i.e., transport fees)		R_____	
Did you have any other costs or reasons to spend money coming to the hospital today? (i.e., food while you wait)		Yes ☐ No ☐	
If answered yes above, what were they and what were the costs? (Please be as specific as possible)			
If you were unable to afford to come to the Emergency Department, did you have to borrow money?		Yes ☐ No ☐	If yes how much did you have to borrow: R_____
Questions about your employment			
Are you currently earning an income?		Yes ☐ No ☐	
If you are employed, how are you employed?		Full time ☐ Part time ☐	
If you are employed, are you the sole breadwinner in your household?		Yes ☐ No ☐	
How much is your monthly income?			
How much is your total household income?			

ETHICS CLEARANCE CERTIFICATE

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG	HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

Office of the Deputy Vice-Chancellor (Research & Post Graduate Affairs)

TO: Dr J Morrow
School of Clinical Medicine
Department of Medicine
Division of Emergency Medicine
Charlotte Maxeke Johannesburg Academic Hospital

E-mail: jamesjmorrow@gmail.com

CC: Supervisor: Prof F Motara; Drs M Mohammed & A Laher
<Feroza.Motara@wits.ac.za>
and <HREC-Medical.ResearchOffice@wits.ac.za>

FROM: Iain Burns
Human Research Ethics Committee (Medical)
Tel: 011 717 1252

E-mail: Iain.Burns@wits.ac.za

DATE: 07/12/2018

REF: *R14/49*

PROTOCOL NO: **M180739** *(This is your ethics application study reference number. Please quote this reference number in all correspondence relating to this study)*

PROJECT TITLE: *Financial burden incurred by patients and their accompanying escorts during a visit to the Emergency Department*

Please find attached the Clearance Certificate for the above project. I hope it goes well and that an article in a recognized publication comes out of it. This will reflect well on your professional standing and contribute to the Government funding of the University.

MSWorks2000/Iain0007/Clearscan.wps

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG	HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

08/10/2019

Dr J Morrow
School of Clinical Medicine
Department of Medicine
Division of Emergency Medicine
Charlotte Maxeke Johannesburg Academic Hospital

Sent by e-mail to: jamesjmorrow@gmail.com

Dear Dr Morrow

Re: **Protocol Ref No: M180739**
Protocol Title: *Financial burden incurred by patients and their accompanying escorts during a visit to the Emergency Department*
Principal Investigator: Dr J Morrow

Thank you for your letter of 04/09/2019 and for coming in to see me today.

I confirm that the protocol changes attendant upon upgrading the study to M Med status have no bearing on your existing ethics clearance, which remains valid until 06/12/2023.

Thank you for keeping us informed.

Yours Sincerely

.....
Mr I Burns
For the Human Research Ethics Committee (Medical)

Works2000/Iain0007/Acknowledge.docx

TURN-IT-IN REPORT

J Morrow, MMed research report.docx

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