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Review Article

The Impact of Out-of-Pocket Expenditures on Utilization of Health-Care Services in Sudan from 2010 to 2020: A Critical Review -

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ABSTRACT

Out-of-Pocket expenditures (OOP) are the amount individuals and households pay while accessing health care services in public or private health facilities. OOP is a health financing mechanism. In Sudan, out-of-pocket health expenditures are the highest among the regional countries.

Aim: This study aims to identify and summarise the findings of all relevant studies on the possible impact of out-of-pocket expenditures in the utilization of Health care services in Sudan to make them accessible to decision-makers to take strategic decisions towards achieving universal health coverage.

Methods: A critical literature review; a qualitative exploratory retrospective analytical study. The Study population included the current literature addressing the research question.

The SALSA Framework: The search, Appraisal, Synthesis, and Analysis framework was used to review the literature, dividing the process into four main stages: (1) search, (2) appraisal, (3) synthesis, and (4) analysis.

Results: The study showed that the utilization of outpatient services for both acute and chronic diseases represented the highest percentage, followed by inpatient. Also, it showed that the proportion of households with catastrophic expenditures is higher in rural areas.

Conclusion: conducting effective and efficient financial arrangements between all stakeholders to overcome the healthcare financial gap paradox is essential to protect people against health- financial hardship.

Keywords: Critical review; Health care services; Out-of-pocket expenditures; SALSA framework; Sudan

ABBREVIATIONS

GDP: Gross Domestic Product; IMF: International Monetary Fund; LMICs: Low-Income and Middle-Income Countries; NHS: National Health Service; OOP: Out-of-Pocket expenditures; SAP: Structural Adjustment Program; UHC: Universal Health Coverage; UNICEF: United Nations Children's Fund; WHO: World Health Organization

INTRODUCTION

Out-of-Pocket expenditures (OOP), defined as the amount paid by individuals and households while accessing health care services in public or private health facilities, OOP is a health financing mechanism. The main reason for introducing OOP is to raise revenue for a more sustainable health system and to maintain service continuity with good quality. OOP includes copayments as in health insurance, costs for health care services in private health facilities and user fees, which are the share of costs a household or individual pays while accessing health care services in public facilities, and it is widely used in many Low-Income and Middle-Income Countries (LMICs) due to inadequate public health expenditures [1]. OOP has been shown to constitute a significant barrier to the utilization of health care services, utilization is using services by people to diagnose, cure, or prevent disease or injury, to improve or maintain their health, or to obtain information about their health status and prognosis. Healthcare utilization is the quantification or description of the use of services by individuals to prevent and cure illness, promote the maintenance of health and well-being, or acquire information about one's health status and prognosis [2]. Utilization affected mainly by the 4 As of health-care services that are Availability, Affordability, Accessibility, and Acceptability of the health care services [3].

Utilization of health care services should reflect the need for care, but still it is affected by the above factors more than need, to address this Universal Health Coverage (UHC) arose with the goal of "ensuring that everyone within a country can access the health services they need, which should be of sufficient quality to be effective, and providing all with financial protection from the costs of using health services" [4]. In other words, UHC aims to remove the financial barriers to accessing healthcare services and to improve the quality of healthcare services. Health care services are the output of inputs and processes consisting of medical personnel, organizations, and ancillary health care workers who provide medical care to those in need. Health care services users are patients, families, communities, and populations. The services cover the emergency, diagnostic, primary, preventative, rehabilitative, , palliative, long-term, and home care. These services are centred around making health care accessible, high quality, and patient-centred [5].

Sudan is a low income country in East Africa [6]. Its total population is 36 million, spread sparsely and growing annually by 2.5%. On the UN Human Development Index, the country ranks 171, with 46.5% of people living below the poverty line, and 8% living in extreme poverty. Sudan spends about 4.95% of its Gross Domestic Product (GDP) and 9.9 % of the general government expenditure on health. It has a high Out-of-pocket share about 66.95 %, while the public government health expenditure represents only 23.28 % [7].

The cost recovery policy was introduced in Sudan in 1992 as an economic reform recommended by the International Monetary Fund (IMF), along with the "Structural Adjustment Program" (SAP). As a result of SAP and IMF recommendations, the Sudan government has reduced its expenditure on public services, which granted the production of some public goods (such as health care services) to the private sector. Advocates of SAP have argued that the private sector is more efficient in managing scarce resources, especially in health, compared to the public sector. In replacement of the tax-based system inherited from British colonisers, Sudan introduced the user-fee system in 1992 to finance health care services. The user-fee system permitted private providers to supply healthcare services at market prices to financially capable population segments. However, it soon became clear to policy-makers and health authorities that the innovative system failed to provide sufficient healthcare services to most people, particularly the poor. To cope with the catastrophic drawbacks of the user-fee system, the government launched its first public health insurance scheme in 1995. The strategic goals were to promote the utilization of health care services, to reduce the incidence of catastrophic OOP incurred by households and to make healthcare services available to all individuals. However, current statistics reveal that these goals are still out of reach. OOP expenditure has remained very high, indicating that the public health insurance scheme has failed to protect people against health-related financial hardship [8]. Conversely, besides other benefits of user-fee, such as OOP,

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policymakers expected that it would encourage the expansion of the health insurance schemes [9].

In Sudan, out-of-pocket health expenditures are 66.95 % of total health expenditures, the highest among the regional countries [6,7]. The impact of out-of-pocket expenditures on the utilization of health care services in Sudan is not reviewed till now. Undertaking a critical review of the effects of out-of-pocket expenditures in the utilization of health care services in Sudan aims to identify, and summarize the findings of all relevant studies on the possible implication of out-of-pocket expenditures in the utilization of health care services in Sudan. Thus, making the available results of this study more accessible to decision-makers. Among fourteen review types of literature, the critical literature review had selected to be conducted for this study. This study was undertaken to investigate out-of-pocket expenditures as a financial barrier that can influence the utilization of health care services which can affect the way of achieving UHC in Sudan. Conducting a critical review of the impact of out-of-pocket expenditures on the utilization of health care services in Sudan is essential to the stakeholders and policy-makers (the Federal Ministry of Health (FMOH), the National Health Insurance Fund, community, and research institutes) to take strategic decisions towards the removal of financial barriers that can make people access healthcare services equitably; consequently, UHC can be achieved. This study focused on three themes: the households' utilization trend of health care services in Sudan from 2010 to 2020, the pattern of households' out-of-pocket spending on health care services in Sudan from 2010 to 2020, and the coping mechanisms for the cost of health care services in Sudan from 2010 to 2020.

MATERIALS AND METHODS

A qualitative analytical exploratory study which conducted on Sudan: that is a federated republic with powers devolved to states and localities, with a land area of 1.8 million square kilometres and traversed by the Nile and its tributaries, also, Sudan comprises 18 states and 184 localities. The current literature that addresses the research question represented the study population: What is the impact of out-of-pocket expenditures on the utilization of health-care services in Sudan from 2010 to 2020?

Since the critical review has no formal methodolgy [10], this study used the SALSA (Search, Appraisal, Synthesis, and Analysis) framework to review the impact of out-of-pocket expenditures on the utilization of health care services in Sudan. This framework divides the review into four stages: (1) search, (2) appraisal, (3) synthesis, and (4) analysis [11].

Inclusion and exclusion criteria were determined before the literature search, and the studies were selected based on the inclusion criteria. Those criteria were used to ensure a systematic approach to study selection. The inclusion criteria were:

- Search terms must be included in the title, abstract, and full text.
- It should be obtained in full text to ensure availability.
- Could be published or unpublished but not more than ten years ago.
- Studies should be published in English.

There were no exclusion criteria.

Search methods for the identification of reviews

The search stage included collecting information in one or more databases based on the search strategy relevant to the selected research question. This stage aims to define the research list of studies to be analysed. To design a search strategy, the research question and objectives had broken down into different aspects; each analyzed for possible synonymous, abbreviations and alternative spellings. This study used the following search terms: Impact, Out-Of-Pocket, and OOP as an abbreviation for Out-Of-Pocket, Expenditure, and Spending as synonymous for Expenditure, Utilization, and Sudan. The search strings were developed using OR, AND operators [11]. The following search strings were generated and applied to the search in all databases: "Impact" AND "Out-Of-Pocket" AND "Expenditure" AND "Utilization" AND "Sudan", "Impact" AND "Out-Of-Pocket" OR "OOP" AND "Expenditure" AND "Utilization" AND "Sudan", "Impact" AND "Out-Of-Pocket" AND "Expenditure" OR 'Spending' AND "Utilization" AND "Sudan", "Impact" AND "Out Of Pocket" AND 'Spending' AND "Utilization" AND "Sudan", "Impact" AND "OOP" AND 'Spending' AND "Utilization" AND "Sudan", "Impact" AND "OOP" AND "Expenditure" OR 'Spending' AND "Utilization" AND "Sudan", "Impact" AND "OOP" AND 'Spending' AND "Utilization" AND "Sudan".

PubMed and Google Scholar's advanced search applied the search string. All published studies were identified by searching the following three electronic databases: PubMed, Google Scholar and Sudan Health Observatory. The last search was run on the 17th of October, 2021.

Methodological quality assessment of the included reviews

After the studies were collected, inclusion criteria were applied to select the reviewed studies. The study selection process; appraisal stage was summarised in a flow diagram (Figure 1).

Data extraction and management (Synthesis and analysis stages)

The second stage in this critical review was a synthesis of data, which aims to create a summary of findings previously defined in the included study [12]. Data synthesis and extraction were done simultaneously in a qualitative manner [11]. To extract data, data extraction forms were designed to capture information vital to the research question from the selected studies. The data extraction form was adapted from a data extraction form invented by the Cochrane Collaboration (Appendix); the document provides general information about the study and data relevant to research objectives which answer the research question, data extracted manually and described as stated in reports. Data were extracted from each study separately and then collated, summarised and tabulated [11,13].

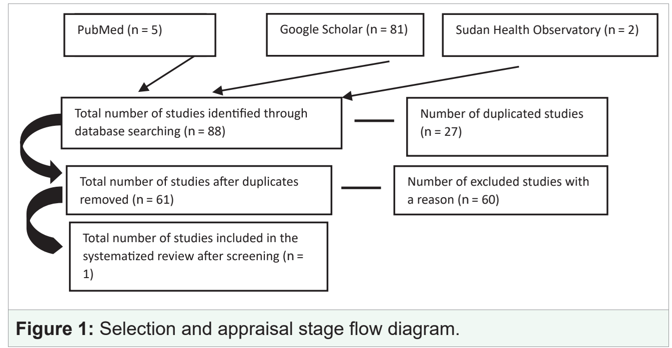

Figure 1: Selection and appraisal stage flow diagram.

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The thematic analysis, which is "a method for identifying, analysing and reporting patterns within data", was used to analyse the extracted data manually. Thematic analysis is an initial, qualitative, and straightforward method of analysis. The goal of thematic analysis is to identify themes, which are patterns in the relevant and vital data, and then these themes are used to address the research question. Thematic analysis is about aggregating and interpreting the data [14]. To use thematic analysis, the qualitative thematic description attributed to all data in the included studies as codes, and using these codes build up themes out of these codes. key themes were derived from more convenient data analysis to answer the research question.

RESULTS

Description of the included reviews

The search resulted in $n = 88$ studies. Searching on PubMed using the search string resulted in $n = 81$ studies. Searching on Sudan Health Observatory (SHO) website resulted in n = two studies. After duplicates were removed, 61 studies were screened; the screening process removed a total of 60 studies as a result of the inclusion criteria;

1. Fifty-nine studies from Google Scholar and PubMed were excluded because they did not meet the inclusion criteria (the search terms were not included in the title, abstract, or full text).
2. One study from Sudan Health Observatory was removed because it did not meet the inclusion criteria (the studies could have been published or unpublished, but not more than ten years ago); it was published 11 years ago.

The remaining study was synthesised and then analysed thematically.

Characteristics and methodological aspects of the included review

This critical review includes only one study, published as a full report. This study was a questionnaire-designed survey entitled: Sudan Households Health Utilization and Expenditure Survey 2012.

Findings of the synthesized data

Synthesised data was presented as follows:

- Health care utilization and Out-of-Pocket (OOP) expenditures by health care services.
- Health care utilization and Out-of-Pocket (OOP) expenditures by the level of health care.
- Health care utilization and Out-of-Pocket (OOP) expenditures by the health care providers.
- Catastrophic health expenditures and coping mechanisms for the health care costs.

Healthcare utilization and Out-of-Pocket (OOP) expenditures by healthcare services: The study showed that the utilization of outpatient services for both acute and chronic diseases represented the highest percentage, followed by the utilization of hospital services, preventive services and dental outpatient. At the same time, the out-of-pocket expenditures per outpatient service meant the highest, followed by the other health care services, but the out-of-pocket expenditures vary between urban and rural as follows: the out-of-pocket expenditures are higher in the urban area for chronic diseases; conversely, the out-of-pocket expenditures is higher in the rural area for acute diseases.

Health care utilization and Out-of-Pocket (OOP) expenditures by the level of health care: The study revealed that insured households utilise primary health care 1.2 times more than non-insured households and utilise non-primary health care (secondary-tertiary health-care services) 2 times more than non-insured. Also, the out-of-pocket expenditures per level of health care are lowest in the primary health care services in an urban area, even if the utilization pattern is contrary.

Healthcare utilization and Out-of-Pocket (OOP) expenditures by health care providers: The study indicated that the utilization share between public and private providers is highest for public health facilities and is higher in rural areas than the urban areas. Moreover, the insured and non-insured citizens had similar out-of-pocket expenditures in public health facilities. Also, this study showed that the OOP healthcare expenditure of individuals belonging to the highest income quintile is much lower in public sector facilities than the proportion spent by those belonging to the other quintiles.

Catastrophic health expenditures and coping mechanisms for the health care costs: The study indicated that the proportion of households with catastrophic expenses is higher in the rural areas. Furthermore, catastrophic expenditures are not affecting only the poor, it's also affecting the highest quintile without vanishing. Also, it showed that the main source of financing health-care expenditures is normal household expenditures followed by health insurance which represents a low proportion. The high proportion of rural residents had declared that the health care costs had an impact on their family income and they have problems coping with health care costs because one-third of them need to borrow money or sell their belongings, compared to one-fifth of urban residents who when faced problems of financing health care either they did not get full treatment or reduced their non-health expenditures in favour of health care or they borrowed money, sell some assets or belongings, received assistance from their relatives, and low per cent of them used their savings to face health care costs.

DISCUSSION

This review revealed that Outpatients health care services in public health facilities are the most utilized health care function per health care provider for both urban and rural areas, but still the trend in the urban areas is to have high out-of-pocket expenditures in outpatient health care services for chronic diseases. Conversely, the direction in the rural areas is to have high out-of-pocket expenditures in outpatient health care services for acute diseases. Also, results indicated that urban had low out-of-pocket expenditures for primary health care services than rural in spite their high out-of-pocket expenditures per chronic diseases, which explained the high household out-of-pocket expenditures in secondary-tertiary health care services for chronic diseases. A paper discussed the strengthening of primary health care in Sudan [6] showed that the share of primary health care utilization is nearly 54.3%, and it ranges from 58.2% for rural to 48.2% for urban residents, however only 24% of primary health facilities provide a basic package of services, lack of basic package of services of primary health care services and especially referral system as one of this package explained the high out-of-pocket expenditure in secondary-tertiary health care services. Referral notes discussed by WHO [15] showed that the main function of an effective referral system is to ensures a close relationship between levels of the health systems and

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to help ensuring that people receive the best possible care nearest to home. It also assists in making cost-effective use of hospitals and primary health care services. A study discussing the health care system in Sudan [16] revealed that hospitals accept patients without being referred from the lower facilities, which was indicating a poor referral system.

A world report done by WHO [17] showed that there is a generalized trend of higher public facility utilization in countries with larger governmental total health expenditure. Also, the report showed there is much variation across countries, and this is explained by many factors, such as the difference in services availability and efficiency of public health facilities. Regarding the financial arrangement it may reflect the different financial arrangements between fund holders and service providers. Governments may purchase the services directly from public facilities, but still they can also purchase it from the private sector through social health insurance reimbursements that covered by the private sector or through contracting. Literature showed that the Sudan government has a low share in total health expenditures [7], and this study indicated that the utilization share between public and private providers is highest for public health facilities and is higher in the rural areas than in the urban areas. This increased utilization of public health facilities in Sudan with a low governmental share in total health expenditures clarified the high out-of-pocket expenditures by households. Also, the high utilization for public health facilities in Sudan can be due to the weak quality assurance system for accreditation of service providers and assessing whether the services provided are good or not in Sudan. It was found that 5.5% of all hospital admissions experienced adverse events, 83% of those were preventable while 39% led to permanent disability or death [6].

Furthermore, a paper discussed the Out-of-pocket payments by end-stage kidney disease patients on regular hemodialysis in Sudan revealed that the median of the overall total OOP (direct medical and direct nonmedical) spending per patient per year, was found to be 3859.1 US$, which is higher than per capita GDP (US$ 3265). Higher OOP rates were found among those with one or more of these factors; uninsured patients, patients with comorbidity, female gender, and over 40 years aged [18]. This review showed that insured and non-insured citizens had similar out-of-pocket expenditures in public health facilities, as well, the insured households utilize primary health care 1.2 times more than non-insured households, and they use non-primary health care (secondary-tertiary health-care services) 2 times more than non-insured. In Sudan, the user-fee system was introduced as a type of out-of-pocket expenditure to finance health care services and to encourage the expansion of the health insurance schemes. At the same time, 46.5% of the Sudanese population lives below the poverty line, while 8% live in extreme poverty. Consequently, to mitigate the catastrophic drawbacks of the user-fee system on the majority of people, particularly the poor, the legitimate council in Sudan had determined an affordable price for health care services to be provided at public health facilities, but still it didn't take into account that health care services are costly and Sudanese government has a low share in the total health expenditures. Accordingly, the government launched the national health insurance scheme that aims to reduce the incidence of catastrophic OOP incurred by Sudanese households promote the utilization of health care services, and to make health care services available to all individuals, recently statistics demonstrated, health care spending in the form of OOP has remained high, suggesting that the national health insurance fund has failed to protect people against health-related financial hardship. That failure was presented due to many internal and external factors affecting the scheme as low coverage of the informal sector, low quality of provided health care services to insured people, and on top of that, lack of coordination between the national health insurance scheme and the federal ministry of health in terms of efficient and effective financial agreements to protect people from catastrophic health expenditures. As mentioned before, all prices of the provided health care services had been determined by the ex -legitimate council, which were below the actual cost of the health care services to be affordable for the Sudanese population. Additionally, the national health insurance scheme purchases those services from the Ministry of health for a lower price to offer them to its clients. Subsequently, a health- care financial gap paradox showed off affected the utilization of health-care services and reflected negatively in achieving universal health coverage [9].

The results of this critical review indicated that the proportion of households with catastrophic expenditures is higher in rural areas. Also, catastrophic expenses are not only affecting the poor but also the highest quintile without vanishing. This study showed that the primary source of financing health care expenditures is regular household expenditures, followed by health insurance, which represents a low proportion. A high proportion of rural residents had declared that the healthcare costs impacted their family income. They have problems coping with health care costs because one-third of them need to borrow money or sell their belongings, compared to one-fifth of urban residents who, when faced with problems of financing health care, either did not get complete treatment or reduced their non-health expenditures in favour of healthcare, or they borrowed money, sell some assets or belongings, received assistance from their relatives and low per cent of them used their savings to face health care costs. Similarly, a study conducted to explore factors associated with household coping behaviours in the face of health expenditures in 15 African countries [19] and provide evidence for policy-makers in designing financial health protection mechanisms showed that the health financing system in most African countries is too weak to protect households from health shocks. Borrowing and selling assets to finance health care is common. Formal prepayment schemes and risk pooling could benefit many households, by mitigating the long-term effects of ill health on household well-being and support poverty reduction.

CONCLUSION

This critical review indicated that the impact of out-of-pocket expenditures in the utilization of health care services in Sudan had been perceived by the citizens of the rural areas who had high out-of-pocket expenditures in outpatient health care services in public health facilities for acute diseases, and they had low coverage by social health insurance as the informal sector. Rural residents had declared that the health care costs had an impact on their family income, and they had problems coping with health care costs, and they faced issues of financing health care, they needed to borrow money or sell their belongings. Conversely, citizens of the urban areas had high out-of-pocket expenditures in outpatient health care services in non-primary public health facilities for chronic diseases, which reflect a weak referral system. A sound referral system is not unnecessarily costly, and it can help to ensure patients receive optimal care at the appropriate level.

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Finally, in Sudan, out-of-pocket had been introduced to raise revenue for a more sustainable health system, and to encourage the expansion of health insurance schemes. A health care financial gap paradox was showed off, due to a lack of coordination between the national health insurance scheme and the federal ministry of health in terms of efficient and effective financial agreements to protect people from catastrophic health expenditures in the absence of a legitimate council. Accordingly, the utilization of healthcare services will be affected and reflected negatively in achieving universal health coverage.

RECOMMENDATIONS

This review recommended the following at two levels:

At the level of stakeholders:

- To conduct effective and efficient financial arrangements between all stakeholders to overcome the health-care financial gap paradox.
- To strengthen the primary health care system.
- To implement an effective referral system.
- To strengthen the national health insurance scheme.

At the level of research:

To conduct a fresh household utilization and expenditure survey.

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CONFLICTS OF INTEREST

The authors would like to declare that they do not have any conflict of interest.

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Appendix: Data extraction form.

<table>
<tr><th colspan="3">General Information:</th></tr>
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<tr><td>Publication type
(e.g. full report, abstract, letter)</td><td colspan="2"></td></tr>
<tr><td>Methodology</td><td colspan="2"></td></tr>
<tr><th colspan="3">Results</th></tr>
<tr><th>Key Findings</th><th>Description as stated in report</th><th>Location in text</th></tr>
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