RESEARCH ARTICLE

Assessment of patient satisfaction toward pharmaceutical benefit package provided by a health insurance corporation of Khartoum State [version 1; peer review: 1 approved with reservations]

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V1 First published: 17 Feb 2022, 11:204
<https://doi.org/10.12688/f1000research.108760.1>
Latest published: 17 Feb 2022, 11:204
<https://doi.org/10.12688/f1000research.108760.1>

Abstract

Background: Patient satisfaction is an important measure of health service and a key indicator of the quality of health service. Studies focus on how to improve quality rather than patient satisfaction. This study was conducted to identify patients' satisfaction with the pharmaceutical service package of Health Insurance Corporation of Khartoum State in Jabal-Awliya locality, Khartoum, Sudan.

Methods: A cross-sectional study was conducted between January and August 2020. Data were collected using a structured questionnaire. Satisfaction was estimated using the Likert Scale. The association between patient's satisfaction and patient care indicators, namely: average dispensing time, percentage of medicine dispensed and labelled, and patient correct dose knowledge were assessed using Chi-square test, where a p-value < 0.05 was considered significant.

Results: Out of 378 participants, the mean age was 47 with a comparable frequency of male and female participants (49.3% and 50.7% respectively). The mean satisfaction was 62.2% (3.11 ± 0.68). Most of the participants were satisfied with the way the pharmacist dealt with them (3.7, ± 0.778), while a low mean of satisfaction was reported regarding the availability of medicine within the pharmaceutical benefit package (2.06, ± 1.17). Average dispensing time was 5.78 minutes (p = 0.002), a low percentage of medicine actually dispensed and labelled was observed at 67% and 58% respectively (p = 0.00). A higher patient knowledge was reported 96.6% (p = 0.00), and the majority of the patients were able to pay 65% (p = 0.00).

Conclusion: The current study demonstrates a comparable satisfaction score. However, medication unavailability is the main factor that affects patient satisfaction.

Open Peer Review

Approval Status ?

1

version 1

17 Feb 2022

view

1. Masoud Mohammadnezhad , Fiji
National University, Suva, Fiji

Any reports and responses or comments on the article can be found at the end of the article.

Keywords

HICKs, Patient satisfaction, Pharmaceutical benefit package, Sudan.

This article is included in the **Health Services** gateway.

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Author roles: **Osman Mohamed A:** Writing – Original Draft Preparation; **Shoaib Hussain A:** Conceptualization, Methodology, Supervision; **Omar Alhaj M:** Conceptualization, Methodology, Writing – Original Draft Preparation

Competing interests: No competing interests were disclosed.

Grant information: The author(s) declared that no grants were involved in supporting this work.

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How to cite this article: Osman Mohamed A, Shoaib Hussain A and Omar Alhaj M. **Assessment of patient satisfaction toward pharmaceutical benefit package provided by a health insurance corporation of Khartoum State [version 1; peer review: 1 approved with reservations]** F1000Research 2022, 11:204 <https://doi.org/10.12688/f1000research.108760.1>

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Introduction

Following the dramatic change in the role of pharmacists observed in the last decades to be more patient centred, patient satisfaction has emerged as a prerequisite in pharmaceutical care. It can be defined as personal appraisal of the pharmaceutical care; it is a subjective and multidimensional measure which answers the questions about what patients expect and what patients find.^{1,2}

Achieving satisfaction is the best way to convince the patient about the health services provided, ensuring adherence to therapy and consequently improving health outcome. Therefore, patient satisfaction has driven the attention of developed as well as developing countries; in fact there have been several attempts to develop a validated tool to measure the patient satisfaction.²⁻⁵

Patient care indicators (PCIs) are one of World Health Organization's (WHO) core drug use indicators, they are used to reflect the quality of the pharmaceutical services delivered by the health facility by describing what the patient experienced at the health facility and to what extent the patient has been trained to deal with the pharmaceuticals that have been dispensed, through measuring several factors including: average consultation time (ACT), average dispensing time (ADT), percentage of drugs actually dispensed (PMAD), percentage of drugs actually labelled (PMAL), and patients' knowledge of correct dosage (PKCD). Given their vital role in determining the quality of the pharmaceutical service, the WHO have comprehensively described PCIs in terms of providing detailed protocol of how to measure each parameter as well as setting out the optimal range of each indicator.^{6,7}

Previous studies from Egypt, Nigeria, Kingdom of Saudi Arabia (KSA), Ethiopia, Pakistan, and Spain have provided detailed descriptions of one or all PCIs in either a hospital or out-patient pharmacy.^{6,8-11} A similar study was conducted recently in Sudan, where the pattern of drug use by using WHO's PCIs was estimated in four hospitals in Khartoum state.⁷

Health Insurance Corporation of Khartoum State (HICKS) is one of leading Social Health Insurance (SHI) organizations limited to Khartoum State which provides services to primary healthcare facilities of the State Ministry of Health and the Federal Ministry of Health hospitals. The HICKS receives its funds mainly through the State Ministry of Health and house-holds (36.5% and 27% respectively).¹² Other sources of funding are parastatal organizations and private employers' contributions. Despite the presence of SHI in Sudan for more than 20 years, universal coverage has not been achieved yet; it faces many obstacles such as rising healthcare costs due to inflation and lack of affordability by beneficiaries. Moreover, the quality of the services provided including patient satisfaction is poorly understood.¹² This study was conducted to measure the overall patient satisfaction towards the Pharmaceutical Benefit Package provided by HICKS and to predict the possible association between PCIs and overall satisfaction.

Methods

Study design and setting

A cross-sectional study based on STROBE statement was conducted in Jabal-Awliya locality in Khartoum state, Sudan, in the period from January to August 2020.

Study populations, inclusion and exclusion criteria

The study samples were outpatients seeking pharmaceutical care under the umbrella of HICKS. All adults registered at HICKS aged over 18 were asked to participate in the study when visiting one of the HICKS pharmacies.

Sample size and sampling techniques

The HICKS reported that the average monthly frequency of patients attending to their pharmacy at Jabal-Awliya locality (47 pharmacies) was 22084 (data was kindly provided by HICKS, Research & Development Department). By using Solvin's equation,¹³ the sample size (378) was calculated using the known frequency as follows:

$$n = N / 1 + N (e)^2$$

Where;

n = Sample size, N = Targeted population attending at different pharmacy, e = Margin of error (0.05) at 95% confidence level.

Data collection

A semi-structured questionnaire was administered to the study participants for data collection which was adopted from the previous studies.^{1,14} At the beginning of the questionnaire, statement for consent was included (verbal consent was

considered in case of participants who were illiterate) to allow the use of their data. The questionnaire was divided into three main parts. Part one includes demographic data (age, gender, and visiting time). Part two includes queries about satisfaction, with 10 closed questions based on a 5-point Likert scale on disagreement/agreement¹⁵: strongly disagree 1, disagree 2, not sure 3, agree 4, and strongly agree 5. Based on these points (from 1-5), satisfaction was calculated by taking the mean of the 10 questions (part one and two were filled by participants). Part three includes questions about factors that might potentially affect satisfaction according to WHO standard measurement of PCIs,¹⁶ which include ADT (time taken for dispensing in minutes), PMAD (percentage of medicine dispensed and medicine in the prescription), PMAL (percentage of medicine labeled and medicine dispensed), and evaluation of patient correct dose (did the patient know the correct dose or not). An additional question regarding patients' ability to pay despite their involvement in HICKS was also included (was the patient able to pay or not). The third part of the questionnaire was filled by the investigators through face-to-face interviews of the participants after completing parts one and two. The data was collected by three investigators. The questionnaire was originally written in English and translated by a language expert to the local language (Arabic) and translated back to English to ensure consistency. A pilot study was conducted (15 participants) prior to gross data collection for the purposes of examining the validity of the questionnaire, the results of which were excluded in the study analysis. Relevant modifications were addressed.

Data analysis

The data were coded, entered, and analyzed using IBM® SPSS Statistic, Version 19 for Windows. Descriptive statistics were conducted using frequency and proportions. Chi-square was used to determine the relationship between different variables. *P*-value of 0.05 or less was considered statistically significant.

Ethical consideration

Ethical approval was obtained from Ahfad University for Women Research Ethics Committee and HICKS prior data collection (approval date 15 January 2020). Verbal informed consent was collected from participants who were illiterate, and written informed consent obtained from the rest of the participants. Personal identities were not recorded throughout the studies to ensure confidentiality.

Results

Demographic characteristic of the included participants

A total of 378 participants were included in the study; there was no missing data as investigators were able to detect and resolve this while the questionnaires were being completed. The mean age was 47.23, ranging from 18 to 90 years old. The frequency of each gender and the percentages are shown in [Table 1](#). Most of the included participants visit the selected pharmacies in the morning (70%), while others visit the pharmacy at evening shift.

Patient satisfaction towards the pharmaceutical benefit package provided by HICKS

Regarding the patients' satisfaction, the overall mean of satisfaction was 3.11 ± 0.68 (62.2%, calculated by dividing the sum of each participant satisfaction score over total number of participants); the minimum reported satisfaction was 1.40 while the maximum was 4.50. Complete questions that were used to measure satisfaction along with their statistics expressed in mean and standard deviation are shown in [Table 2](#).

The WHO PCIs

With respect to the PCIs recommended by WHO which are related to the pharmaceutical care: 40% of the participants have, on average, less than 5 minutes dispensing time, while 60% have an average of 5-25 minutes dispensing time ([Table 3](#)). Regarding the availability of medicine: more than half (55%) of the patients find less than 75% of their prescribed medicine. Regarding the percentage of medicine labelled: one out of four (24.6%) have less than 25% of their medications labelled properly and 42.6% have more than 75% their medications labelled properly ([Table 3](#)). 96.7% of the participants have a good knowledge of the correct dose and as few as 3% do not have enough knowledge ([Table 3](#)).

Table 1. The frequency and percentage of gender of the included participants.

Gender	Frequency	Percent	Valid percent	Cumulative percent
Male	186	49.3	49.3	49.3
Female	192	50.7	50.7	100.0
Total	378	100.0	100.0	

Table 2. Assessment of patient's satisfaction towards the Pharmaceutical benefit package provided by HICK expressed in term of means and standard deviations (SD).

No	Questions	Mean	S.D.
1	I'm satisfied with health care level I'm receiving from the pharmacy' staff.	3.64	0.807
2	I feel very satisfied with way that the pharmacist is dealing with me.	3.70	0.776
3	The pharmacist listens carefully to all my inquiries about medicines while dispensing them.	3.63	0.836
4	Always the pharmacist is giving me clear instructions on how to use my medicines.	3.60	0.822
5	The Pharmacist used to discuss the side effects of medicines with me during dispensing.	2.82	1.152
6	All the medications that I need are available under the umbrella of health insurance.	2.06	1.172
7	My questions about using medicines, are answered by pharmacists in an understandable and clear way.	3.57	0.852
8	Pharmacists always give me appropriate information about; medicine-medicine and medicine-food interactions.	2.94	1.097
9	Sometimes the pharmacist does not give me enough time during dispensing because it is too busy with other patients.	2.81	1.099
10	The waiting time for receiving the medications in the pharmacy is too long.	2.39	1.231

Table 3. The frequency and percentage of the World Health Organization patient care indicators and patients' ability to pay of the study participants.

Parameters	Level	Frequency (%)
Average dispensing time	Less than 5 minutes	152 (40.3%)
	More than 5 minutes	226 (59.7%)
Percentage of medicine dispensed	Less than 25%	64 (16.9%)
	From 25-50%	39 (10.3%)
	From 50-75%	107 (28.3%)
	From 75-100%	168 (44.5%)
Percentage of medicine labeled	Less than 25%	93 (24.7%)
	From 25-50%	62 (16.4%)
	From 50-75%	61 (16.1%)
	From 75-100%	162 (42.8%)
Ability to pay	Able	246 (65%)
	Don't able	132 (35%)
Correct dose knowledge	Know	365 (96.6%)
	Don't know	13 (3.4%)

Regarding the ability of the patients to pay despite the health insurance: nearly two out of three (64.7%) are able to pay (Table 3).

Association between overall satisfactions and demographic factors, visiting time, and patient care indicators

As shown in Table 4, by using Chi-square test the analysis reveals that there was no statistically significant association between satisfactions and gender or visiting time (P value = 0.92 and 0.88 respectively).

A significant association between the five included parameters of PCIs and satisfaction was observed in the analysis using Chi-square test.

Table 4. Association between overall satisfactions and demographic factors, visiting time, and patient care indicators.

No		Class	P-value
Demographic and visiting time			
1	Gender	Male and female	0.92
2	Visiting time	Morning and evening	0.88
Patient care indicators			
3	Average dispensing time	Less than or more than 5 minutes	0.002**
4	Percentage of medicine dispensed	Less than 25%, 25-50%, 50-75%, more than 75%	0.00**
5	Percentage of medicine labelled	Less than 25%, 25-50%, 50-75%, more than 75%	0.00**
6	Patient knowledge of correct dose	Know or don't know	0.00**
7	Patient ability to pay	Able or not able	0.00**

**Significant P-value.

Regarding the average dispensing time (ADT), participants with more than 5 minutes ADT were found to be more satisfied ($P = 0.002$). With respect to the percentage of medicine dispensed and labelled: those participants with a percentage of medicine either dispensed or labelled higher than 75% were more satisfied ($P = 0.00$). Moreover, patients with knowledge of the correct dose and ability to pay were found to be more satisfied with a statistically significant P-value (0.00). Association between PCIs and mean of satisfactions are shown in Table 4.

Discussion

Patient satisfaction is one of the most important factors that affects medication adherence and subsequently treatment success/failure. In this study, a total of 378 questionnaires were distributed to out-patients who sought their medication at one of the HICKS pharmacies with the aim of assessing the level of satisfaction. The overall satisfaction was 62.2% and all PCIs were found to be associated with patient satisfaction.

The mean age of the participants was 47 years old, with 49.3% male and 50.7% female participants (Table 1). A study conducted in Canada aiming to validate published satisfaction scales in larger and more diversified patient populations included 682 patients and reported that the percentages of male and female participants were 36.9% and 63.1% respectively.¹⁷ In another study setting in Peru, a slightly lower mean of age (42.8) was reported, while the percentage of the females was 59.6% and males was 40.4%.¹⁸ A similar study that was conducted in United Arab Emirates (UAE) reported a lower mean of age across the participants of 34, and in the same study, the percentages of males and females was 39% to 61% respectively.³ This slight fluctuations in age and gender among the studies might be due to the difference in study population, area and sample size.

In this study, the mean of satisfaction was found to be 3.11 (62.2%). This finding is comparable to the finding in a Nigerian study (60.4%),¹⁹ and higher than the result obtained in Ethiopia and Pakistan in 2019 and 2018 respectively,^{8,9} in which the satisfaction was reported to be 51% and 55.6% respectively. On the other hand, this level of satisfaction is lower than that obtained in Spain and South Korea (76% and 74.6% respectively).^{2,20} This variation is probably due to the fact that each study adopts different tools to assess satisfaction and undoubtedly reflects the difference in the services in the different countries.

The current study reveals that the participants were highly satisfied with the pharmacist who provided the health services; an over 70% satisfaction rate was reported by the participants to the way the pharmacists are dealing with them, care to inquiries and clarity of instructions (Table 2). Similar to this figure; Spanish, Pakistani and Ethiopian participants were also satisfied with the approach or communication of the health professional providing the services.^{8,9,20} Fortunately, knowledge and practice of the pharmacy staff are the most important factors for delivering a better pharmaceutical service and hence improving patient satisfaction. In contrast, the study reveals the weakest domain which affects patient satisfaction: unavailability of all medications under the umbrella of health insurance (41.2%) was the least rated factor (Table 4). A higher figure was obtained by several studies conducted in Pakistan, UAE and in some regions in Ethiopia with 63.8%, 70% and 59.6% respectively,^{3,8,9} however, a study conducted in different regions in Ethiopia reported a lower percentage 33.1%.²¹ In this context, while the study reports a relatively higher overall satisfaction (62.2%) this finding is alarming since several studies demonstrate a significant association between satisfaction and medication availability; this is considered a hidden factor that might negatively impact the whole medical care.

In this study, parameters that are used to measure rational use of medicine which are associated with patient satisfaction were considered. The ADT was 5.78 minutes in which 60% of the participants have more than 5 minutes ADT. A significant association ($P = 0.002$) between ADT and overall satisfaction was reported in this analysis (Tables 3 and 4). The reported ADT is two times higher than that reported in India (3 minutes) and much higher than that reported in KSA (1.5 minutes) and Kuwait (1 minute).^{6,22,23} It is known that short ADT is insufficient to explain the dosage regimen, adverse effects of drugs and all precautions, while the reported ADT is longer in comparison to the previous studies, this might be due to the fact that the pharmacist spent a longer time explaining to the patient the insured and non-insured medication in the prescription as HICKS do not cover full insurance for all medication.

The percentage of medicine dispensed was 67%; this figure was lower than the WHO recommended percentages (100%). The obtained PMD was statistically associated with satisfaction ($P = 0.00$) (Table 4). It is lower than that reported in Egypt, Kenya and KSA,^{6,24,25} and slightly higher than a previous study conducted in Sudan (58%).⁷ This finding reflects the huge medicine shortage in the health system, where adequate supply is the corner stone in the health system and if left unmanaged, health crises might arise.

The WHO recommended that the proper labelling must include patient name, dose regimen and drug use. Due to the unavailability of proper labelling machines, labelling was considered proper if the dose regime and drug use were hand written correctly. In this regard, the PML was 58% (Table 3), a far lower percentage than WHO recommendation (100%), and even lower than that reported in Kenya, Kuwait, and KSA.^{6,23,25} This finding indicates the poor labelling practise among the pharmacists which might be due to lack of knowledge or because some patients object to the labelling since they take these medications on a regular basis.

Regarding patient knowledge, a slightly lower percentage (96.6%) than the WHO recommendation (100% knowledge) was obtained (Table 3); similar figures were reported in Kenya (96%) and Egypt (94%),^{24,25} while it is higher than that reported previously in Sudan and KSA (79%).^{6,7} This could be attributed to fact that most of the coverage medications were for chronic diseases taken regularly by the patients. With respect to patient's ability to pay despite health insurance, one out of three patients are not able to pay (Table 3). This is an alarming finding, as it is known that ability to pay is affected by out-of-pocket costs (expenses for medical care that aren't reimbursed by insurance) which is considered to be a significant barrier to accessing or maintaining care for those with chronic diseases,²⁶ and consequently might make the whole health service valueless.

One of the key limitations in this study is the study area: since it was conducted in one locality in Khartoum, a more diverse area with a larger sample could provide a more robust result. Moreover, this study used interview questionnaires which were conducted at the time of patients visiting the pharmacy and hence it is subjected to social desirability bias.

Conclusions

The overall satisfaction score was (62%). However, medication unavailability remains to be a hidden factor which undoubtedly affects the patient satisfaction.

Data availability

Underlying data

figshare: Assessment of Patient Satisfaction towards Pharmaceutical Benefit Package Provided by Health Insurance Corporation of Khartoum State. <https://doi.org/10.6084/m9.figshare.18129206.v4>.²⁷

This project contains the following files:

Research Data.xlsx (complete data set for each participant response).

Extended data

figshare: Questionnaire used data collection. <https://doi.org/10.6084/m9.figshare.19107269.v1>.²⁸

This project contains the following files:

Satisfaction survey.pdf (the questionnaire used for data collection).

Data are available under the terms of the [Creative Commons Attribution 4.0 International license](#) (CC-BY 4.0).

Acknowledgments

Authors greatly appreciate the assistance of Research & Development Department at HICKS for helping with sampling.

References

- Larson LN, Rovers JP, MacKeigan LD: **Patient satisfaction with pharmaceutical care: update of a validated instrument.** *J. Am. Pharm. Assoc. (1996)*. 2002; **42**: 44–50.
[PubMed Abstract](#) | [Publisher Full Text](#)
- Lee S, Godwin OP, Kim K, *et al.*: **Predictive factors of patient satisfaction with pharmacy services in South Korea: A cross-sectional study of national level data.** *PLoS One*. 2015; **10**: e0142269.
[PubMed Abstract](#) | [Publisher Full Text](#)
- Hasan S, Suliman H, Stewart K, *et al.*: **Assessing patient satisfaction with community pharmacy in the UAE using a newly-validated tool.** *Res. Soc. Adm. Pharm.* 2013; **9**: 841–850.
[PubMed Abstract](#) | [Publisher Full Text](#)
- Kraska RA, Weigand M, Geraedts M: **Associations between hospital characteristics and patient satisfaction in Germany.** *Health Expect.* 2017; **20**: 593–600.
[PubMed Abstract](#) | [Publisher Full Text](#)
- Stepurko T, Pavlova M, Groot W: **Overall satisfaction of health care users with the quality of and access to health care services: a cross-sectional study in six Central and Eastern European countries.** *BMC Health Serv. Res.* 2016; **16**: 1–13.
[Publisher Full Text](#)
- El Mahalli A, Akl O, Al Dawood S, *et al.*: **Salem A (2012) WHO/INRUD patient care and facility-specific drug use indicators at primary health care centres in Eastern province, Saudi Arabia.** *EMHJ-Eastern Mediterranean Health Journal*. 2012; **18**(11): 1086–1090.
[PubMed Abstract](#) | [Publisher Full Text](#)
- Tm H, Saeed A, Awad M: **Evaluation of Drug Use at Four Hospitals in Khartoum, Sudan.** *Int. J. Qual. Health Care*. 2020; **3**: 2642.
- Semegn S, Alemkere G: **Assessment of client satisfaction with pharmacist services at outpatient pharmacy of Tikur Anbessa Specialized Hospital.** *PLoS One*. 2019; **14**: e0224400.
[PubMed Abstract](#) | [Publisher Full Text](#)
- Aziz MM, Ji W, Masood I, *et al.*: **Patient satisfaction with community pharmacies services: A cross-sectional survey from Punjab; Pakistan.** *Int. J. Environ. Res. Public Health*. 2018; **15**: 2914.
[PubMed Abstract](#) | [Publisher Full Text](#)
- Afolabi MO, Erhun WO: **Patients' response to waiting time in an out-patient pharmacy in Nigeria.** *Trop. J. Pharm. Res.* 2003; **2**: 207–214.
- Alrasheedi KF, Al-Mohaithef M, Edrees HH, *et al.*: **The association between wait times and patient satisfaction: findings from primary health centers in the Kingdom of Saudi Arabia.** *Health services research and managerial epidemiology*. 2019; **6**: 233339281986124.
[Publisher Full Text](#)
- Salim AMA, Hamed FHM: **Exploring health insurance services in Sudan from the perspectives of insurers.** *SAGE Open Medicine*. 2018; **6**: 2050312117752298.
- Galero-Tejero E: *A Simplified Approach to Thesis and Dissertation Writing*. Mandaluyong City: National Book Store; 2011; 43–44.
- Organization WH: *The role of the pharmacist in the health care system: preparing the future pharmacist: curricular development: report of a third WHO Consultative Group on the Role of the Pharmacist, Vancouver, Canada, 27-29 August 1997*. World Health Organization; 1997.
- McLeod S: **Likert scale definition, examples and analysis.** *Simply Psychology*. 2019 August 3; 2019.
- Organization WH: *Promoting rational use of medicines: core components*. World Health Organization; 2002.
- Kassam R, Collins JB, Berkowitz J: **Patient satisfaction with pharmaceutical care delivery in community pharmacies.** *Patient Prefer. Adherence*. 2012; **6**: 337.
[Publisher Full Text](#)
- Alarcon-Ruiz CA, Heredia P, Taype-Rondan A: **Association of waiting and consultation time with patient satisfaction: secondary-data analysis of a national survey in Peruvian ambulatory care facilities.** *BMC Health Serv. Res.* 2019; **19**: 439.
[PubMed Abstract](#) | [Publisher Full Text](#)
- Oparah AC, Enato EF, Akoria OA: **Assessment of patient satisfaction with pharmaceutical services in a Nigerian teaching hospital.** *Int. J. Pharm. Pract.* 2004; **12**: 7–12.
- Márquez-Peiró JF, Pérez-Peiró C: **Evaluation of patient satisfaction in outpatient pharmacy.** *Farmacia Hospitalaria (English Edition)*. 2008; **32**: 71–76.
[Publisher Full Text](#)
- Desalegn AA: **Assessment of drug use pattern using WHO prescribing indicators at Hawassa University teaching and referral hospital, south Ethiopia: a cross-sectional study.** *BMC Health Serv. Res.* 2013; **13**: 1–6.
[Publisher Full Text](#)
- Singh S, Dadhich A, Agarwal A: **A study of prescribing practices in a tertiary care hospital using WHO core indicators.** *Asia pacific journal of pharmacology*. 2003; **16**: 9–14.
- Atif M, Sarwar MR, Azeem M, *et al.*: **Assessment of core drug use indicators using WHO/INRUD methodology at primary healthcare centers in Bahawalpur, Pakistan.** *BMC Health Serv. Res.* 2016; **16**: 684.
[PubMed Abstract](#) | [Publisher Full Text](#)
- Akl OA, El Mahalli AA, Elkahky AA, *et al.*: **WHO/INRUD drug use indicators at primary healthcare centers in Alexandria, Egypt.** *J. Taibah Univ. Med. Sci.* 2014; **9**: 54–64.
[Publisher Full Text](#)
- Nyabuti AO, Okalebo FA, Guantai E: **Examination of WHO/INRUD Core Drug Use Indicators at Public Primary Healthcare Centers in Kisii County, Kenya.** *medRxiv*. 2020.
- Dodd R, Palagyi A, Guild L, *et al.*: **The impact of out-of-pocket costs on treatment commencement and adherence in chronic kidney disease: a systematic review.** *Health Policy Plan*. 2018; **33**: 1047–1054.
[PubMed Abstract](#) | [Publisher Full Text](#)
- Kunna A: **Assessment of Patient Satisfaction toward Pharmaceutical Benefit Package Provided by Health Insurance Corporation of Khartoum State.** *figshare. Dataset*. 2022.
[Publisher Full Text](#)
- Kunna A: **Questionnaire used data collection.** *figshare. Dataset*. 2022.
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Version 1

Reviewer Report 07 March 2022

<https://doi.org/10.5256/f1000research.120181.r124106>

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This is a good study that applied a proper study design. There are a few comments that I advise authors to address at this stage:

1. Please write where the study is exactly conducted? Why this study setting is chosen?
2. What were the exclusion criteria?
3. It is better to consider 5-10% as a non-respondent rate when you calculated the sample size.
4. What was the sampling method?
5. Please write what will be the lowest and highest score for the questions used in part two.
6. Please write "average dispensing time" where you wrote ADT.
7. It seems you used both structured and semi-structured questionnaires.
8. Why did you use three investigators to collect data? As the third part of the questionnaire was a semi-structured questionnaire, it was better to use one investigator to have the same record of participants' answers.
9. How did you use the results of the pilot study in validation of the questionnaire? Did you make any changes to the questionnaire?
10. Did you exclude 15 people who participated in the pilot study from the main study?
11. In the result section and its last paragraph, please just use ADT instead of writing its complete words.

12. Please expand the conclusion section and try to provide some recommendations based on the findings of this study.

Is the work clearly and accurately presented and does it cite the current literature?

Yes

Is the study design appropriate and is the work technically sound?

Yes

Are sufficient details of methods and analysis provided to allow replication by others?

Yes

If applicable, is the statistical analysis and its interpretation appropriate?

Yes

Are all the source data underlying the results available to ensure full reproducibility?

Yes

Are the conclusions drawn adequately supported by the results?

Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Public Health and Health Promotion

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

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