Student's Journal of Health Research Africa
Vol. 4 No. 9 (2023): September 2023 Issue
https://doi.org/10.51168/sjhrafrica.v4i9.533
Original article

FACTORS CONTRIBUTING TO POOR INVENTORY MANAGEMENT OF MEDICINES AMONG HEALTH WORKERS AT SOROTI REGIONAL REFERRAL HOSPITAL, SOROTI DISTRICT. A DESCRIPTIVE CROSS-SECTIONAL STUDY.

IVAN EMWOCHU*, WERE AMIRI

Kampala School of Health Sciences P.O BOX 14263, Kampala-Uganda.

Abstract

Background.

The purpose of this study was to determine the factors contributing to poor inventory management of medicines among health workers in Soroti regional referral hospital, Soroti District.

The objectives were to determine the individual factors that contributed to poor inventory management of medicines and health facility-related factors that contributed to poor inventory management of medicines among health workers in Soroti regional referral hospital.

Methodology.

The study was a descriptive cross-sectional study. Data was collected from the respondents using a self-administered questionnaire and a purposive sampling technique was used.

Results.

Regarding individual factors, 6% of the respondents had not taken Integrated Pharmaceuticals Logistics System Training, Pre-service training, and job training like computer maintenance and HMIS, 6% of them had work experience below 3 years, 14% were not happy working in the pharmacy, 32% were not trained or oriented on EMLIP and 94% of the respondents had ever experienced stock-outs during their working experience.

Based on the health facility-related factors, 32% of the respondents said drugs were dispensed from boxes from which they were supplied, 46% of the respondents did not dispense drugs by FIFO, FEFO, and LILO, 72% of the respondents did not arrange drugs in accordance to either ABC or according to pharmacological classes.

Conclusion:

Lack of training or orientation on EMLIP and working experience on stock-outs, poor dispensing according to FIFO, FRFO, and LILO, and arrangement of drugs by ABC and pharmacological classes were the factors contributing to poor inventory management.

Recommendation.

The researcher recommended that the government of Uganda through the Ministry of Health should come up with absolute resolutions to combat these problems efficiently and effectively to ensure better and proper methods of inventory management of medicines to improve the welfare of patient's health-wise.

Keywords: Medicine, inventory management of medicine, Soroti regional referral hospital, dispensing medicine, Submitted: 2023-07-07 Accepted: 2023-08-18

Student's Journal of Health Research Africa
Vol. 4 No. 9 (2023): September 2023 Issue
https://doi.org/10.51168/sjhrafrica.v4i9.533
Original article

1. Background of the study

To deliver quality health services, safe, effective, affordable, and quality medicines are needed (Manyuat et al., 2021). Inappropriate storage conditions, poor infrastructure, and poor medicine management practices may lead to poor medicine quality, stock damage, and expiration (Manyuat et al., 2021).

Poor inventory management of medicines is one of the challenges faced in Uganda and other countries. It has resulted in the wastage of medicines. According to Nakyanzi et al in 2010 which stated that wastage reduces the number of available medicines for patients and therefore the quality of health care they receive (Nakyanzi et al., 2010) and around US$550000 worth of Antiretroviral and 10 million Antimalarial doses recently expired in Uganda's National Medical Stores (Nakyanzi et al., 2010).

According to Hakuzimana, 2021 which found that medicines still expired, from 2014 up to 2018, the total expired products were valued at RWF 6,046,778,655 for all program categories: HIV commodities had the largest share 53.3%, Essential Medicines 22.5%, Malaria 13%, Maternal Child Health commodities 5.7%, Products used for Community health workers 4.5%, TB products 1% and 0.1% for Family Planning products (Hakuzimana, 2021).

Through the Government of Uganda, the funding for EMHS increased by a total of UGX 4 billion (19,4%) from UGX 236 billion in FY 2017/2018 to UGX 275.6 billion in FY 2019/2019 (Lugada et al., 2022). In the FY 2019/2020, only, 2.6% of the health sector budget was allocated for pharmaceuticals and other supplies (Wodajo, 2018).

1.1. The general objective of the study

To determine factors contributing towards poor inventory management of medicines among health workers in Soroti Regional Referral Hospital.

1.2. Specific objectives

- To identify the individual factors contributing to poor inventory management of medicines among health workers in Soroti Regional Referral Hospital.
- To assess health facility-related factors contributing to poor inventory management of medicines among health workers in Soroti Regional Referral Hospital.

2. RESEARCH METHODOLOGY

2.1. Study design

A descriptive cross-sectional study research design was used to carry out this study. It is descriptive because it details information about the factors contributing to poor inventory management of medicines among health workers in Soroti regional referral hospital, Soroti District Uganda in a statistical way also. It is cross-sectional because data is collected at one point in time in a short period.

2.2. Study Area

A study was done in Soroti regional referral hospital in January 2023, and it is located in the western division, Soroti district which offers services like forecasting, procurement, storage, and distribution of medicines and medical supplies, dispensing medicines to out and patients and counseling patients on proper medicine use.

2.3. Study population

The study population consisted of pharmacists, pharmacy assistants, pharmacy dispensers, nurses, and clinical officers in Soroti regional referral hospital. This group was chosen because they were involved in medicine inventory management due to the high unavailability of essential medicines through expiry, theft, stockouts, over stocking of non-essential medicines which were all due to poor inventory management.

* Corresponding author.
Email address: emwochuivan15@gmail.com (IVAN EMWOCHU)

2.4. Sample size determination

A sample size of health workers in Soroti regional referral hospital was determined using the Burton's formula given below, (Burton's 1965).

S=2(QR) O:

Where:

S=required sample size.

Q=number of days the researcher spent while collecting data. R=maximum number of people per day.

O=maximum time the interviewer spent on each participant. 2×5 ×0 0×5

=50

Therefore, the researcher used 50 respondents.

2.5. Inclusion criteria

Health workers in Soroti regional referral hospital were all ready to consent freely and fully participate in the study.

2.6. Study variables

Poor inventory management was the dependent variable whereas the independent variables were the individual-related factors and health system-related factors.

2.7. Sampling techniques

Purposive sampling techniques were used to select the respondents of the study because some health workers had the desired character.

2.8. Data collection tool and pretesting of the questionnaire

A well-organized semi-structured questionnaire, with both open-ended and close-ended questions, was prepared in English by the researcher and questions were interpreted by the health workers. This tool was utilized because it was easy to administer, quick in data collection, and less expensive while collecting data for analysis to address a research problem.

2.9. Quality control

The questionnaires were formulated in English language and pretested in health center iii, Soroti district. The major aim was to ensure that they are valid, reliable, and relevant to the study.

2.10. Data collection procedure

A letter of introduction was obtained from the Kampala School of health sciences and it was taken to Soroti regional referral hospital, Soroti District, Uganda to obtain permission from the hospital administration.

After permission was granted, the researcher consented to all the respondents and thereafter, administered the questionnaire.

2.11. Data management

The data collected was checked for completeness and locked in a cupboard and the keys were accessed by the researcher.

2.12. Data analysis and presentation

Data were analyzed manually by use of tally sheets, processed and analyzed using a simple electronic computer to compute frequencies and percentages (using the Excel computer program); then presented in terms of percentages, distribution tables, pie charts, and bar graphs for easy interpretation of the study findings.

2.13. Ethical considerations

Before the collection of data for the study, the proposal was first approved by the research committee of the school. The researcher then sought permission from the administration of the facility to collect data from the health facility. A consent form was filled out by the respondents after explaining the purpose of the study to them. The respondents were assured of confidentiality as no name appeared on the questionnaire. No participants were forced to participate in the study and all the study materials used during the interview were safely kept under lock and key accessible by the researcher only.

3. RESULTS

From the table 1, results showed that most (60%) of the respondents were females whereas least (40%) of the respondents were males.

From the table 1, results showed that most (48%) of the respondents were between 36-45 years whereas least (6%) where 18-25 years.

Table 1: HEALTH WORKERS' BIO DATA(N = 50)

Variables		Frequency (N)	Percentage (%)
Sex	Male	20	40%
	Female	30	60%
Age	18-25	3	6%
	26-35	18	36%
	36-45	24	48%
	45 and above	5	10%
Marital Status	Single	17	34%
	Married	23	46%
	Divorced	4	8%
	Widow/widower	6	12%
	Pharmacist	1	2%
	Pharmacy technician	3	6%
	Diploma holder Nurse	13	26%

From the table 1, results showed that most (46%) of the respondents were married whereas least (2%) were widow/widower.N=50

3.1. Individual factors contributing to poor inventory management of medicines among health workers

From the figure 1, majority (94%) of the respondents had ever taken integrated pharmaceutical logistics system (IPLS) training, pre-service training and on job training like computer maintenance and HMIS whereas the least (6%) had not.

From figure 2, majority (64%) of the respondents had their work experience greater than 10 years whereas the least (6%) of the respondents had their work experience below 3 years.

From figure 3, majority (86%) of the respondents were happy with working in the pharmacy whereas the least (14%) were not happy working in the pharmacy.

From figure 4, majority (68%) of the respondents were trained or oriented in EMLIP whereas least (32%) were not trained or oriented in EMLIP.

From figure 5, the majority (94%) of the respondents had ever experienced stock outs during their working experience whereas the least (6%) had never experienced stock outs in their working experience.

3.2. Health facility related factors that contributed to poor inventory management of medicines among health workers

Basing on the health facility related factors that contributed to poor inventory management of medicines among health workers, all the respondents agreed that the pharmacy store was large enough to accommodate all the drugs they were supposed to have at the same time and free from harmful insects and rodents.

From figure 6,from the shelves whereas the least (32%) of the respondents said drugs were dispensedfrom boxesfromwhich theyweresupplied from.

From figure 7, more than half (54%) of the respondents dispensed drugs in accordance to FIFO, FEFO, and LILO whereas least (46%) of the respondents didn't.

From Figure 8, the majority (72%) of the respondents didn't arrange drugs by either ABC or according to pharmacological classes whereas the least (28%) of the respondents arranged drugs by either ABC or according to pharmacological classes.

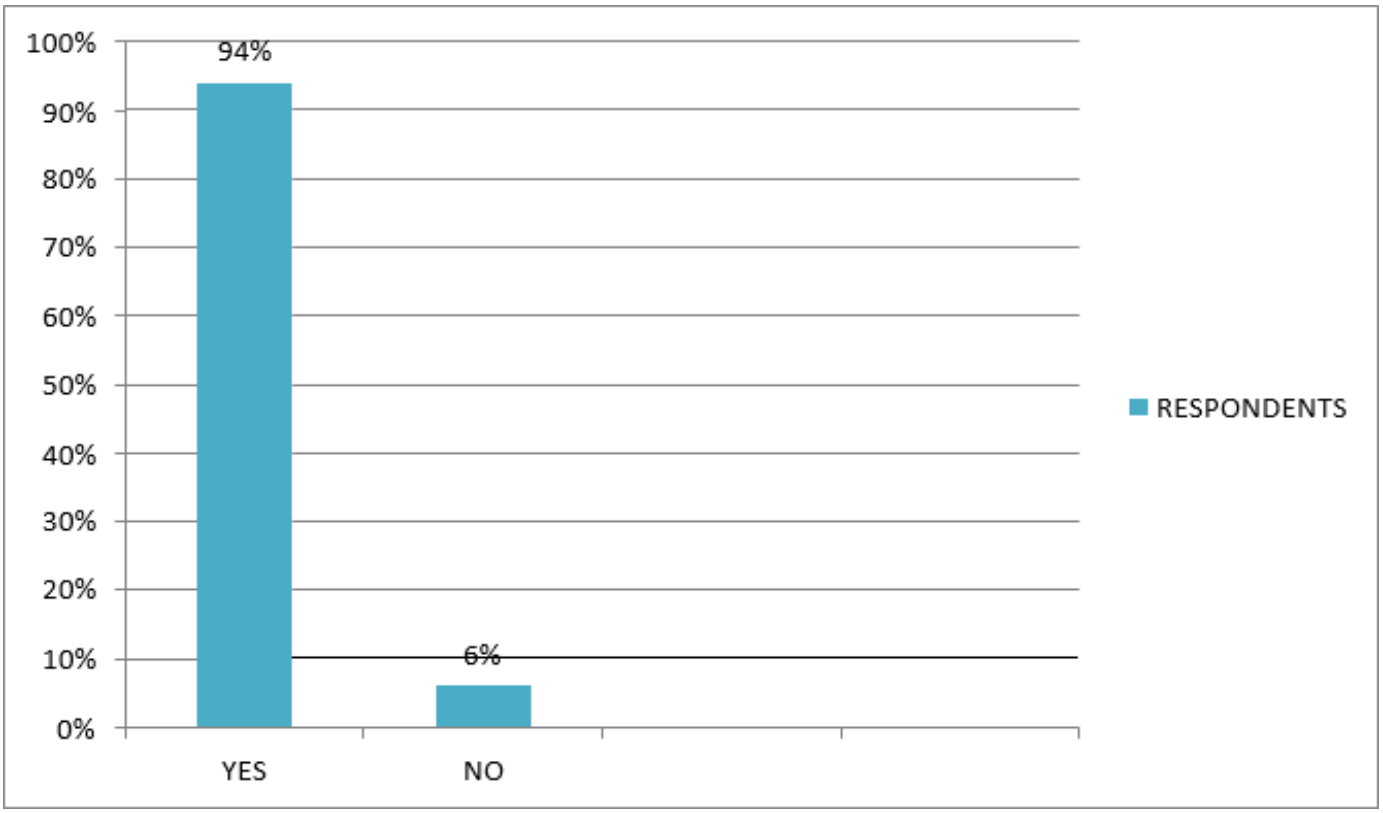

Figure 1: Showed whether employees had ever taken integrated pharmaceuticals logistics system (IPLS) training, pre-service training and on job training like computer maintenance and HMIS.

4. Discussion

4.1. Individual factors that contributed to poor inventory management of medicines

The study results showed that (6%) had not taken integrated pharmaceuticals logistics system (IPLS) training, pre-service training, and on job training like computer maintenance and HMIS. According to the researcher, there is still a very big gap because (94%) of the respondents had ever taken which is in line or agreement with (94.6%) according to (Tadesse Gudeta Gurmu, 2017).

The study results also showed that (6%) of the respondents had work experience below 3 years which contributed to poor inventory management of medicines. According to the researcher, there is still a gap because (64%) of the respondents had work experience greater than 10 years which does not agree with the (25%) of the respondents who were between 6 to 10 years of work experience (Wodajo, inventory management practices for pharmaceutical items of health facilities in addis ababa, 2018).

The study results also revealed that (14%) of the respondents were not happy working in the pharmacy which also contributed to poor inventory management of medicines. According to the researcher, there is still a big gap because (86%) of the respondents were happy working in the pharmacy which is therefore in agreement with the (100%) of the respondents who enjoyed working in the pharmacy according to (Mwanangombe, 2019).

The study results also showed that (32%) of the respondents were not trained or oriented in Essential Medicines Logistics Improvement Program. According to the researcher, there is still a big gap because the majority (68%) of the respondents were trained or oriented in the Essential Medicines Logistics Improvement Program which agrees with (66.67%) of the respondents who were trained or oriented in EMLIP according to (Mwanangombe, 2019).

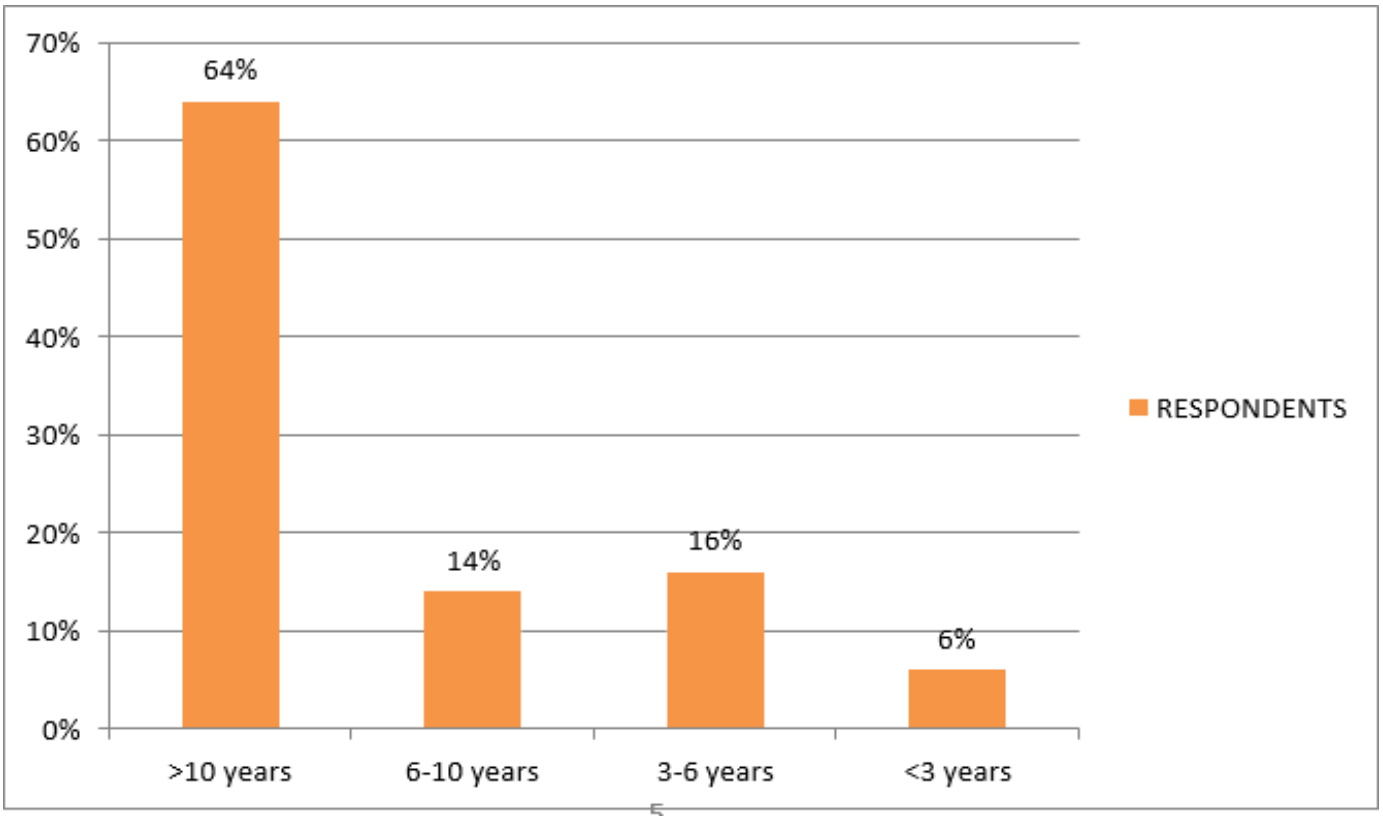

Figure 2: **Showed the work experience of the respondents** N=50

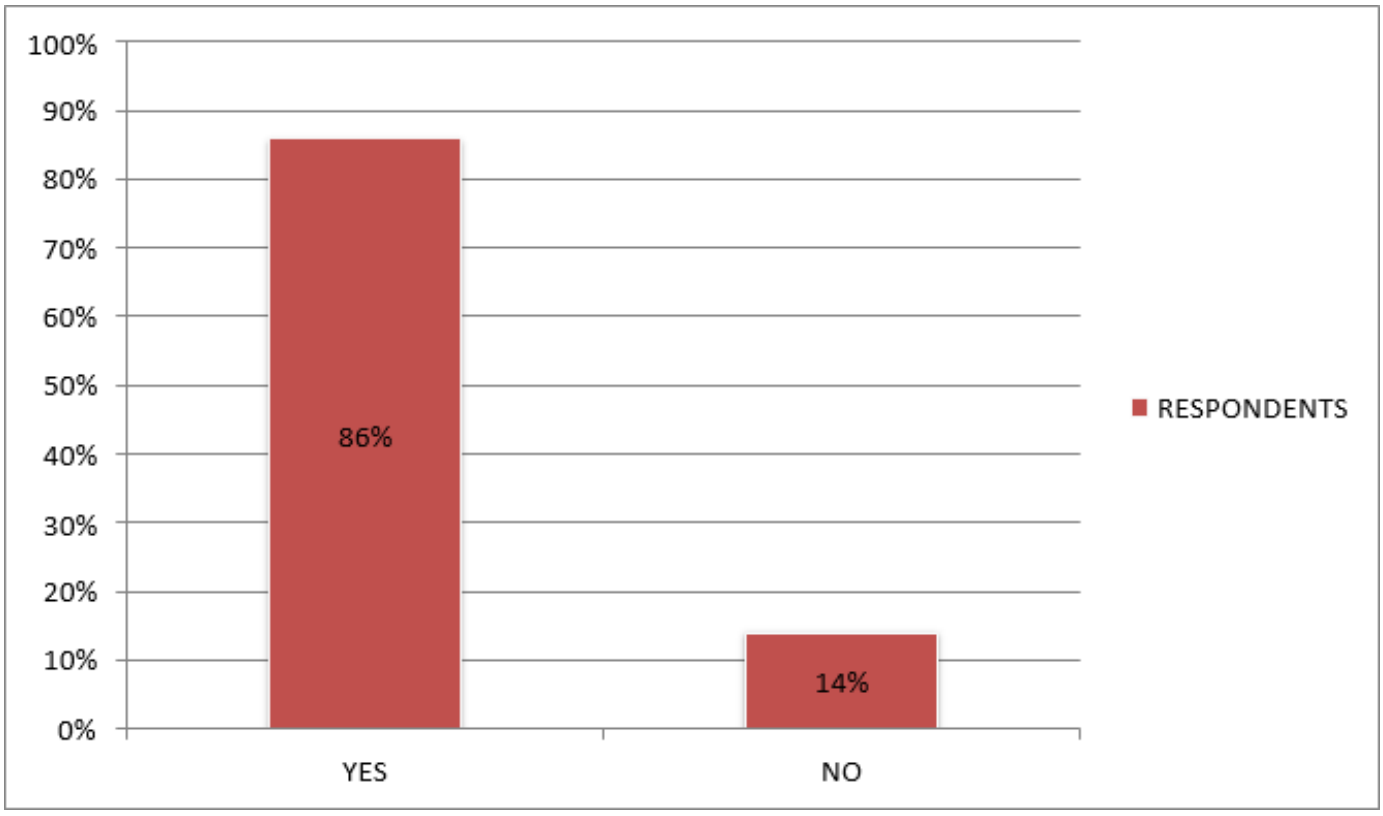

Figure 3: **Showed whether respondents were happy working in the pharmacy N=50**

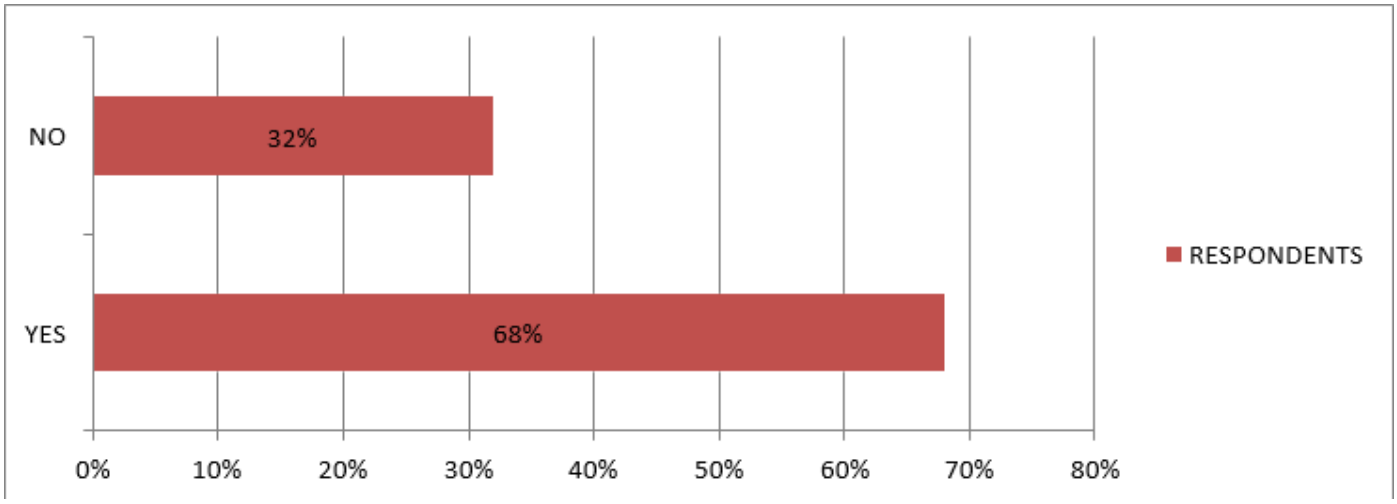

Figure 4: **Showed whether respondents were trained or oriented in EMLIP** N=50

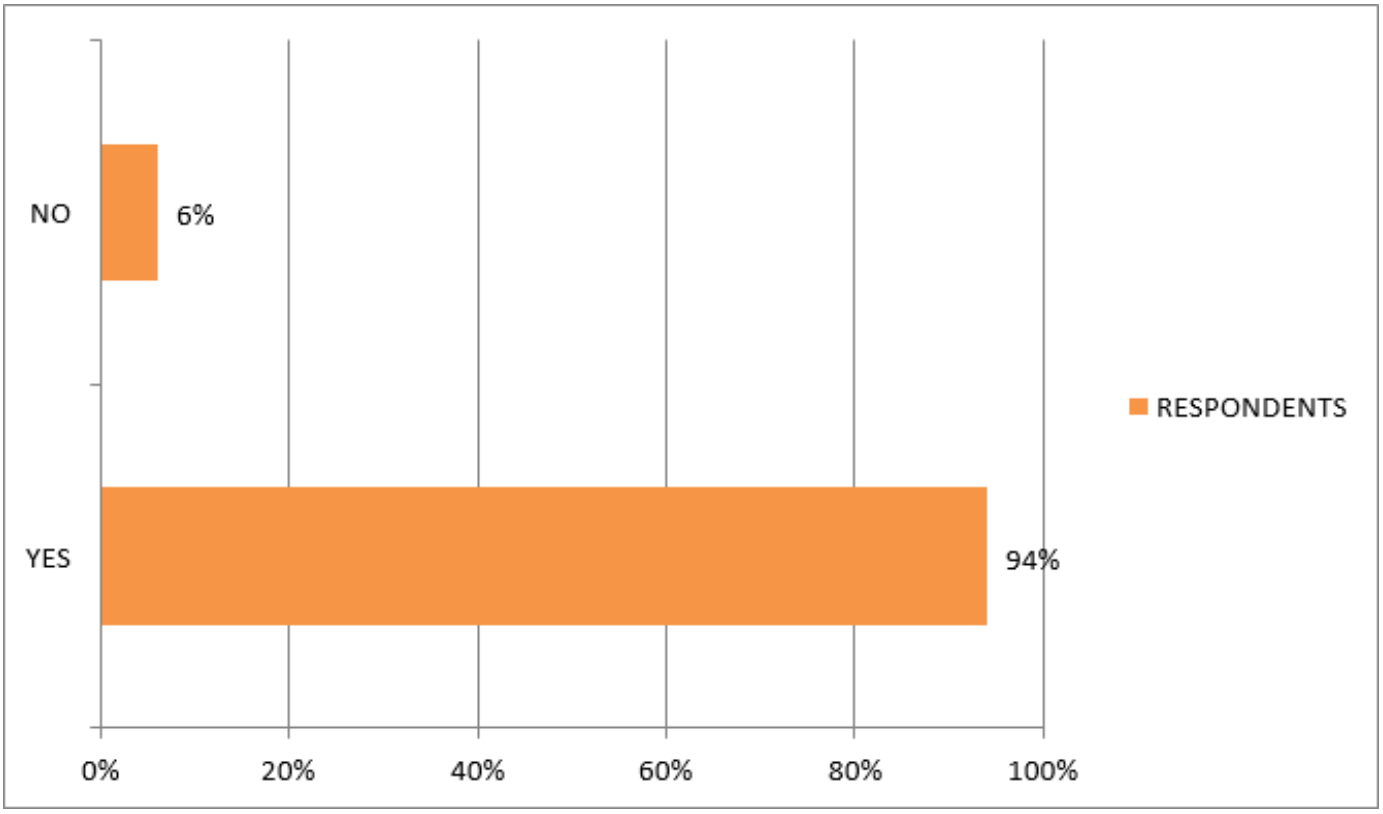

Figure 5: **Showed had ever experienced stock out during your working experience N=50**

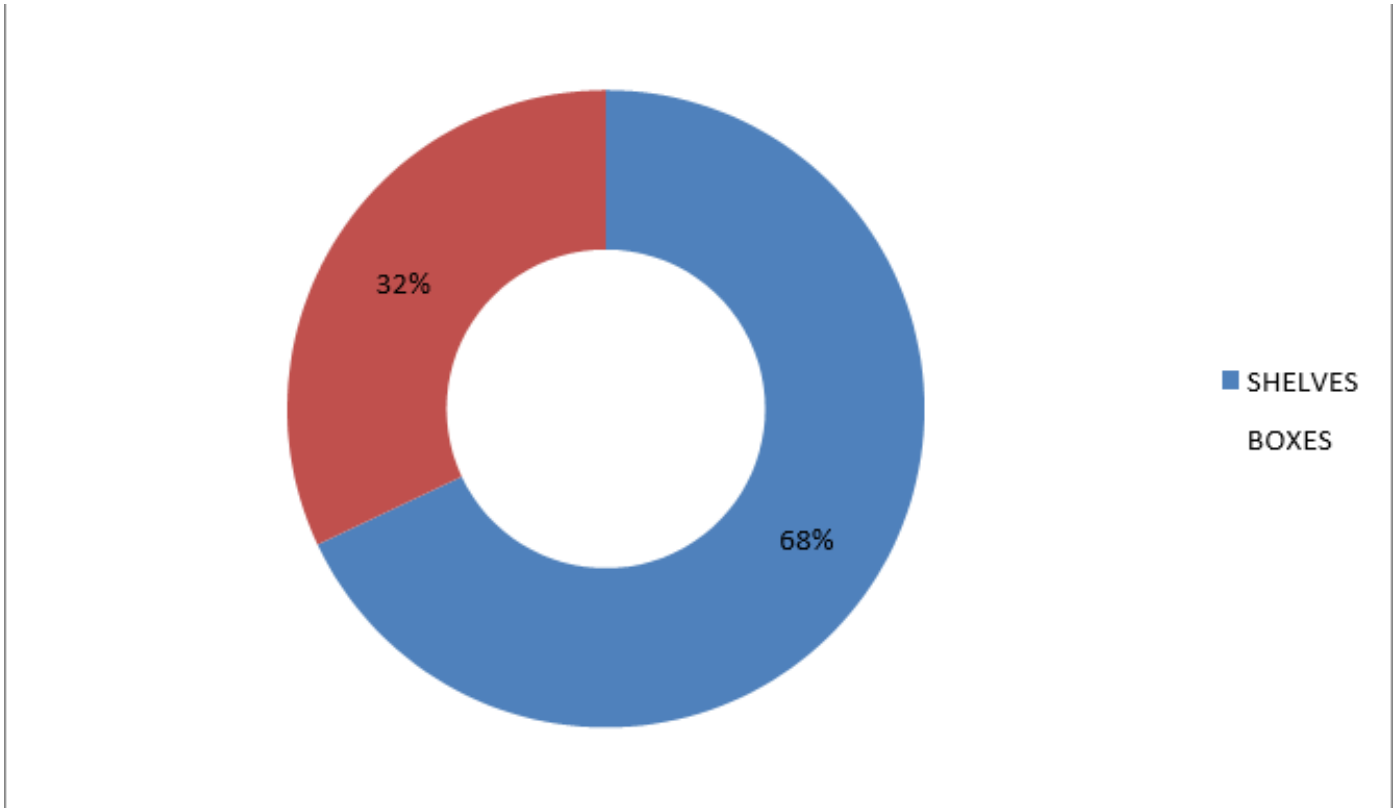

Figure 6: Showed the drugs were dispensed from the shelves or from the boxes from which they were supplied from

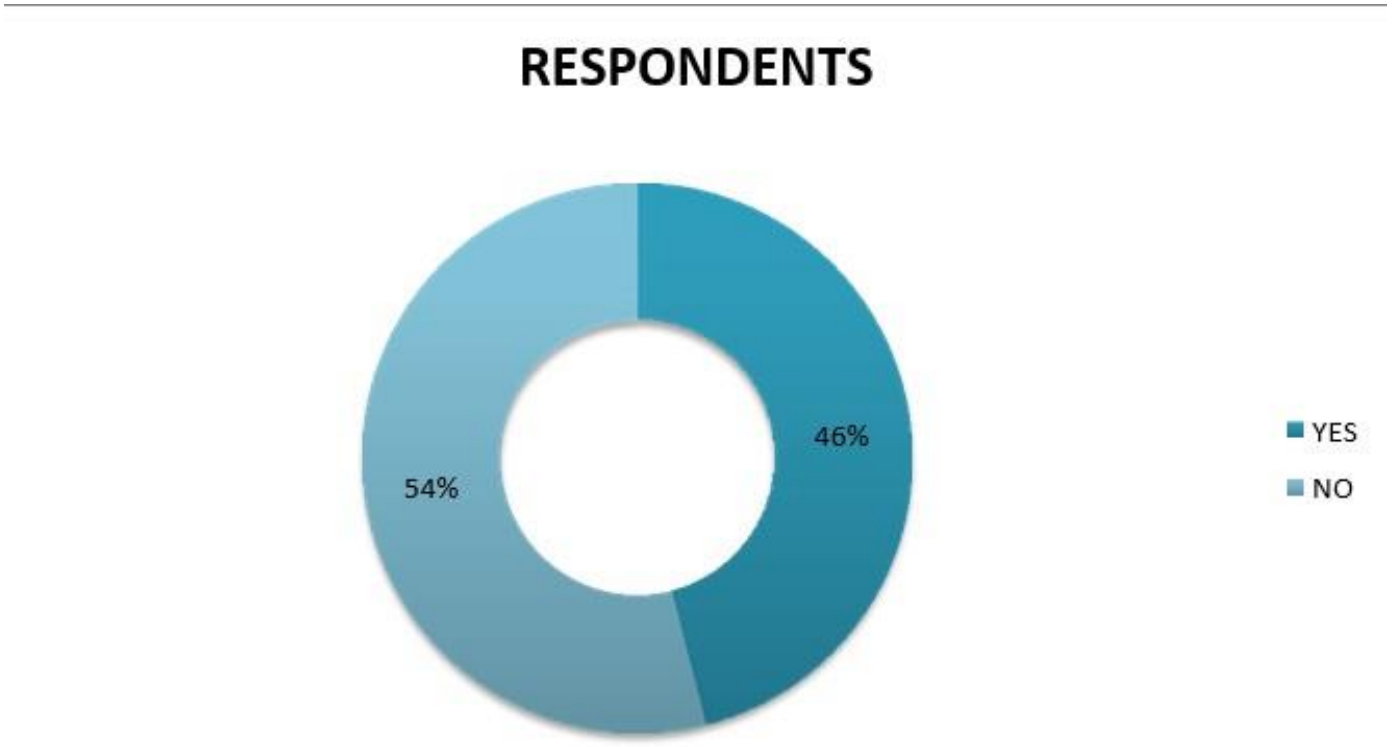

Figure 7: **Showed if all drugs were dispensed in accordance to FIFO, FEFO, and LILO**

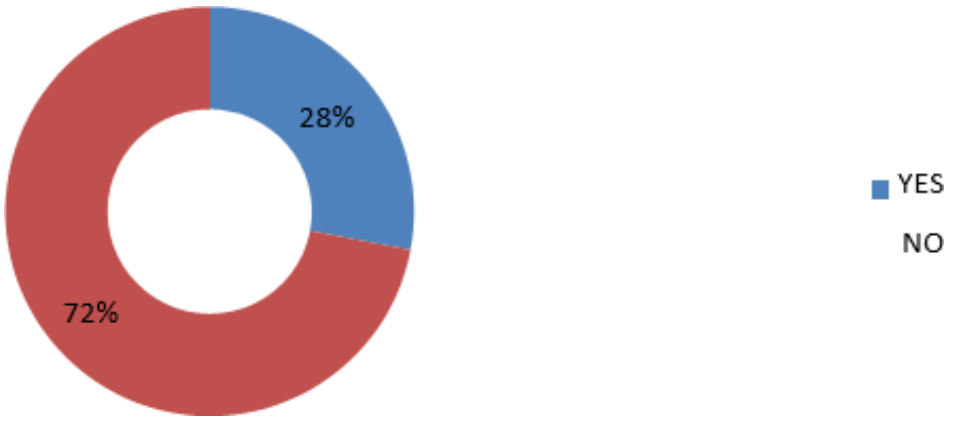

Figure 8: Showed whether the drugs were arranged in accordance to either ABC or according to pharmacological classes

The study findings showed that the majority (94%) of the respondents had ever experienced stockouts during their working experience. According to the researcher, there is still a gap because (6%) of the respondents had never experienced stockouts during their working experience which is in line with the (3.33%) of the respondents who did not experience any stockouts according to (Mwanangombe, 2019).

4.2. Health facility-related factors that contributed to poor inventory management of medicines

The study results showed that (100%) of the respondents agreed that the pharmacy store was large enough to accommodate all the drugs they were supposed to have at the same time and free from harmful insects and rodents which is therefore in line with our agreement (100%) had storage area which was free from harmful insects and rodents according to (Tadesse Gudeta Gurmu, inventory management performance of key essential medicines in health facilities in East Shewa Zone, Oromia regional state, Ethiopia 2017).

The study results also showed that (32%) of the respondents said drugs were dispensed from the boxes from which they were supplied which also contributed to poor inventory management of medicines. According to the researcher, it means the majority (68%) of the respondents said drugs were dispensed from the shelves.

The study findings also showed that (46%) of the respondents did not dispense drugs by FIFO, FEFO, and LILO. According to the researcher, (54%) of the respondents dispensed drugs by FIFO, FEFO, and LILO which is not in agreement with (80%) of the health facilities that dispensed drugs by First in First out (FIFO) and Last In Last Out (LILO) according to (Adut Jervase Manyaut, 2021).

The study findings also revealed that (28%) of the respondents arranged drugs by either ABC or according to pharmacological classes. Therefore, the majority (72%) of the respondents did not arrange drugs by either ABC or according to pharmacological classes.

5. Conclusion

From the study findings, the following conclusions were made by the researcher.

Regarding the individual factors, (6%) of the respondents had not taken Integrated Pharmaceuticals Logistics System (IPLS) training, preservice training, and job training like computer maintenance and HMIS, (6%) of the respondents had working experience below 3 years, (14%) were not happy working in the pharmacy and (94%) of the respondents had ever experienced stock-outs during their working experience.

Ideally based on health facility-related factors, (32%) of the respondents said drugs were dispensed from boxes from which they were supplied, (46%) of the respondents did not dispense drugs by FIFO, FEFO, and LILO and (72%) of the respondents did not arrange drugs in accordance to either ABC or according to pharmacological classes.

6. Recommendation

The government of Uganda through the Ministry of health should recruit highly trained, competent, and qualified health workers in Integrated Pharmaceutical Logistics System (IPLS) training, pre-service training, and job training like computer maintenance and HMIS such that good and quality health services are provided to the health workers.

The administration of Soroti Regional Referral Hospital through the human resource manager should recruit highly trained, competent, and qualified health workers in the pharmacy department such that good inventory management practices are maintained within the health facility such that patients can easily obtain quality health services.

The administration of the hospital should equip the health workers within the pharmacy department with adequate documents such as dispensing log books, issuing and requisition vouchers, stock cards, and stock bins to improve better inventory management practices. Also, equipment such as fire extinguishers, rodent traps, and refrigerators for cold chain drugs should be procured into the health facility to improve inventory practices.

7. Acknowledgement

My diploma in pharmacy course and the research process has been a long process that has enabled me to learn from others. It has not been an easy process and therefore, I would like to first give thanks to the Almighty God for His grace and blessings upon my life throughout this process not forgetting my lecturers and course mates, thank you for feeding my mind. Indeed, the Lord is my shepherd, I shall not want.

My heartfelt thanks go to my father, Dr. Erechu Sam Richard for his assistance financially, valuable input, support, and encouragement throughout. Your numerous support and advice greatly contributed a lot to the production of this dissertation.

Last but not least, I would want to appreciate my supervisor Mr. Were Amiri for all the time and support given to me in developing this study, thanks, please. You were and you are my great source of strength.

Finally, my heartfelt thanks go to the Soroti regional referral hospital administration for allowing me to carry out the research study in their facility and the study participants for their thoughts, ideas, and feelings with me.

May the Lord reward you abundantly.

8. Abbreviations/Acronyms

ARV : AntiRetroviral

CHC : Community Health Centre

EMLIP: Essential Medicines Logistics Improvement Program

FEFO : First Expiry First Out

FIFO : First In First Out

IFRR : Internal Facility Report and Resupply Form

IPLS : Integrated Pharmaceuticals Logistics System

LILO : Last in Last Out

PBPA : Pharmaceutical Benefits Pricing Authority

RFF : Resource for Future

VEN : Vital Essential Necessary

9. Publisher details:

Publisher: Student's Journal of Health Research (SJHR)
(ISSN 2709-9997) Online
Category: Non-Governmental & Non-profit Organization
Email: studentsjournal2020@gmail.com
WhatsApp: +256775434261
Location: Wisdom Centre, P.O.BOX. 148, Uganda, East Africa.

10. References

1. Adut Jervase Manyuat, K. C. (2021). Assessment of storage and inventory practices to improve medicine supply chain in Jubek state South Sudan. *Rwanda journal of medicine and health sciences* .Case of the medical procurement and production division
2. Theogene Hakuzimana, p. C. (2021).Assessment of factors contributing to medicine expiry in Rwanda.
3. Mwanangombe, A. (2019). Identification of the factors leading to poor inventory management in government health facilities of Mazabuka district Zambia.
4. Tadesse Gudeta Gurmu, A. J. (2017). Inventory management performance of key essential medicines in health facilities of East Shewa Zone, Oromia Regional State, Ethiopia. *Cukurova Medical Journal volume 2, 277-291*.
5. Theogene Hakuzimana, p. C. (2021). Assessment of factors contributing to medicine supply in Rwanda: case of the medical procurement and production division. *Rwanda Journal of Medicine and Health sciences 2(2021).*
6. Wodajo, E. S. (2018). Inventory management practices for pharmaceutical items at health facilities in addis ababa.
7. Nakyanzi, J. K., Kitutu, F. E., Oria, H., & Kamba, P. F. (2010). Expiry of medicines in supply outlets in Uganda. *Bulletin of the World Health Organization*, *88* (2), 154–158. https://doi.org/10.2471/BLT.08.057471
8. Lugada, E., Komakech, H., Ochola, I., Mwebaze, S., Olowo Oteba, M., & Okidi Ladwar, D. (2022). Health supply chain system in Uganda: current issues, structure, performance, and implications for systems strengthening. *Journal of pharmaceutical policy and practice*, *15* (1), 14. https://doi.org/10.1186/s40545-022-00412-4