



Effect of Insecurity on the Provision of Pharmaceutical Care in Akwa Ibom State: The Community Pharmacist's Perspective

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ABSTRACT

Background: Pharmaceutical care is an important aspect of healthcare provided by pharmacists which is associated with good clinical outcomes and improved quality of life. Robberies and insecurities is a common occurrence in community pharmacies and when left unchecked can have economic, financial consequences and also influence the provision of care. The aim of this study was to assess the perceived effect of insecurity on the provision of pharmaceutical care in community pharmacies in Uyo, Akwa Ibom State.

Methods: This study was a cross sectional survey among community pharmacists in community pharmacies in Uyo, Akwa Ibom State. All community pharmacies in Uyo metropolis were visited and an informed consent was obtained from the pharmacists before the beginning of the study. A semi-structured questionnaire was used in the collection of data in this study. The questionnaire evaluated the perceived effect of the current robberies on pharmaceutical care where the evaluation statements were structured in Likert scale format.

Results: A total of 76 pharmacists consented to participate in the study where 56 (73.7%) were males and 20 were females. The mean age of the study participants was 28.25±1.543 years and 82.9% of the participants had 1-10 years' community pharmacy experience. Majority of the pharmacists agreed that insecurity has hindered history taking (52%), blood pressure checks (84.2%), patient counselling (80.2%) and decreased sales (52.6%).

Conclusion: There is a negative perceived effect of recent insecurities on the provision of pharmaceutical care services and sales. This aspect should be explored in further studies and research.

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Introduction

The community pharmacy is the most accessible public health care facility and community pharmacists are one of the most involved in public health priorities (1, 2). The provision of pharmaceutical care services remains a very vital aspect of patient care that involves the identification, intervention and resolution of drug related problems which is being provided by healthcare professionals including community pharmacists (3). These services cut across patient counselling, management of chronic illnesses

and proper follow up on patient medications to improve patients' clinical outcomes and these services are mostly provided in the community pharmacy settings (4). Any direct hitch to the operation of community pharmacies or insecurities which mostly involves robberies can affect patient's quality of care.

Robberies in community pharmacies and its effect on the operations have been reported in developed countries (5-7) as well as developing countries including Nigeria (8-11). This has brought about various security measures

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being put in place to prevent further attacks. Owing to the incessant robberies that occurred in pharmacies between July and September 2019 in Akwa Ibom state, there is need for evaluating the effect that the event has on pharmaceutical care of patients. Therefore, the aim of this study is to assess the effect of insecurity on the provision of pharmaceutical care in the community pharmacies in Uyo, Akwa Ibom state.

Methods

This study was a prospective cross-sectional study. The study was carried out from January till February 2020. The study was conducted in Uyo, Akwa Ibom State. The choice of this study area was informed based on the recent reports of robbery attacks on community pharmacies occurring within the city. The study protocol was approved by the University of Uyo Teaching Hospital Ethics Committee, with approval number UU/EC/20/0133. The study was conducted in accordance with the ethical standards as laid down in the 1964 Declaration of Helsinki and its later amendments (13).

The study was carried out among community pharmacists working in community pharmacies in Uyo metropolis, Akwa Ibom State. Uyo is the capital of Akwa Ibom state, southeastern Nigeria. Uyo lies on the road from Oron to Ikot Ekpene with an estimated population of 440,000 (12).

The sample size was calculated using the formula described by the Taro Yamane scientific formula given as:

$$n = \frac{N}{1+N(e)^2}$$

Where: n is the sample size, N is the population, I is the constant, e is the degree of error expected. The population size was 108, a figure obtained from the Pharmacy Council of Nigeria. 5% was used as the margin of error, e . Value obtained from calculation of sample size $n=84$.

Data was collected through a questionnaire carefully designed and administered to respondents. The questionnaire contained four sections. Where the demographics of the community pharmacists, security profile of the pharmacy, effect of insecurity on patients' assessment by pharmacist, and effect of insecurity on sales and services was represented in section a, b, c and d respectively. The demographics of the community pharmacists assessed were; age, gender, years of community pharmacy experience, and additional qualification. The security profile of the pharmacies was assessed using 3 aspects; security measures put in place at the pharmacy, robbery incidence, and pharmacy operating hours. This was based on pharmacy security options used in the US (14, 15). The security measures assessed included; camera, safes, iron gates, and burglary proofs. Patient assessment by the

pharmacist variables were; patient counselling, blood glucose and blood pressure checks, patient history-taking. The effect of insecurity on patient's assessment by the pharmacist and effect of insecurity on sales and services were measured using a five point Likert scale where the score of 5 was assigned to strongly agree and 1 for strongly disagree.

The questionnaire used in this study was validated using face validity among lecturers in the department of Clinical Pharmacy and Biopharmacy, University of Uyo with community pharmacy experience. The reliability of the questionnaire was also tested via a pre-test in 10 community pharmacies that were not included in the main study and the Cronbach alpha value obtained from the pre-test was 0.72.

All community pharmacies working in community pharmacies that consented to participate in the study were included in the study. Student pharmacists on industrial attachment, National Youth Service Corp pharmacists, pharmacy technicians who may also be present at the community pharmacy were excluded from the study.

Effect of insecurities on patient counselling, effect of insecurities on patient history-taking, effect of insecurities on blood glucose and blood pressure checks were the primary outcomes of the study. Effect of insecurities on patient satisfaction on pharmaceutical care services, effect of insecurities on sales were also assessed as Secondary outcomes.

Each pharmacy was approached and the purpose of the study was explained to the pharmacists. The consent of each pharmacist was sought for inclusion in the study. The pharmacists were assured that the data obtained will only be used for analysis. The questionnaires were self-administered to the pharmacists and then collected almost immediately after being filled by the pharmacists.

Age of the community pharmacists was expressed as mean and standard deviation. Years of experience and other categorical variables was expressed as percentages and proportions. Association between security profile parameters and Likert scale statements was analysed using Pearson Chi-square test. All analysis was carried out with the use of Statistical Package for Social Sciences, SPSS, for windows version 25. Statistical differences were set at $p < 0.05$.

Results

A total of 76 community pharmacists from 76 pharmacies consented to participate in this study out of which 56 (73.7%) were male (Table 1). Fifty-three community pharmacists (69.7%) had no additional qualification while 3 (3.9%) had Ph.D. degrees. The mean age of the participants was 28.25 + 1.543 years and majority of the participants (63, 82.9%) had 1-10 years of experience (Table 1).

Table 1. Socio-demographics of study participants.

Demographic		
Gender N (%)	Male	56 (73.7)
	Female	20 (26.3)
Additional qualification N (%)	None	53 (69.7)
	M.Sc./M.Pharm	14 (18.4)
	MBA	5 (6.6)
	FPC Pharm	1 (1.3)
	Ph.D.	3 (3.9)
Years of community pharmacy experience N (%)	1-10 years	63 (82.9)
	11-20 years	9 (11.8)
	>20 years	4 (5.3)
Age (Mean ±SD)	28.25 ± 1.543	

Key: M. Sc.: Master of Science, M. Pharm: Master of Pharmacy, MBA: Masters in Business Administration, FPC Pharm = Fellow Postgraduate College of Pharmacy, SD: Standard deviation.

Thirty-eight (50%) pharmacies visited had a robbery incidence previously while 69 (90.8%) pharmacies operate from 8am-9pm daily (Table 2). All the pharmacies had at least 2 security measures put in place to secure the pharmacy from future attacks (Table 2). Forty-four pharmacies (57.9%)

had cameras, safes and iron gates as security measures while 8 pharmacies (10.5%) had cameras, burglary proofs and iron gates as measures. Additional information on the security profiles of the pharmacies can be seen in Table 2.

Table 2. Security profile of pharmacies visited.

Item	Frequency (%)	
Security measures	Camera + safes + iron gates	44 (57.9)
	Camera + iron gates	24 (31.6)
	Camera + burglary proofs + iron gates	8 (10.5)
Robbery incidence	Yes	38 (50)
	No	38 (50)
Operating hours	8am – 9pm	69 (90.8)
	8am – 10pm	6 (7.9)
	8am – 11pm	1 (1.3)

The opinion of pharmacists on the perceived effect of the recent insecurities on pharmaceutical care and sales was documented. About 52% (39) of the pharmacists strongly agreed that insecurity has hindered patient’s history taking in their pharmacy while a total of 63 pharmacists (84.2%) reported that insecurity has hindered blood glucose and blood pressure checks in their pharmacies (Table 3).

Table 3. Effect of insecurity on pharmaceutical care and sales.

Item	Responses				
	SA (%)	A (%)	UN (%)	D (%)	SD (%)
Insecurity has hindered patients’ history taking	39 (51.3)	26 (34.2)	4 (5.3)	5 (6.6)	2 (2.6)
Insecurity has hindered blood pressure and blood glucose checks	30 (39.5)	33 (43.4)	6 (7.9)	5 (6.6)	2 (2.6)
Insecurity has affected patient counselling in my pharmacy	30 (39.5)	34 (44.7)	4 (5.3)	4 (5.3)	4 (5.3)
I do not feel secure attending to patients at late hours	37 (48.7)	23 (30.3)	3 (3.9)	10 (13.2)	3 (3.9)
Insecurity has affected patient satisfaction with pharmaceutical care provided	47 (61.8)	20 (26.3)	3 (3.9)	3 (3.9)	3 (3.9)
Insecurity has decrease sales	26 (34.2)	19 (25.0)	5 (6.6)	12 (15.8)	14 (18.4)
Post-traumatic stress after a robbery incidence may affect sales and services	14 (18.4)	31 (40.8)	11 (14.5)	16 (21.1)	4 (5.3)

Key: SA: Strongly agree, A: Agree, UN: Undecided, D: Disagree, SD: Strongly disagree.

Thirty-seven pharmacists (48.7%) strongly agreed that they do not feel secure attending to patient at late hours in the pharmacy. A total of 67 pharmacists (88.1%) reported that insecurity has affected patient satisfaction with pharmaceutical care provided by them in their pharmacies while 40 pharmacists (52.6%) were of the opinion that the recent insecurity has decreased sales of products in the pharmacy (Table 3). There was a significant association between the effect of insecurity on patient history

taking (p=0.007), blood pressure and blood glucose checks (p<0.001), patient counselling (p=0.001), patient satisfaction with pharmaceutical care services (p<0.001), decreased sales (p<0.001) and robbery incidence at the pharmacies. There was also a significant association between the assessed variables and security measures put in place at the pharmacies. There was no significant association between the assessed variables and pharmacy operating hours.

Table 4. Association between security profile parameters of pharmacies and perceived effect of insecurity on pharmaceutical care.

Item	Robbery incidence		p-value ^a	Operating hours			p-value ^a	Security measures			p-value ^a	
	No	Yes		8am-9pm	8am-10pm	8am-11pm		C+S+IG	C+BP+ IG	C + IG		
Insecurity has hindered patients' history taking	SA	25	14	0.007	35	3	1	0.825	28	3	8	0.006
	A	13	13		25	1	0		15	3	8	
	UN	0	4		3	1	0		0	2	2	
	D	0	5		4	1	0		1	0	4	
	SD	0	2		2	0	0		0	0	2	
Insecurity has hindered blood pressure checks and blood glucose checks	SA	24	6	0	27	2	1	0.895	27	0	3	0
	A	14	19		31	2	0		16	6	11	
	UN	0	6		5	1	0		0	2	4	
	D	0	5		4	1	0		1	0	4	
	SD	0	2		2	0	0		0	0	2	
Insecurity has affected patient counselling	SA	14	16	0.001	28	2	0	0.755	16	3	11	0.005
	A	24	10		31	2	1		27	3	4	
	UN	0	4		4	0	0		0	1	3	
	D	0	4		3	1	0		1	0	3	
	SD	0	4		3	1	0		0	1	3	
I do not feel secure attending to patients at late hours	SA	24	13	0.001	33	3	1	0.856	27	3	7	0.005
	A	11	12		22	1	0		13	3	7	
	UN	3	0		3	0	0		3	0	0	
	D	0	10		8	2	0		1	2	7	
	SD	0	3		3	0	0		0	0	3	
Insecurity has affected patient satisfaction with pharmaceutical care provided	SA	14	33	0	43	4	0	0.678	19	6	22	0.027
	A	15	5		19	1	0		16	2	2	
	UN	3	0		1	1	1		3	0	0	
	D	3	0		3	0	0		3	0	0	
	SD	3	0		3	0	0		3	0	0	
Insecurity has decreased sales	SA	26	0	0	23	2	1	0.762	26	0	0	0
	A	5	14		18	1	0		8	3	8	
	UN	5	0		4	1	0		5	0	0	
	D	2	10		12	0	0		4	2	6	
	SD	0	14		12	2	0		1	3	10	
Post-traumatic stress after a robbery incidence may affect sales and services	SA	0	14	0	13	1	0	0.452	1	4	9	0
	A	14	17		29	2	0		17	4	10	
	UN	11	0		9	1	1		11	0	0	
	D	13	3		15	1	0		14	0	2	
	SD	0	4		3	1	0		1	0	3	

Key: C: Cameras, S: Safes, BP: Burglary proofs, IG: Iron gates, SA: Strongly agree, A: Agree, UN: Undecided, D: Disagree, SD: Strongly disagree, a=Pearson Chi-square test

Discussion

The purpose of this study was to evaluate the effect of insecurities in the form of robberies on the provision of pharmaceutical care by the pharmacists to the patients. The results showed that majority of the pharmacists felt that the recent robbery attacks have a negative effect on the provision of pharmaceutical care as well as sales.

Community pharmacies usually operate for approximately 12 hours in a day opening very early and closing late. In this study, more than 90% of the pharmacies visited reported operating hours of 8am-9pm. These findings are similar to what was obtained in a survey of pharmacies in Australia although some pharmacies in the Australian study operated for 24 hours (16). A possible explanation for the

long operating hours is to be able to provide adequate health services to patients for as long as possible. However, long operation hours can be linked to more robbery risk than shorter hours. This is confirmed by a study by Taylor (17).

In this study, all of the pharmacies had at least 2 security measures put in place which included the CCTV cameras. This could be directly linked to the current uprising of robbery incidents in pharmacies in the state which is similar to what was opined by Weigall and Bell (16) where it was documented that additional security measures were associated more with pharmacies that have experienced robberies previously than those that have not. Sherman et al also reported that there was an 8% reduction in crime in areas with CCTV surveillance compared to 9% increase in areas without (18). Another Australian study also reported that the reduction in robberies in pharmacies is associated with use of CCTV together with other security measures (19).

Insecurities and robberies in the community pharmacies have financial and economic effects for the business and can also have ill effects on the staff and this can affect their approach to work (17). In this study, majority of the community pharmacists admitted that they are afraid attending to patients during closing hours and that post-traumatic stress after a robbery incidence may affect sales and services. There was an association between robbery incidence and responses made about the effect of post-traumatic stress on sales and services and this confirms the results in a study performed by Fuller (20) who stated that post-traumatic stress as a result of robberies in a community pharmacy have variable effects on the staff such that some will resume immediately while others cannot.

There was also an association between robbery incidence and responses that agreed that insecurities have decreased sales. Robberies and insecurities have a significant effect on sales and also performance of staff due to post-traumatic stress.

Pharmaceutical care provision is critical to patient health as it has been associated with positive clinical outcomes and lack of pharmaceutical care brings about reduced patient quality of life (21). The provision of pharmaceutical care by pharmacists has been documented to have a significant impact on the sense of security patient feels about their healthcare which helps patients better understand their medication needs (22). In this study, a significant number of the community pharmacists agreed that recent insecurities and robberies has hindered patients history taking, blood pressure and blood glucose checks and patient counselling. There was also a significant association between robbery incidence, security measures and the study parameters. The implication of this is that without proper intervention, increasing insecurities and robberies can bring about poor clinical outcomes and reduced patient quality of life.

In conclusion, insecurities associated with the recent robberies have a perceived effect on pharmaceutical care

provision and sales in community pharmacies. Proper interventions channelled at augmenting provision of pharmaceutical care should be considered. Further studies on the effect of insecurities on pharmaceutical care are strongly recommended.

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References

1. Ward K, Sanders D, Leng H, Pollock AM. Assessing equity in the geographical distribution of community pharmacies in South Africa in preparation for a national health insurance scheme. *Bull World Health Organ* 2014;92(7):482-9.
2. Erku DA, Mersha AG. Involvement of community pharmacists in public health priorities: A multi-center descriptive survey in Ethiopia. *PLoS One* 2017 13;12(7):e0180943.
3. Silva BB, Fegadolli C. Implementation of pharmaceutical care for older adults in the brazilian public health system: a case study and realistic evaluation. *BMC Health Serv Res* 2020;20(1):37.
4. Christensen DB, Farris KB. Pharmaceutical care in community pharmacies: practice and research in the US. *Ann Pharmacother* 2006;40(7-8):1400-6.
5. La Vigne N, Wartell J. Robbery of pharmacies. *Robbery of Pharmacies. Problem-Oriented Guides for Police, Problem-Specific Guide No. 73.* Washington, DC: Office of Community Oriented Policing Services; 2015.
6. Mann ED. Crime Prevention in Practice: An Analysis of Pharmacy Robberies [dissertation on the Internet for a master's degree]. Burnaby, British Columbia: Simon Fraser University; 2017 [cited 2020 Jul 2]. Available from: <https://summit.sfu.ca/item/17510>.
7. Lewis G. The Extent of Crimes in Pharmacies across the UK. *Chemist and Druggist: Community pharmacy news, analysis and CPD* [Internet]. 2017 Aug 15 [cited 2020 Jul 2]. Available from: <https://www.chemistanddruggist.co.uk/feature/revealed-extent-crime-in-pharmacies>.
8. Oshita OO, Alumona IM, Onuoha FC, editors. *Internal Security Management in Nigeria Perspectives, Challenges and Lessons: Perspectives, Challenges and Lessons.* Singapore: Springer; 2019.
9. Boniface O. Robbers raid Pharmacy kill two. *News Express* [Internet]. 2012 July 04 [cited 2020 Jul 2]. Available from: <https://www.newsexpressngr.com/news/79-Robbers-raid-pharmacy-kill-two?pr=97090&lang=en>.
10. Şencan N, Silkü SN, Yetkin Z, Bayraktar E, Segal H. Thefts: The Knowledge and Attitudes of Pharmacists Towards Financial Losses in Pharmacies. *Journal of Literature Pharmacy Sciences* 2014;3(2):47-54.
11. Ezemadu J. Robbers raid Badagary suburb, kill pharmacist. *PM News* [Internet]. 2014 Apr 17 [cited 2020 Jul 2]. Available from: <https://www.pmnewsnigeria.com/2014/04/17/robbers-raid-badagry-suburb-kill->

pharmacist/.

12. The Editors of Encyclopaedia Britannica. Uyo: Nigeria. Chicago, IL: Encyclopaedia Britannica [Internet]; 2019 [cited 2020 Jul 2]. Available from: URL: <https://www.britannica.com/place/Uyo>.
13. World Medical Association. World Medical Association Declaration of Helsinki: ethical principles for medical research involving human subjects. *JAMA* 2013;310(20):2191-4.
14. Zabyelina TG. Pharmacy and Crime. *The Encyclopedia of Crime & Punishment* 2015; 10.1002/9781118519639.wbecpx210.
15. Figge H. Pharmacy security: know your options. *US Pharmacist* 2015;40(8):44-46.
16. Fiona W, Alison B. Trends in improved security measures reducing armed robberies in pharmacies: final report. Gosford, New South Walse: Workcover NSW: 2008 [cited 2020 Jul 2]. Availablefrom: <https://webarchive.nla.gov.au/tep/119541>.
17. Taylor N. Robbery against service stations and pharmacies: recent trends. *Trends & issues in crime and criminal justice* No. 223 [Internet]. Canberra: Australian Institute of Criminology; 2002. [updated 2020 Jun 22; cited 2020 Jul 2]. Available from:URL: <https://www.aic.gov.au/publications/tandi/tandi223>.
18. Sherman LW, Denise CG, Doris LM, Eck J, Reuter P, Bushway SD. Preventing Crime: What Works, What Doesn't, What's Promising, Research in Brief. U.S. Department of Justice, Office of Justice Programs, National Institute of Justice; 1998.
19. Nina P, Stuart DM, Hannah C, Michael D Changes in the prevalence and nature of violent crime by youth in Victoria, Australia. *Psychiatry, Psychology and Law* 2015;22(2):213-223.
20. Fuller G. Where and when: A profile of armed robbery by location. *Trends & issues in crime and criminal justice* No. 479 [Internet]. Canberra: Australian Institute of Criminology; 2014. [updated 2020 Aug 03; cited 2020 Jul 2]. Available from: <https://www.aic.gov.au/publications/tandi/tandi479>.
21. Sreelalitha N, Vigneshwaran E, Narayana G, Padmanabha R, Ramakesava R. Review of pharmaceutical care services provided by the pharmacists. *International Research Journal of Pharmacy* 2012;3(4):78-79.
22. Clemons MD, Casper KA, Seifert JL, Fahey HP, Li J. Health care insecurity in the underserved: Effect of a charitable pharmacy model. *J Am Pharm Assoc* 2019;59(4):S19-24.