Data Article

Investigation of Pharmaceutical Care Practice in Two Tertiary Health Care Facilities in Central Monrovia, Liberia

ABSTRACT

Aims: The objective was to identify elements of pharmaceutical care and to what extend it is practiced in these hospitals. It also aimed at identifying any drug-related therapeutic problems and determine the perceived importance of pharmaceutical care.

Study Design: A prospective, cross-sectional descriptive survey was carried out among hospital pharmacists and some selected physicians and physician assistants working at two major tertiary healthcare facilities in Liberia.

Place and Duration of Study: John F. Kennedy, JFK, Memorial Hospital, and Eternal Love Winning Africa, ELWA Hospital, between August, 2021 and October, 2021.

Methodology: Pretested structured questionnaires covering demographics and the key elements of pharmaceutical care documentation was administered randomly to 43 health **care** professionals in these hospitals and collected for compilations and analysis.

Results: Twenty percent (20.9%) confirmed the documentation of pharmaceutical care elements in both facilities, and 18.6% confirmed the documentations of interventions. Methods used in documentation are paper (13.9%), manual (72.1%) and computers (6.9%) respectively. Unnecessary drug therapy/unwanted indication, adverse drug reactions, drug interactions, need for additional drugs, dosage too high, dosage too low, wrong drugs, and inappropriate compliance are the drug therapy problems that exist at both facilities. The overall percentage of all the drug therapy problems is twenty-five percent (25.6%), of which most are highlighted at JFK, though these problems exist at both hospitals. There is an increase in drug therapy problems and a decrease in standard documentation format and method used to document pharmaceutical care at both hospitals. Thirty-nine percent (39.5 %) of the respondents recognized the importance of the documentation of PC.

Conclusion: The study findings revealed that there is semblance of elements of pharmaceutical care activities at the both, but at a limited level. Poor documentations of PC interventions coupled with primitive methods of recording PC data are highlighted by respondents. The practice of pharmaceutical care in the Liberia's healthcare system can greatly improve the quality of pharmaceutical services and enhance the quality of life and therapeutic outcomes to patients/clients.

Key words: pharmaceutical care, drug therapy problem, healthcare, patient care, rational drug use

1.0 INTRODUCTION

Pharmaceutical care is patient-oriented, and outcomes driven. It is the responsible provision of drug therapy for the purpose of achieving definite outcomes that improve the quality of life of a patient (Hepler, 1990). It is a necessary element of health care delivery system and should be integrated with other elements within the professional healthcare team of which the pharmacist is an integral part. It is employed for the direct benefit of the patient, and the pharmacist is directly responsible to the patient for the quality of that care. The introduction in practical clinical activity of pharmaceutical care and clinical pharmacy instruments has given positive effect further in some patient's clinical outcomes (Luisetto, 2016).

Pharmaceutical care requires pharmacists to incorporate new behaviours into their practices including documentation, patient assessment, determination of therapeutic objectives, implementation of monitoring plans, patients counseling, screening of patients' records, evaluation of patients and possible referral (Akueyinwa, 2014). Pharmaceutical care involves the process through which a pharmacist develops a therapeutic plan that will produce specific therapeutic outcomes for the patient. The concept of "pharmaceutical care" term has been accepted and implemented in many countries (Franklin, 2005).

Health-care professionals play major role in striving for health in a population. The effort of each member of a multidisciplinary health-care team is essential for achieving therapeutic goals in disease management (Anderson, 2002). Pharmacy professionals, as a member of health-care team, play a vital role in the health-care system through the medicine and information they provide (Kokane, 2016). Recently, the role of pharmacists is expanding globally from mere dispensing of medication to playing a key role in disease state management, patient monitoring, and resolving drug-related problems (DRPs) (Anderson *et al*, 2003). An increase in health demand with a complex range of chronic medicines and poor adherence to prescribed medications forces the pharmacy profession to continue to move toward a patient-centered practice (Oliveira et al, 2006). The paradigm shift for pharmacy practice took turn in 1990, when Hepler and Strand introduced the term "pharmaceutical care," which shows the patient as a focus of pharmacy practice (Hepler, 1990). This new and expanded role of pharmacists which evolves over the past four decades globally is introduced in most developing countries very recently.

In fact, earlier reports indicate that not much of pharmaceutical care appears to be known in the entire West African Sub Region (Sarpong, 2004). Meanwhile it has become a dominant aspiration of pharmacy practice worldwide in the past decade (Oparah, 2004). In countries where full implementation of pharmaceutical care is being experienced, due to enabling environment, such as the United State, the UK and Canada, tremendous achievements have been accomplished. In one of such countries, Pauley et al., 1995 reported a reduction in emergency visits by asthmatic patients from 92 to 65 over six months period of study in a pharmacist coordinated asthmatic management. Several studies have been carried out on the knowledge, attitude, and practice of pharmaceutical care in Nigeria. In 2003, Oparah and Eferakeya showed that the attitudes of Nigerian pharmacists towards Pharmaceutical care are favorably high irrespective of the practice settings (Oparah, 2005). The attitude ratings varied with the levels of professional experience, and pharmacists having less experience showing more positive attitude. In 2002, some elements of pharmaceutical care activities such as

medication history taking, blood pressure measurement among others were reported to have been practiced by some community pharmacists in Benin City (Oparah, 2005).

Pharmaceutical care seems to be a new phenomenon in the healthcare delivery system of most West African countries, and Liberia is not an exception. Pharmacy practice in Liberia has been centered in products, instead of patient-centered and patient-oriented. This practice of Pharmacy moves away from the traditional practice where products are emphasized. This study sought to determine whether the elements of pharmaceutical care are practiced in the health sector of Liberia. Two major tertiary health facilities in central Monrovia- the ELWA (Eternal Love Winning Africa) hospital and John F. Kennedy Memorial Hospital, were investigated. The overall objectives of the study were to identify elements of pharmaceutical care practiced in ELWA and John F. Kennedy Memorial Hospitals, and to identify any drug-related therapeutic problems, including the perceived importance of pharmaceutical care in the health sector of Liberia. There are limited or nonexistent studies /information on the practice of pharmaceutical care in Liberia.

The findings of this study provide baseline information to policy makers, public health agencies, and researchers to understand the status of the role of the pharmacy professionals in Liberia. Furthermore, it serves as a baseline data to inform policy makers in the pharmaceutical sector to develop comprehensive guidelines that will guard the practice of Pharmacy in Liberia.

2.0 METHODLOGGY

Study areas and period

This study was conducted at two of the major referral hospitals in Liberia, namely, the Eternal Love Winning Africa, ELWA, hospital and John F. Kennedy Memorial hospital. ELWA hospital is located in the suburb of Monrovia, in Paynesville city (coordinates: 6.2409°N 10.6958°W), and it holds about 100 beds. It was established in 1965 and it is operated by the Sudan International Mission. The John F. Kennedy Memorial hospital is national medical center of Liberia, with four major components institutions, namely, the JFK memorial hospital with about 500 beds, the Liberian-Japanese Friendship Maternity hospital with 250 beds, the Tubman National Institute of Medical Arts, a paramedical school, and the Edward S. Grants Mental hospital with 79 beds. The medical center is located on 23rd Street, Sinkor, in Monrovia (coordinates: 6.2866°N 10.7736°W). It was established by the Liberian government in 1971. The catchment population of these two facilities in their respective localities ranges around 1.2 million to 1.5 million people. The study was conducted from August 10 to October 30, 2021. It was conducted after an approval and permission by the administrative authority of the ELWA hospital and the internal review board of the John F. Kennedy hospital respectively.

Study Design

A prospective, cross-sectional descriptive survey was carried out among hospital pharmacists and **some selected** physicians and physician assistants working at the two tertiary healthcare facilities.

Data Collection Method and Sample Selection

A pretested structured questionnaire covering demographics and the key elements of pharmaceutical care documentation was administered to randomly selected subjects, based on purposive sampling procedure, they were accorded prior informed consent before the questionnaires were administered to them. The data collection instrument was developed based on review of the relevant literature (El Hajj et al, 2016). The questionnaires were self-administered and collected back on agreed dates at designated points. It consisted of two parts which comprised nine (9) questions to address the socio-demographic characteristics of respondents, and twelve (12) closed-ended questions to measure elements of pharmaceutical care practice. The respondents were randomly selected based on their presence at the facilities during the data collection period. The ELWA hospital has only one licensed pharmacist employed with two intern pharmacists assisting him at the hospital. Therefore, a total of nine (9) participants: three (3) pharmacists, three (3) physicians (MD) and three (3) physician assistants were selected to participate in the study as respondents. While at the John F. Kennedy Hospital, a total of thirty-four (34) participants: sixteen (16) pharmacists and eighteen (18) physicians (MD) were selected.

Data Analysis

The statab**STATA** 16.0 statistical software was used employing descriptive statistics to analyze the data.

3.0 RESULTS AND DISCUSSION

A total of forty-three, (43) respondents, nine (9) from Eternal Love Winning Africa, ELWA, hospital and thirty-four (34) from John F. Kennedy Memorial hospital, JFK, composing of Twenty-eight (65.1%) is male and fifteen (34.9%) female. The result shows that **one-fifth**~~the higher~~ **of the** respondent full**fall** within **the**an age group 41 – 44 **years?** with 20.9%.

Separate para to explain this The degree of freedom is 7, chi-square is 4.6321 and p-value is 0.705 which means that age is not statistical significant different to gender.

Table 1: Respondents' age and Gender

Age group	Male	Female	Total	Percentage (%)
25 – 28	1	3	4	9
29 – 32	3	1	4	9
33 – 36	5	2	7	16
37 – 40	5	2	7	16
41 – 44	5	4	9	20.9
45 – 48	6	2	8	18.6
49 – 52	1	0	1	2
53 – 56	1	1	2	4.7
Total	27	15	43	

Pearson chi2(7) = 4.6321 Pr = 0.705

Table 2: Two-sample t test with equal variances on Marital Status and Gender

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------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
    Male |      28    1.357143    .1055884    .5587211    1.140493    1.573792
  Female |      15    1.466667    .1333333    .5163978    1.180695    1.752638
---------+--------------------------------------------------------------------
combined |      43    1.395349    .0824563    .5407021    1.228945    1.561752
---------+--------------------------------------------------------------------
    diff |           -.1095238    .1742683               -.4614658    .2424182
------------------------------------------------------------------------------
    diff = mean(1) - mean(2)                                      t =  -0.6285
Ho: diff = 0                     degrees of freedom =       41

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.2666         Pr(|T| > |t|) = 0.5332          Pr(T > t) = 0.7334
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The results indicate that there is a statistically significant difference between the mean of marital status for males and females (t -0.6285, p= 0.5332). In other words, females have a statistically significantly higher mean in term of marriage (1.466667) then males (1.357143). **Is this relevant for the findings? If yes, requires explanation.**

The occupational and marital status of the respondents are as follows: nineteen (19) pharmacists, twenty-one (21) general physicians, and three (3) physician assistants with ten (10) of the male pharmacists, one (1) female pharmacist, eight (8) male physicians, and one (1) physician assistant married, while five (5) female physicians and two (2) female physician assistants are married.

Table 3: Respondents' Occupation and Marital Status

Occupation	**Marital Status**					**Total**
	Male			Female		
	Married	single	Divorce	Married	single Divorce	
Pharmacist	10	4	0	1	4 0	19
Physician	8	4	1	5	3 0	21
Physician Assistant	1	0	0	2	0 0	3
Total	19	8	1	8	7 0	43

Table 4: Academic Degree of respondent by Gender

Academic Degree	Gender		Total
	Male	Female	
BSc	1 (3.6)	2 (13.3)	3 (7.0)
BPharm	13	8	21
PharmD	2	1	3
MSc	8	4	12
MPharm	1	0	1
PhD	3	0	3
Total	28	15	43

The results indicated above showed that there is no statistically significant relationship between Academic Degree and gender (chi-square with 5 degree of freedom = 3.5882, p= 0.610).

Thirty-three percent (33%) of the respondents at ELWA, and eight percent (8.8%) at JFK hospitals confirmed the documentation of pharmaceutical care; twenty-one percent (20.9%) confirm the documentation of pharmaceutical care elements and about seventy-nine percent (79%) did not confirm at both facilities (Table 5). The frequency of documentation was sixty-two percent (62%) at JFK while at ELWA, it was uncertain (Table 6). The methods used to document PC at these health facilities were paper (13.9%), manual (72.1%), computer (6.9%), and computer with software (6.9 %) respectively (Table 7). It was also confirmed that there exist some level of standard for documentation of PC at JFK as compared to ELWA (See Table 8).

Table 5: Documentation of pharmaceutical care at ELWA and JFK

Documentation of pharmaceutical care	Workplace		Total
	ELWA	JFK	
Yes	3(33%)	3(8.8%)	9(20.9%)
NO	6 (67%)	31(91%)	34 (79.0%)

Total	9	34	43

Table 6: Frequent of documentation of Pharmaceutical care activities

How frequent do you document Pharmaceutical care activities?	Workplace ELWA	JFK	Total
Always	3 (33%)	21 (62%)	24 (56%)
Often	0	5 (15%)	5 (12%)
Sometimes	1 (11%)	5 (15%)	6 (14%)
Never	3 (33%)	2 (6%)	5 (12%)
Rarely	2 (22%)	1 (3%)	3 (6.9%)
Total	9	34	43

Table 7: Method used to document pharmaceutical care at each workplace

Method used to document pharmaceutical care	Workplace ELWA	JFK	Total
Paper	6 (66.6%)	0	6 (13.9%)
Manual	2 (22.2%)	29 (85.3%)	31 (72.1%)
computer	0	3 (8.8%)	3 (6.9%)
computer with software	1 (11.1%)	2 (5.9%)	3 (6.9%)
Total	9	34	43

Table 8: Standard Documentation Format at each workplace

Standard Documentation Format	Workplace		Total
	ELWA	JFK	
Yes	2 (22.2%)	15 (34.8%)	16 (37.2%)
No	1 (11.1%)	18 (53.0%)	20 (46.5%)
No Respond	6 (66.6%)	1 (3%)	7 (16.3%)
Total	9	34	43

Documentation of drug therapy problems at both health facilities showed about sixty percent (60.5%) in the affirmative, and thirty-seven percent (37.2%) in the negative while interventions to drug therapy problems at both facilities is about nineteen percent (18.6%) (Table 9 & 10).

Table 9: Document Drug Therapy Problems

Document Drug Therapy Problem	Workplace		Total
	ELWA	JFK	
Yes	5 (55.6%)	21 (61.8%)	26 (60.5%)
No	4 (44.4%)	12 (35.3%)	16 (37.2%)
No Respond	0	1 (2.9%)	1 (2.3%)
Total	9	34	43

Table 10: Interventions Drug Therapy Problems

Interventions Drug Therapy Problems	Workplace		Total
	ELWA	JFK	

Yes	2 (22.2%)	6 (17.6%)	8 (18.6%)
No	7(77.77%)	27 (79.4%)	34 (18.6%)
Cannot remember	0	1 (2.9%)	1 (2.3%)
Total	9	34	43

Table 11: Result on Documenting Drug Therapy Problem with Interventions on the Listed Drug Therapy problems

```
      Source       SS       df       MS              Number of obs =      43
-------------------------------------------------------------------- F(1, 41)  =    2.88
       Model  .818481664     1  .818481664            Prob > F      =  0.0972
    Residual  11.6466346    41  .284064259            R-squared     =  0.0657
-------------+------------------------------------------------------ Adj R-squared =  0.0429
       Total  12.4651163    42  .296788483            Root MSE      =  .53298

------------------------------------------------------------------------------
       ddtps       Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       idtps    .2908654   .1713546     1.70   0.097    -.0551923    .6369231
       _cons    1.060096    .226304     4.68   0.000     .6030659    1.517126
------------------------------------------------------------------------------
```

The result shows that for each intervention on the listed drug therapy problem increases by 29% in the documentation of drug therapy problem.

The t-value test the hypothesis that the coefficient is different from 0. To reject this, you need a t-value greater than 1.96 (at 95% confidence). In this case, the intervention of drug therapy problem is not statistically significant to the documentation of drug therapy problem.

One-tail p-values test the hypothesis that each coefficient is different from 0. To reject this, the p-value must be lower than 0.05. In this case, the intervention of drug therapy problem is not statistically significant to the documentation of drug therapy problem.

There exist drug therapy problems at both ELWA and JFK. Among the prominent drug therapy problems that exist in the two facilities include: unnecessary drug therapy /unwanted indication, adverse drug reactions, drug interactions and need for additional drugs (18.6% respectively), wrong drugs, dosage too low, dosage too high and inappropriate compliance (11.6%). The overall percentage of all of the drug therapy problems indicated in table 10 is about twenty-seven percent (25.6%). Most of these drug therapy problems are highlighted at JFK as compared to ELWA, though, these problems exist at both hospitals.

Table 12: Drug Therapy Problems

Drug Therapy problems	Workplace		
	ELWA	JFK	Total
All the drug therapy problem	4 (44.4%)	7 (23.5%)	11(25.6%)
Unnecessary drug therapy/untreated indication	0	8(23.5%)	8(18.6%)
Inappropriate compliance	0	1 (2.9%)	1(2.3%)
Need for additional drugs	0	3 (8.8%)	8(18.6%)
Inappropriate dosing interval	0	1 (2.9%)	1(2.3%)
None of these	1 (11.1%)	2(5.9%)	3(7%)
unnecessary drug therapy/unwanted indication & wrong drug	0	1(2.9%)	1 (2.3%)
unnecessary drug therapy/unwanted indication, wrong drugs, & dosage too low	1(11.1%)	1(2.9%)	2(4.7%)
wrong drugs, dosage too low, dosage too high, & inappropriate compliance	1 (11.1%)	4 (11.8%)	5(11.6%)
inappropriate compliance, adverse drug reactions, & drug interactions	2(22.2%)	3(8.8%)	5(11.6%)
unnecessary drug therapy/unwanted indication, dosage too high, & drug interactions	0	3(8.8%)	8(18.6%)
Total	9	34	43

Table 13: Correlation Analysis between drug therapy problems, standard documentation format and Method used to document pharmaceutical care

	DTPs	SDF	MDP
Drug therapy problems	1.0000		
Standard documentation format	-0.0406	1.000	
Method used to document pharmaceutical care	-0.1460	0.118	1.0000

The above correlation matrix for all variables in the model (Table 13), numbers are Pearson correlation coefficients, go from -1 to 1. Closer to 1 means strong correlation. A negative value indicates an inverse relationship. In this case, there is an increase in drug therapy problem at JFK and ELWA hospital and there is a decrease in standard documentation format and method used to document pharmaceutical care at both hospitals.

Table 14: Description of Drug therapy problems, Standard documentation format, and Method used to document pharmaceutical care by regression analysis model.

Source	SS	df	MS	Number of obs	=	43
				F(2, 40)	=	0.45
Model	9.95039044	2	4.97519522	Prob > F	=	0.6421
Residual	444.328679	40	11.108217	R-squared	=	0.0219
				Adj R-squared	=	-0.0270
Total	454.27907	42	10.8161683	Root MSE	=	3.3329

dtps	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
sdf	-.1052873	.6742406	-0.16	0.877	-1.467978	1.257404
mdpc	-.6694896	.7355581	-0.91	0.368	-2.156108	.8171287
_cons	7.04303	2.19547	3.21	0.003	2.605821	11.48024

In Table 14, the result shows that for each problem increase in the drug therapy, standard documentation format decrease by 0.105 and method used to document pharmaceutical decrease by 0.669.

The t-value test the hypothesis that the coefficient is different from 0. To reject this, you need a t-value greater than 1.96 (at 95% confidence). In this case, standard documentation format and method used to document pharmaceutical care are not statistically significant in drug therapy problems.

Two-tail p-values test the hypothesis that each coefficient is different from 0. To reject this, the p-value must be lower than 0.05. in this case, the standard documentation format and method used to document pharmaceutical care are not statistically significant in drug therapy problems.

Table 15: Perceived Importance of Pharmaceutical Care

Perceived importance of pharmaceutical	Workplace		Total
	ELWA	JFK	
All	1 (11.1%)	16 (47.1%)	17(39.5%)
Legal evidence	0	1(2.9%)	
Research purpose	0	1 (2.9%)	1(2.3%)
None	0	1 (2.9%)	1(2.3%)
Improve desire outcome, reimbursement purposes & legal evidence	0	1 (2.9%)	1(2.3%)
Improve desire outcome, to influence policy, to increase job satisfaction & research	1 (11.1%)	3(8.8%)	4(9.3%)

purposes Improve desire outcome, legal evidence, to improve perception, & research purposes	6(66.7%)	1(2.9%)	7 (16.3%)
Improve desire outcome, to improve perception, to improve patient perception & increase job satisfactionImprove desire outcome	0	1(2.9%)	1(2.3%)
To influence policy & research purposes	0	4 (11.8%)	4(9.3%)
	0	2(5.9%)	2(4.7%)
Improve desire outcome & research purposes			3 (7%)
	0	3(8.8%)	
Total	9	34	43

According to the respondents, documentation of activities of pharmaceutical care is very important as indicated in the table above. Thirty-nine percent (39.5 %) of the respondents recognized the importance of the documentation of PC. All of the perceived importance of PC mentioned in the administered questionnaires, the following were prominent as indicated in the table 15: improve desire outcome, to influence policy, to increase job satisfaction and research purposes, to improve patient perception and to improve perception (16.3% & 9.3% respectively). This showed the practice of pharmaceutical care at the two hospitals is very essential for the improvement of pharmaceutical services rendered to clients and to enhance the quality of the patients' health.

This study sought to identify elements of pharmaceutical care practice at two tertiary hospitals in Liberia. Respondents involved in the study were health professionals who worked at both hospitals. The level of involvement of pharmacy professional in delivering pharmaceutical services is very limited at both facilities. Most of the pharmaceutical service delivered to patients at these health facilities are executed by physicians, physician assistants and nurses. This is probably due to the limitation of pharmacists employed at these health facilities as can be seen in table 2. Particularly, at ELWA, only one licensed pharmacist is employed, and the rest of the pharmaceutical staff are intern students and dispensers. At the JFK hospital, the situation is a bit different. Pharmacists are involved in delivering pharmaceutical services, but at a limited level. These findings are consistent with the result from a previous study which reported the limitation of pharmacists in health facilities in delivering pharmaceutical services to patients/clients (Asmelashe *et al*, 2017).

The findings of the study suggest that there exist semblance of pharmaceutical care activities at both health institutions, but at a minimum level; and there also exist drug therapy problems due to limited practice of pharmaceutical care activities. The respondents acknowledged the importance of pharmaceutical care and its practice at these facilities, and they believe that it can eventually improve the service delivery approach and the quality of life of the patients who are served at such health institutions (Roughead *et al*, 2005). Documentation of interventions of pharmaceutical care at the two hospitals is poor (18.6%), and the methods used in documentation are not relatively standardized (37.2%). The most prominent methods of documenting pharmaceutical care activities are manual recording using papers, and limited use of computers (Ogbonna et al, 2015). As a result of poor interventions and documentations of pharmaceutical are activities (13.9%), there exist drug therapy problems at both hospitals. The most common drug therapy problems that exist in these facilities are, unnecessary drug therapy/unwanted indication, adverse drug reactions, drug interactions, need for additional drugs, dosage too high, dosage too low, wrong drugs, and inappropriate compliance (Ogbonna *et al*, 2015). This finding is consistent with a study by Ogbonna et al (2014) where nonadherence, unnecessary drug and adverse drug reaction were the leading DTPs documented. It is also consistent with the result obtained by Suleiman et al (2012) where unnecessary drug therapy (17%), non-adherence (8.4%) and wrong drug (5.3%) were the highest documented drug therapy problems. There is an increase in drug therapy problem at JFK and ELWA hospital and there is a decrease in standard documentation format and method used to document pharmaceutical care at both hospitals. Majority of these drug therapy

problems are highlighted at JFK as compared to ELWA, even though these drug therapy problems exist at both hospitals.

According to the t-values in table 13, (-0.16, & -0.91), which are less than the p-values (0.877 & 0.368)), the standard documentation format and the method used to document pharmaceutical are not statistically significant in drug therapy problems. This finding is in contrast with Ogbonna et al (2014), in which they concluded that there was statistically significant difference between pharmacists who carry out interventions on the documented DTPs and those who do not intervene. The result shows that for each intervention on the listed drug therapy problem increases by 29% in the documentation of drug therapy problem; it further reviewed that for each increase in the drug therapy problem, standard documentation format decrease by 0.105 and method used to document pharmaceutical decrease by 0.669 (Westberg et al, 2017).

Documentation of activities of pharmaceutical care is very essential, and 39.5% of the respondents recognized the perceived importance of pharmaceutical care activities in delivering pharmaceutical services to patients. This means that the practice of pharmaceutical care and the documentation of interventions of its activities in these two tertiary health facilities are challenges that exist. To improve patients' desired outcomes, the practice of pharmaceutical care and the documentation of its interventions need to be employed by pharmacy professionals in ELWA and JFK, and all other major health facilities in Liberia. In a study conducted by Ogbonna et al (2014), 99.4% of the respondents perceived the importance of pharmaceutical care documentation and believed that it can improve patients' desired outcomes. The assessment of the perceived importance of PC revealed that 16.3% of the respondents believed that improve patient desire outcome, increase job satisfaction, influence policy, improve patient perception, and research purposes are the perceived importance of PC.

5.0 CONCLUSION

The study findings revealed that there are**is** semblance of some elements of pharmaceutical care activities at the both ELWA and JFK hospitals, but **it is limited**~~at a limited level~~. Poor documentations of Pharmaceutical care interventions coupled with primitive methods of recording Pharmaceutical care data are highlighted by respondents.

There exist drug therapy problems at both ELWA and JFK hospitals, and it is believed that the effective practice of pharmaceutical care in these facilities, and the Liberia's healthcare system

can greatly improve the quality of pharmaceutical services and enhance the quality of life and therapeutic outcomes to patients/clients.

REFERENCES

1. Akueyinwa et al, (2014)**, "**Assessment of the Level of Pharmaceutical Care Practice among Community Pharmacists in Enugu State, Nigeria" World Journal of Pharmaceutical Research, Volume 3, Issue 2, 3395-3415
2. Anderson S, 2002, the state of the world's pharmacy: a portrait of the pharmacy profession. J Interprof Care. 2002; 16(4):391–404.
3. Awad A.I., Eltayeb I.B., Matowe L and Thalib L , (2005) Self-medication with Antibiotics and Antimalarial in the community of Khartoum State, Sudan. J Pharm Pharmaceutics Sci 8(2):326-331, 2005.
4. Awad AI, Eltayeb IB, Baraka OZ. Changing antibiotics prescribing practices in health centers of Khartoum State, Sudan. European Journal of Clinical Pharmacology, 3: 1-8, 2006.
5. Berenguer B., Lacasa C., de La Matta M.J and Martin-Calaro M.J. Pharmaceutical care: Past, Present and Future. Journal of Current Pharmaceutical Design, 10: 3931-3946, 2004.
6. Bulajeva A. (2010). Pharmaceutical care services and quality services in community pharmacies; An international study. Master's thesis, University of Helsinki Division of Social Pharmacy. 2010; pp: 66-67.
7. Calvin H. Knowlton and Richard P. Penna. Pharmaceutical care.2nd edition. PA: Chapman & Hall, New York, 2003.
8. Canday B and Yarborough P. (1994). Documenting pharmaceutical care: creating a standard. NCBI Resources, 1994; 1292-1296. 7.
9. Chisholm et al. (2010) "Pharmacist's effect as team members on patient care: systematic review and meta-analyses": "pharmacists provided direct patient care has favorable effects across various patient outcomes, health care settings, and disease states
10. Cipolle RJ, Strand LM and Morley PC (1998). Pharmaceutical care practice. McGrawHill, NY, 1998; 76-83.
11. Eades CE, Ferguson JS, O'Carroll RE. Public health in community pharmacy: a systematic review of pharmacist and consumer views. BMC Public Health. 2011;11: 582. doi: 10.1186/1471-2458-11-582
12. El Hajj MS, Al-saeed HS, Khaja M, (2016), Qatar pharmacists' understanding, attitudes, practice and perceived barriers related to providing pharmaceutical care. Int J Clin Pharm. 2016;38(2):330–343.
13. Eltayeb I.B., Awad A.I., Mohamed-Salih M.S., Daffa-Alla, M.A., Ahmed M.B., Ogail, M.A., Matowe L. Changing the prescribing patterns of sexually transmitted infections in the White Nile Region of Sudan. Sex Transm Infect 81 (5): 426-427, 2005.

14. Farris KB, Fernandez-Llimos F, Benrimoj SI. Pharmaceutical care in community pharmacies: Practice and research from around the world. Ann Pharmacotherapy 39:1539-1541, 2005.
15. Franklin BD, van Mil JW. Defining clinical pharmacy and pharmaceutical care, Pharm World Sci 27, 137, 2005
16. Hepler, C.D. and Strand, L.M. (1990), "Opportunities and Responsibilities in Pharmaceutical Care," *Am. J. Hosp. Pharm.,* 47, 533- 543(1990).
17. International Pharmaceutical Federation. Good pharmacy practice (GGP) in developing countries: Recommendations for step-wise implementation. Available at URL: http://213.206.88.26/www2/pdf/gpp/GPP_CPS_Report.pdf
18. Kokane JV, Avhad PS. Role of pharmacist in health care system. J Community Health Management. 2016;3(1):37–40.
19. Linda MS, Cipolle RJ, Morley PC and Frakes MJ. (2004). The impact of pharmaceutical care practice on the practitioner and the patient in the ambulatory practice setting: twenty five years of experience. Current pharmaceutical design. 2004; Pg 3987-4001.
20. Luisetto et al: Pharmacist Cognitive Service and Pharmaceutical Care: Today and Tomorrow Outlook UKJPB 2015 Vol 3 (6) 67-72
21. M. Luisetto, B. Nili-Ahmadabadi, L. Cabianca, M. Ibne Mokbul, Steps and Impacts of Pharmaceutical Care and Clinical Pharmacy Development on Clinical Outcomes 2016: A Historical Analysis Compared with Results, Clinicians Teamwork, 2016, 1:4-8
22. Ogbonna et al, (2019) "Pharmaceutical Care Activities in Nigeria from 1970 to 2018: A Narrative Review" Ecronicon open access, EC Pharmacology and Toxicology Review Article
23. Oliveira DR, Shoemaker SJ. Achieving patient centeredness in pharmacy practice: openness and the pharmacist's natural attitude. J Am Pharm Assoc. 2006; 46(1):56–66.
24. Okonta J., Eleje O. and Ofoegbu C. (2012). Barriers to Implementation of pharmaceutical care by pharmacists in Nsukka and Enugu metropolis of Enugu state. Journal of Basic and Clinical pharmacy. March 2012-May 2012; 3(2): 295-298.
25. Oparah A C. Pharmaceutical Care: The Right of the Patient. West Afr J of Pharm 2004;18(1):11-17
26. Oparah CA, Eferakeya AE. Attitude of Nigerian pharmacists towards pharmaceutical care. Pharm World Sci. 2005;27(3):208-14
27. Rossing C, Hansen EH, Traulsen JM, Krass I. Actual and perceived provision of pharmaceutical care in Danish community pharmacies: the pharmacists' opinions. Pharm World Sci. 2005;27(3):175–181
28. Roughead EE, Semple SJ and Vitry AI Pharmaceutical care services: a systematic review of published studies, 1990 to 2003, examining effectiveness in improving patient outcomes. IJPP, 13: 53-70, 2005
29. Sarpong K (2004). Thrust of 21st Century Practice of Pharmacy in West African Sub-Region. West Africa Journal of Pharmacy 2004; 18(1):3-10
30. Todd A, Copeland A, Husband A, Kasim A, Bambra C. The positive pharmacy care law: an area-level analysis of the relationship between community pharmacy distribution,

urbanity and social deprivation in England. BMJ Open. 2014;4(8):e005764. doi: 10.1136/bmjopen-2014-005764

31. Westberg, S *et al*, 2018 “Drug Therapy Problems Identified by Pharmacists Through Comprehensive Medication Management Following Hospital Discharge” J Pharm Technol. 2017 Jun; 33(3): 96–107. 10.1177/8755122517698975