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Original Article

Analysis of Strengths, Weaknesses, Opportunities and Threats of Clinical Pharmacy Services at National cancer Institute-Sudan

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Abstract

Background: Pharmaceutical care services are focused on the patient and aim to improve rational medication usage potentially enhancing therapeutic effects in each specific patient and having a good effect on patients' outcome. The service is in infancy in Sudan, and there is a dearth of impartial evidence of its strengths, weaknesses, opportunities, and threats. As a result, the objective of Sudan's first attempt was to conduct a situational analysis of clinical pharmacy services at the National Cancer Institute (NCI) using the strengths, weaknesses, opportunities and threats framework (SWOT).

Methods: A qualitative study was performed at the NCI from the 1st to the 30th of March, 2021. An in-depth interview was designed, semi-structured interviewing guide was adopted to investigate participants views on clinical pharmacy services; the data was then analyzed after categorizing all responses from participants using statistical package for social sciences (SPSS).

Results: The existence of established clinical pharmacy services in the institute, as well as the managers' interest and willingness to support and assist the services, and a good collaborative working relationship between pharmacists and physicians, were identified as major strengths. Whereas the lack of adequate facilities and equipment, as well as hospital management's weak evaluation mechanism, were identified as major weaknesses. Aside from these internal factors, , all Sudanese hospitals were selected as having potential due to a rise in the number of qualifying clinical pharmacists and because the country has clinical pharmacy postgraduate programs, which considered the opportunities of implementing clinical pharmacy services. However, a threat arose from the responsible body's inadequate coverage of the service's promotion.

Conclusion: The analysis revealed that clinical pharmacy services at the studied hospital had roughly 11 constraints (weaknesses and threats). To strengthen the services, the hospital intends to extend and implement the services across all wards, as well as to support clinical pharmacy experience exchange programs with other model hospitals.

Keywords

Clinical pharmacy services; SWOT analysis; National Cancer Institute

1 Introduction

Pharmaceutical service plays a vital role in the delivery of healthcare services. Beneficial pharmaceutical services encouraged safe, logical, and use at a low cost of medications, improving the patient's health benefits [1]. A pharmaceutical service that is well-organized guarantees that all drugs required for patient care are always available. Clinical pharmacy necessitates a thorough awareness of therapeutics, as well as a thorough comprehension of disease processes and pharmaceutical products. It also necessitates good communication skills, as well as a thorough understanding of medical terminology, drug monitoring abilities, the capacity to provide medication information, treatment planning abilities, and the capacity to evaluate and interpret the laboratory and physical findings [2].

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Numerous studies have shown that clinical pharmacy services have a beneficial effect on medical, economic, and humanistic results [1,3].

A variety of strategies can be utilized to determine where changes in health care organizations are needed. One critical technique is a review of an organization's strengths, weaknesses, opportunities, and threats, known colloquially as a SWOT analysis [4]. SWOT analysis is a decision-making a tool that was adopted in the early stages of making a decision [5].

Clinical pharmacists collaborate with physician teams and other healthcare professionals to improve treatment plans, optimize medication utilization practices, and avoid drug-related issues such as drug interactions, polypharmacy, adverse drug reactions, and cost-effective solutions [6].

Oncology pharmacists, often known as oncology pharmacy specialists (OPSs), work in cancer care facilities and are experts in anticancer drugs and their involvement in cancer treatment. OPS, as a vital member of the interdisciplinary team, maximizes the benefits of drug therapy, helps to prevent toxicities, and collaborates with patients on supportive care concerns, as well as sticking to chemotherapy treatment regimens, which is critical for optimal treatment and results [7].

As a result, evaluating the service's strengths, weaknesses, opportunities, and threats is critical to make greater progress in areas where gaps have been identified, as well as to reinforcing areas where it has succeeded. As a result, the objective of this research was to conduct a situational evaluation of clinical pharmacy services using the SWOT framework at the National Cancer Institute, Wad-Madani, Gezira State- Sudan.

2 Methods

A qualitative cross-sectional study was conducted at the National Cancer Institute, University of Gezira, Sudan from the 1st to the 30th of March, 2021. The institute offers both diagnostic and therapeutic services, as well as illness prevention and control. The presence of clinical pharmacy services for cancer patients at the NCI is critical for optimal treatment and outcomes. To collect data from all health care providers on the wards, a thorough interview with open-ended questions was created. A Semi-structured interview was developed to elicit participant's perspectives on the state of clinical pharmacy services, internal variables (strength and weakness); external factors (opportunities and threats) were discussed. Following a review of the literature, the interview guide was created [8-10]. The interview guide was written entirely in English. Two clinical pharmacist specialists gathered the information. The average time of the interview was 20 minutes and the responses were all categorized in order to identify relevant topics, and then analyzed using a statistical package for social sciences (SPSS) version 25.

Ethical approval was obtained from Research Ethical Committee of the Health Sector, University of Gezira (REC-HS 3/20). Also, before starting the interview, all participants signed a formal consent form. Data confidentiality and anonymity were ensured throughout the data collection and analysis phases.

3 Results

Demographic characteristics of participants

All health-care providers were interviewed (68 participants). Females were 66.2%. The nurses represent 41.2% of the participants. For educational level, 48.5% of participants having a bachelor's degree and 44.1% have an experience of 5 to 10 years (Table 1).

Regarding the advantages of clinical pharmacist presence, 34% of participants thought it was advantageous, was providing services for patients and lecture notes for doctors, while 16% agreed that; clinical pharmacists detect ADRs and DRPs and 24% of them considered the clinical pharmacist role was medication consultation whereas the other participants dealt with many benefits of clinical pharmacists including (determination and revision of chemotherapy dose, preparation of chemotherapy, patients counseling and help in alternative selection) (Figure 1).

Regarding the clinical pharmacy service's strengths, (48.5%) of respondents agreed that clinical pharmacists reduce health care costs by using alternatives with the same efficacy but lower cost and there was good collaboration between clinical pharmacists and physicians (83.8%) (Table 2).

The weaknesses that affect the current performance of clinical pharmacy service at NCI is not more than 70% of health care providers involved in this study agreed with the unavailability of clinical pharmacists on a full-time basis this is due to 45.6% of participants agreed with weak evaluation mechanisms for clinical pharmacists and, 54.4% of respondents agreed with the absence of CPs in the ward, 80% of respondents agreed with the lack of clearly defined roles and responsibilities and the majority of participants (86.8%) considered that there was no pharmaceutical documentation (Table 3).

Regarding opportunities of the current performance of clinical pharmacy service; almost half of the participants (55.9%) agreed with the good experience of clinical pharmacists, 25% thought that clinical pharmacists were available using the telephone, (91.2%) of the participants accepted the role of clinical pharmacist also (85.3%) agreed with the presence of good working environment and the good team spirit inside the institute (97.1%) (Table 4).

The threats to the current performance of clinical pharmacy service; (95%) of respondents agreed with the shortage of clinical pharmacists, 75% of participants agreed with the lack of standard operating procedures for pharmacists, 92.6% considered that the pharmaceutical care system was unavailable and there was no follow up from responsible bodies (Table 5).

Table 1: Participants' demographic characteristics.

Variable	Frequency	Percentage (%)
Gender		
Female	45	66.2
Male	23	33.8
Age		
<25 Year	2	2.9
25-35 year	49	72.1
>35 year	17	25
Profession		
Doctors	22	32.4
Clinical Pharmacists/ Pharmacists	8	11.8
Nurses	28	41.2
Psychologists	6	8.8
Nutritionists	4	5.9
Qualifications		
Diploma	11	16.2
Bachelor	33	48.5
Degree of Philosophy	3	4.4
Degree of Master	13	19.1
Doctor of Medicine/ fellowship	8	11.8
Years of experience		
< 5 Years	22	32.4
5- 10 Years	30	44.1
11-15 Years	6	8.8
>15 Years	10	14.7

SWOT analysis

Benefits of the clinical pharmacist

Table 2: Strengths of the clinical pharmacy service at NCI.

Strength	F (%)
Clinical Pharmacist responsible for drug management	47 (69.1%)
Manager support	23 (31.8%)
Pharmacy service covering specific units	28 (41%)
Role of clinical pharmacist on drug alternatives	33 (48.5%)
Good collaboration between clinical pharmacist and doctors.	57 (83.8%)

Table 3: Weaknesses of the clinical pharmacy service at NCI.

Weakness	**F (%)**
Service on a full-time basis is not available	48 (70.6%)
Weak evaluation mechanisms for clinical pharmacists	31 (45.6%)
Absence of a clinical pharmacist in the ward	37 (54.4%)
Absence of documentation system for clinical pharmacist	64 (94.2%)
Lack of clearly defined roles and responsibilities	54 (79.4%)
Salary and incentives are not enough	48 (70.6%)

Table 4: Opportunities of clinical pharmacy service.

Opportunity	**F (%)**
Good experience of clinical pharmacist	38 (55.9%)
Clinical pharmacy service available using telephone	17 (25%)
Acceptance of clinical pharmacist role	62 (91.2%)
Good working environment	58 (85.3%)
Good team spirit	66 (97.1%)
Increasing number of postgraduate programs for clinical pharmacy	36 (52.9%)

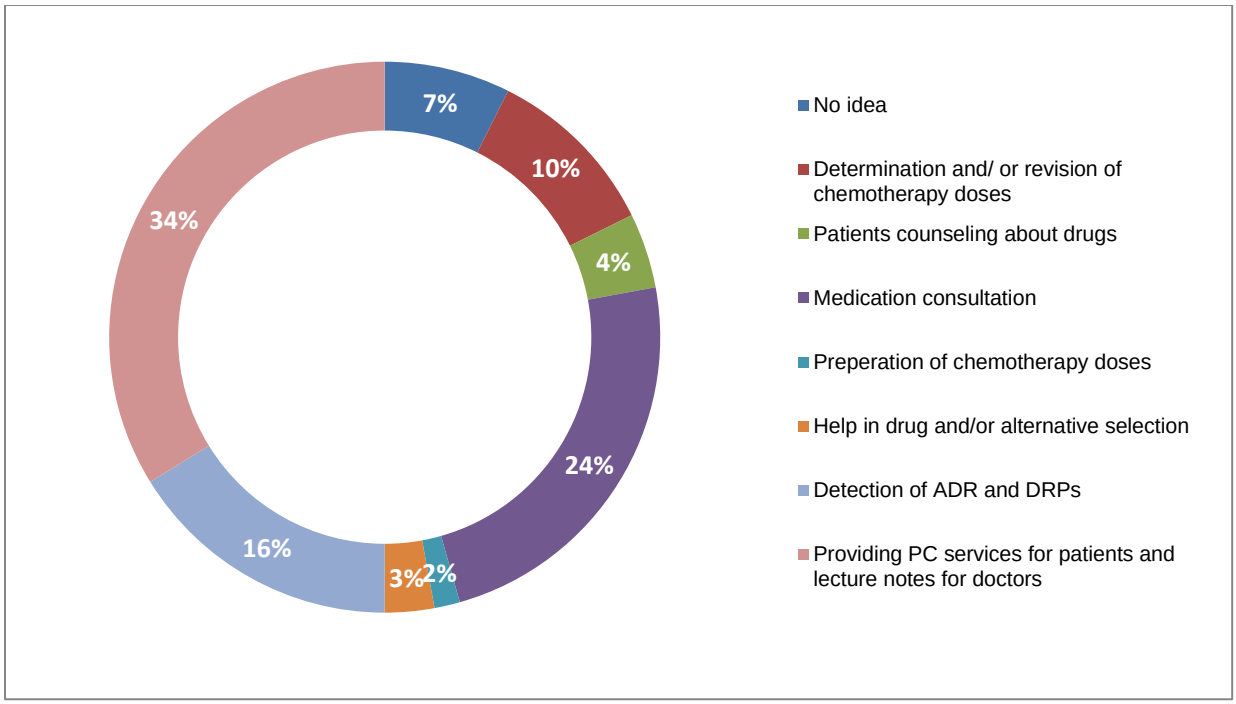

Figure (1): Knowledge of HCPs about the benefits of the presence of the clinical pharmacists (n=68).

Table 5: Threats of the clinical pharmacy service.

Threat	**F (%)**
Shortage of the clinical pharmacists	62 (95.6%)
Lack of standard operating measures for clinical pharmacist	51 (75%)
Unavailability of pharmaceutical care system	63 (92.6%)
No follow-up of clinical pharmacist from responsible bodies	37 (54.4%)
Unavailability of jobs	49 (72.1%)

The cross-tabulation between the SWOT analysis and the profession of participants revealed; the strength points of the clinical pharmacy services at the institute are; manager support (p-value=0.048), role of clinical pharmacist on drug alternatives (p-value= 0.036) and good collaboration between clinical pharmacist and doctors (p-value= 0.010). The weaknesses of the services are; service on a full-time basis is not available (p-value= 0.002), weak evaluation mechanisms for clinical pharmacists (p-value= 0.013) and lack of clearly defined roles and responsibilities (p-value= 0.025). The opportunities for good clinical pharmacy services are; increasing number of postgraduate programs for clinical pharmacy (p- value= 0.009), good working environment (p-value= 0.001) good experience of clinical pharmacist (p-value= 0.025) and the clinical pharmacy service available using telephone (p-value= 0.002). the threats of the clinical pharmacy services are; shortage of the clinical pharmacists (p-value= 0.027) and no follow-up of clinical pharmacist from responsible bodies (p-value= 0.001) (Table 6).

Table 6: Cross-tabulation between SWOT and the profession of participants.

Cross- tabulation between strengths and the profession of participants.	**p- value***
Clinical Pharmacist responsible for drug management	0.362
Manager support	**0.048**
Pharmacy service covering specific units	0.374
Role of clinical pharmacist on drug alternatives	**0.036**
Good collaboration between clinical pharmacist and doctors.	**0.010**
Cross- tabulation between weaknesses and the profession of participants.	**-**

Service on a full-time basis is not available	**0.002**
Weak evaluation mechanisms for clinical pharmacists	**0.013**
Absence of a clinical pharmacist in the ward	0.885
Absence of documentation system for clinical pharmacist	0.797
Lack of clearly defined roles and responsibilities	**0.025**
Salary and incentives are not enough	0.272
Cross- tabulation between opportunities and the profession of participants.	-
Good experience of clinical pharmacist	**0.025**
Clinical pharmacy service available using telephone	**0.002**
Acceptance of clinical pharmacist role	0.872
Good working environment	**0.000**
Good team spirit	0.366
Increasing number of postgraduate programs for clinical pharmacy	**0.009**
Cross- tabulation between threats and the profession of participants.	**-**
Shortage of the clinical pharmacists	**0.027**
Lack of standard operating measures for clinical pharmacist	0.287
Unavailability of pharmaceutical care system	0.928
No follow-up of clinical pharmacist from responsible bodies	**0.001**
Unavailability of jobs	0.272

(*p- value<0.05 is a statistically significant)

4 Discussion

This research aimed to identify the strengths, weaknesses, opportunities and threats of clinical pharmacy services at the NCI-U of G. All health care providers were interviewed (68 participants). Females were 66.2% and 33.8% of them were male, which was similar to the findings of a similar study performed in Ethiopia, which revealed that females were 55% (11), also similar study conducted in Kuwait revealed that 50.8 % of participants were female and 49.2% were male [10].

There were around 75% who were under the age of 35, which is related to the youthful age predominance to the age of the service itself. This was near to the findings of a similar study conducted in Ethiopia which showed that about 90% were less than 35 years old [11] and another study conducted in Kuwait revealed that the mean (SD) age of the study participants was 38.8 years [10].

Regarding the profession of health care providers; about two-thirds were physicians and nurses (32%, 41%) respectively, also similar to similar Ethiopian study which revealed that the profession of the participants were physicians (41%) and nurses (46%) [11].

Considering years of experience (44%) had 5-10 years' experience, It suggested that clinical pharmacy services at the NCI are in their development phase, this finding was consistent with a previous Ethiopian study, which indicated that almost two-thirds of the participants had more than two years of expertise (11), Also, a study performed in Kuwait found that the average years of experience as practitioners was 14.7 years. [11].

Regarding benefits of the presence of clinical pharmacists 34% of participants were providing services for patients and lecture notes for doctors, while 16% agreed that; clinical pharmacists detect ADRs and DRPs and 24% of them considered the clinical pharmacist role was medication consultation. In similar studies, the participants considered the role of clinical pharmacist to involve providing services for patients and lecture notes for doctors, medication consultation and detection of ADR and DDI and other services, these findings agreed with the finding of similar study conducted in Ethiopia [11] and cross-sectional study in Pakistan [12].

All of the respondents agreed that there aren't enough clinical pharmacists working at the hospital to deliver the services that are needed. In a similarly research done in Pakistan, has found that there is a shortage of hospital pharmacists, which makes the implementing of clinical pharmacy services were difficult [13]. According to a more recent study from developing countries, increased clinical pharmacist personnel has been demonstrated to result in improved patient outcomes through engaging in pharmaceutical safety initiatives in hospitals [14].

The hospital pharmacy at the NCI gives clinical pharmacy services limited to medical wards and chemotherapy unit. The services were started in adults ward but due to obstacles it stopped.

Regarding the clinical pharmacy services in the hospital, key informants identified several weaknesses: There is no full-time service, clinical pharmacists have weak assessment procedures, there is absence of clinical pharmacist on the ward, there is no clinical pharmacist documentation system, there are no clearly defined

responsibilities and salaries are inadequate. This hypothesis is supported by additional evidence. However, there is a lack of understanding about how pharmaceutical care services are implemented and used in developing countries. Pharmacist attitudes, a lack of skills in pharmacists, and educational impediments were discovered to be barriers to pharmaceutical care implementation [15].

The good working environment in the institute and good team spirit were a good opportunity to establish a pharmaceutical care system which means that are good communication skills and collaboration between pharmacists and other health care providers. In a comparable study, all key informants other than clinical pharmacists cited a lack of communication skills as the primary reason for the clinical pharmacy services provided by the hospital is limited. Poor communication skills are also a concern for clinical pharmacists, according to data. It's a major problem in patient-centered care since poor communication skills make it impossible to convey information and establish a trusted as well as a continuing relationship with patients and health-care workers. Because of communication hurdles between pharmacists and physicians, the two professions collaborate less [16]. Lack of standard operating measures for clinical pharmacist, unavailability of the pharmaceutical care system and unavailability of jobs were most threats of the service.

According to the perception of the health care providers participating in the study; manager support and the good collaboration between clinical pharmacists and doctors are statistically significant as a strength points (p- value <0.05), and this should be taken into account for good practicing and expanding the clinical pharmacy services at the institute. The lack of full-time service (p-value= 0.002), the inadequate clinical pharmacist evaluation mechanisms (p-value= 0.013), and the absence of duties and responsibilities that are clearly specified (p-value= 0.025) are the services' weaknesses. The pharmacy department of the institute should correctly handle and manage these issues.

The increasing number of postgraduate programs for clinical pharmacy (p- value= 0.009), good working environment (p-value= 0.001) good experience of clinical pharmacist (p-value= 0.025) and the clinical pharmacy service available using telephone (p-value= 0.002) are the opportunities for good clinical pharmacy services should be utilized very well. The government should increase the number of clinical pharmacists in hospitals and create a system for monitoring the clinical pharmacy services because there is a shortage of clinical pharmacists (p-value= 0.027) and no follow-up of clinical pharmacists from responsible authorities (p-value= 0.001).

5 Conclusion

The availability of a clinical pharmacy service at the hospital, the managers' interest and willingness to support and assist the services, as well as a good collaborative working relationship between pharmacists and physicians, were identified as major strengths, while a hospital management's evaluation mechanism is weak, was identified as the main weakness of the hospital's pharmaceutical care service. Aside from these internal variables, an increasing number of graduating clinical pharmacists, as well as the availability of postgraduate clinical pharmacy programs in the country, were highlighted as opportunities for the institute. On the other side, the responsible organization's lack of coverage of the service's advertising constituted a threat. To strengthen clinical pharmacy services in its own hospital, the hospital should establish systems and procedures to guide the service's implementation, and facilitate interactive training programs with other model hospitals throughout clinical pharmacy services.

Abbreviations

SWOT: Strengths, weaknesses, opportunities and threats.

NCI-U of G: National cancer institute- university of gezira.

DRPs: Drug related problems.

ADRs: Adverse drug reactions.

CPs: Clinical pharmacists.

OPSs: Oncology pharmacist specialists.

HCPs: Health care providers.

DDIs: Drug drug interactions.

SPSS: Statistical package for social sciences.

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The authors declare that they have no conflicts of interest in this work.

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