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PHARMACEUTICAL SERVICES SUSTAINABILITY THROUGH WORKFORCE SUPPORT DEVELOPMENT

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ABSTRACT

The healthcare services have witnessed increasing fulfilling roles and responsibility in pharmaceutical services, especially in improving access and appropriate use of medicines. Currently, The current Pharmacists role of multidiscipline healthcare, adequate workforce is required to enable improved health. Researches on support workforce development are limited hence this investigation on the development of a viable pharmacy support workforce in Nigerian. The objectives of the study is to understand the rationale for human resources management and identify caps in workforce training and development. Descriptive survey of 125 pharmacists were sampled with the aid of a pretested semi-structured questionnaire. The questionnaire comprises three main sections in line the study objectives and designed using simple statements on Likert-type scale having weighting scores of 0-4. Data collected were analyzed using descriptive and inferential statistics at 5% level of significance. The respondents agrees with the statement measuring the concept of Human resources management with a Mean weighted average(MWA) of 33.97 for knowledge, 27.0 for attitude and 27.7 for human resources practices. There were clear indications that shortages of health workers being a critical challenges to pharmacy practice with necessity to build reputable workforce training and development to promote sustainable practice.

KEYWORDS: Pharmaceutical Sustainability, Support Workforce, Pharmacy technicians, Auxiliary nurses.

INTRODUCTION

The healthcare services have witnessed increasing fulfilling roles and responsibility in pharmaceutical services, especially for improving access and the appropriate use of medicines.[1] Pharmacists have the professional responsibility in the healthcare team to ensure optimal medication therapy outcomes to all citizens at the community and institutional levels in conformity with the World Health Organization (WHO) recommendation on expanded scope of practice to function as caregivers, decision-makers, communicators, managers, life-long learners, teachers, leaders, and researchers. These roles include pharmacy-based preventative care, Medication therapy management (MTM), adherence counseling, blood pressure and glucose level tracking and monitoring. Pharmacists are further expected to work effectively within a multi-disciplinary team of healthcare providers and are required to provide patient-centered pharmaceutical services at the patients' bedside.[2] The Sustainable Development Goals (SDGs) objective of ending poverty and ensuring prosperity for all, linked health outcome to increasing health and wellbeing and provided the focus for health improvement through improving access to safe, effective and affordable essential medicine and vaccines for all.[3]

The pharmacy workforce has a role to play in dealing with the pressure of the realization of the SDGs. The current roles of multidiscipline pharmacy healthcare requires advanced workforce planning and training to package the expertise and skill that will enable improved health.[4] In the past few decades, the profession of pharmacy has witnessed the enhancement of the patient-centered clinical roles that have impacted significant life saving benefits to millions of lives with proven cost savings positive return on investment.[2]

Increase in urbanization in middle income countries and ageing population in many high-income countries has produced increase demand on health services with corresponding increase in the demand on the pharmacy workforce.[3] African countries are observed to lack the

availability of adequate pharmacies and pharmacists which have implications on access to medicines.[4]

Proportion of pharmacists in active practice is reported to be lower than 55% which has significant implication on workforce planning.[5] Density of pharmacy technicians per 10,000 population ranged from .005% (Chad) to 9.4% (Turkey) while in Nigeria, 85% of pharmacy workforce are pharmacy technicians and other support group.[4] It is reported that the Nigerian pharmacist support workforce in 2013 is 10240 in a country of 179 million.[6]

Understanding of Pharmacy support workforce will be a beneficial impetus that will assist healthcare system to enhance the achievement of the universal health coverage.[3] In all the significant progress achieved in addressing the medicine access, inadequacies continues through the lack of sufficient human resources to provide pharmaceutical services. This has contributed to the utilization of pharmacy technicians and other pharmacy support workforce to ensure basic services.[6]

Pharmacy technicians and other pharmacy support workforce are employed daily to allow delivery of greater range of complex pharmaceutical services through supervision by pharmacists directly or by delegation[3], especially in the rural area where the ratio of pharmacists stand at 89% for Urban and 10% for rural.[6]

The supplementation of the pharmacy workforce with pharmacy technicians and other pharmacy support cadre must by implication be under strategic supervision which varies from country to country. High-income countries with well-developed health system have strong regulatory systems and sufficient number of pharmacists to deliver pharmaceutical services.[3] Others may have pharmacy support groups supervised mechanism, or unsupervised in a regulated environment. The guideline for quality supervision of pharmacy technician and other pharmacy support workforce will be an advantage to the pharmacy workforce especially in Nigeria. The right legislature and competence maintained will provide the value-added required service provision. It is expected in countries experiencing shortages of pharmaceutical workforce to ensure accountability and patient protection in health services to provide insight into pharmacy support workforce and improve patient care.[3] The Workforce planning needs to focus both on recruitment and retention.[7] Moreover, the development must focus on E-learning tools that can support curriculum development, course scheduling and management in ways that are conducive to blended learning approaches and take advantage of multiple learning environments. Such tools can also be linked with national health professional registration and licensure systems, as well as with health workforce planning, management and in-service training systems, to provide information and support to the health workforce throughout the health worker lifecycle.[8]

METHODS

Conceptual Framework

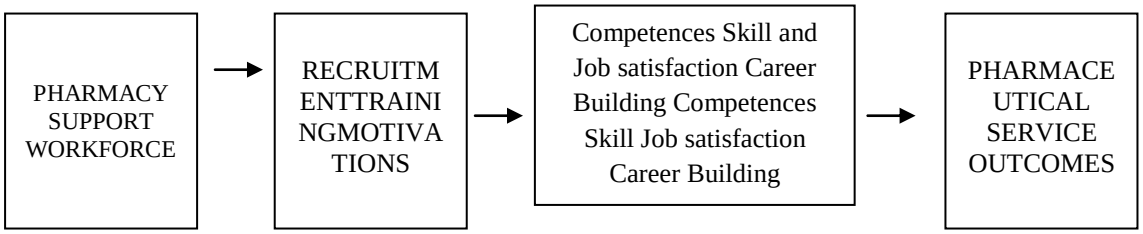

Fig 1: Conceptual framework.

Study Setting

The study was carried out in Nigeria with data collection at the conference of the Pharmaceutical Society of Nigeria (PSN) held in November 2022 at Jos, Plateau State Nigeria.

Study population

Descriptive survey of 125 pharmacists at a plenary session attending an annual conference of the pharmaceutical society of Nigeria (PSN) was sampled.

Sample Size

Sample size using Taro Yamane's formula for finite population calculated with a confidence interval of 95% was used to determine sample size.

$$n = \frac{N}{1 + Ne^2}$$

n – sample size
N - population size
e – margin of error
* 95% confidence level and e = 0.05,
Pharmacists attending the conference registered at the plenery session where the data collection was done is considered the Population size = 120
n = sample size, N= Population size, e = the acceptable sample error.
= 120/1+ 120(0.05)^2 = 120/1+ (120 x 0.0025) = 120/ 1 + 0.3 = 92.307 = 92 pharmacists. Add 15%, 92 x 15/100 = 106 = approximately 106 pharmacists.

Inclusion/ Exclusion criteria

All the pharmacists present at the plenary session of the conference at the collection of data were included in the study.

Instrument used

Primary data employed in this study were collected with the aid of a pretested semi-structured questionnaire. The questionnaire comprises of four sections. The section A consists of items seeking to obtain demographic information about the pharmacists. The section B addressed the Concepts of Human Resources Management, the section C addressed the Attitude oF pharmacists to Human Resources Management while section D addressed the Human Resources Management Practices of pharmacists. The sections are designed using simple statements on Likert-type scale with five alternative responses having weighting scores of 0-4. Data collected were analyzed using descriptive and inferential statistics at 5% level of significance.

Validity and reliability of instrument

This was achieved by adapting model(s) from literature and seeking judgment of experts (senior academicians) in the field. Cronbach alpha values (Appendix 1) were then computed to determine the internal consistency of the items in each section of the instrument with section on the knowledge, skill and competencies giving Cronbach alpha values.

Ethical approval

Ethical approval required obtained by the consent of the pharmaceutical society to collect data during the conference and participants consent determined by the return of questionnaire indicative of acceptance of participation in the study.

Methods of Data Analysis

The questionnaires were manually checked for accuracy of the data, and then analyzed using the Statistical Package for Social Sciences (SPSS) version 23.0 for Windows (SPSS, Chicago, Illinois). The analysis included frequencies of discrete variables. Section B which deals with the concept of Human resources comprise of 7 items with responses of "strongly disagree", "disagree", "agree" and "strongly agree" with weighing scores of 1, 2, 3 and 4 respectively are taken to imply "nil", "little", "moderate" and "high" level of concepts respectively. The method employed given that the Seven (7) items used to assess the concept of Human Resources management the highest obtainable score is 28 (all 4s were "strongly agree" responses) and the lowest obtainable score is 0(all 0s were neutral responses).1-9 indicates low knowledge, 10-19 average knowledge while above 28 indicates high knowledge.

Section C which deals with the Attitude of pharmacists to Human resources management comprise of 9 items with responses of "strongly disagree", "disagree", "agree" and "strongly agree" with weighing scores of 1, 2, 3 and 4 respectively are taken to imply "nil", "little", "moderate" and "high" level of concepts respectively. The method employed given that the Nine (9) items used to assess the Attitude to Human Resources management the highest obtainable score is 36 (all 4s were "strongly agree" responses) and the lowest obtainable score is 0(all 0s were neutral responses). Respondents were divided into four categories based on aggregate scores. Scores of 0 - 18, were taken to indicate negative attitude while aggregate scores of 19-36 were taken to imply positive attitude.

Section D which deals with Human Resources Management Practices comprise of 10 items with responses of "Rarely", "Sometimes", "Often" and "Always" with weighing scores of 1, 2, 3 and 4 respectively are taken to imply "nil", "little", "moderate" and "high" level of practices respectively. The method employed given that the Seventeen (17) items used to assess the Human Resources management practices the highest obtainable score is 68 (all 4s were "strongly agree" responses) and the lowest obtainable score is 0(all 0s were neutral responses).

Weighted average calculations

Weighted average is the varying degrees of the importance of the despondences' responses of numbers in the dataset and is more accurate than a simple average (Ighorodje and Ola-Olorun 2022). It is calculated with the formula thus:

$$WA = \frac{\text{fsd.xsd} + \text{fd.xd} + \text{fa.xa} + \text{fsa.xsa}}{\text{xsd} + \text{xd} + \text{xa} + \text{xsa}}$$

Where f= the frequency value, x = the score value.sd= Strongly agree, d= Disagree, a= Agree, sa= Strongly agree. While for practices sd – Rarely, d= sometimes, a=often while sa= always.

Data obtained for this section were analysed using median statistic for the individual items. Inferential statistics of selected variables SPSS (v. 23) was used to run chi-square tests of association for the selected variables.

RESULTS

Table 1 shows the computed response rate. The total number of 112 questionnaires retrieved from the 120 distributed to the 120 surveyed pharmacists present at the plenary session of the conference with a surveyed population of 120 computing a response rate of 93%. The reliability coefficient value of 0.86 was computed for the pretest while the teat of internal consistency for the questionnaire gave a Cronbach;s Alpha value of 0.97.

Table 1: Response analysis of sampled pharmacists.

No of Population	Calculated sample	No questionnaire administered	No of questionnaire returned	Response rate %
120	106	120	112	93

Table 2 shows the demographic profile of the respondents. The survey shows that majority 62(55.4%) are males with modal age of 30-39 years in a bell-shaped age distribution. The respondent spread indicated a workforce with majority 57(54.3%) in the hospital setting, 23(21.9%) in community pharmacy practice, 11(10.5%) in academia, Administration 9(8.6%) while the industry with a trivial portion of 5(4.8%). Majority 62(55.4%) of the participants were males.

Majority 74(66.7%) possessed the first degree of B.Pharm/Pharm.D as highest educational qualification, few 31(27.9%) second degree of M.Sc while 4(3.6%) a professional degree of MBA. Trivial 2(1.8) portion possessed the Ph.D. Greater portion of the respondents are full time pharmacists with 48(46.6%) being superintendent pharmacists with 33(30.0%) modal years of experience of less than 4 years. However 11(10%) have experience more than 30 years.

Table 2: Demographic characteristics of pharmacists.

Variables	Category	Frequency	Percentage
Pharmacists			
	Hospital	57	54.3
	Community	23	21.9
	NAPA	11	10.5
	Administration	9	8.6
	Industry	5	4.8
	Total	105	100
Sex	Male	62	55.4
	Female	49	43.8
	Total	111	
Age(years)	less than 20	1	.9
	20-29	19	17.1
	30-39	46	41.4
	40-49	21	18.9
	50-59	20	18.0
	60-100	4	3.6
	Total	111	100.0
Qualification(s) possessed.	B.Pharm/B.Sc	64	57.7
	Pharm D	10	9.0
	M.Sc/M.Phil	31	27.9
	MBA	4	3.6
	P h D	2	1.8
	Total	111	100.0
Fellow of Postgraduate College of Pharmacists	Non Fellow	75	72.8
	Fellow	27	26.2
	Total	92	100
Job Status:	Locum	18	17.3
	Full time	84	80.8
	Total	104	100.0
Are you the superintendent pharmacist?	No	51	49.5
	Yes	48	46.6
	Total	103	100
How many years have you been in practice?	4 and below	33	30.0
	5-10	24	21.8
	11-15	15	13.6
	16-20	10	9.1
	21-25	7	6.4
	26-30	8	7.3

	above30	11	10.0
	Total	110	100

Table 3 shows the knowledge of concept of Human Resources Management by pharmacists. The knowledge of concept of human resources management with a Mean weighted average (MWA) of 33.97 is indicative of a high knowledge. The concept is precipitated with the high value of integrating the needs of the organization with the needs of the employees. The management necessity to device ways of retaining qualified practitioners with appropriate human resources availability to help organization to meet their goals becomes imperative. Human resources management involves the motivation of employees for high performance that will provide strategies that enables interactions between organizational goals and the people planning activities that comes from management treating the employees as problems and cost rather than resources.

Table 3: Knowledge of concept of Human Resources Management.

Variables	X	N0	SD 1	D 2	A 3	SA 4	Mdn	WA
Approach managing people is to treat to treat them as problem and cost rather than resources	f(%)	9(8.2)	62(56.4)	14(12.7)	16(14.5)	9(8.2)	1	17.4
HRM is an approach that seeks to integrate the needs of the organization with the needs of the the employees	f(%)	2(1.8)	1(0.9)	1(0.9)	34(31.2)	71(65.1)	4	38.9
Pharmacy managers must devise ways to practice through retaining of qualified practitioners	f(%)	4(1.8)	0(0.0)	1(0.9)	29(27.1)	73(68.7)	4	38.1
HRM ensures that support and appropriate human resources will be available to help the organization meets its objectives and goal	f(%)	5(4.1)	0(0.0)	1(0.9)	40(37.0)	62(57.4)	4	37.0
HRM identify and acquire the right number of people with the necessary skills	f(%)	8(7.5)	0(0.00)	0(0.00)	39(36.4)	60(56.1)	4	35.7
HRM motivate people to achieve high performance	f(%)	6(5.7)	0(0.00)	2(1.9)	34(32.1)	64(66.4)	4	36.2
HRM create interactions between business objectives and people planning activities.	f(%)	6(5.8)	0(0.00)	2(1.9)	43(41.3)	53(51.0)	4	34.5
Mean of weighted average (MWA)								33.97

Keys: SA= Strongly Agree, A= Agree, N= Neutral, SD= Strongly Disagree, D= Disagree, WA= Weighted Average, Mdn= Median, f= frequency. %= percentage. HRM= Human Resources Management.

Table 4 shows the attitude of pharmacists to workforce support. The respondents response to the items employed in the the determination of attitude to workforce support is computed to indicate the mean of weighted average of 27.0. This indicated positive attitude to workforce support was developed through continuous training of staff to eliminate shortages of health workers to provide right workers for the right jobs enhancing skilled for job specification. This will be reinforced by necessary recruitment of preferred pharmacy technicians as support staff in the pharmaceutical setting rather than auxiliary nurses found in some setting.

Table 4: Attitude of Pharmacists to Workforce support.

Variables	X	N 0	SD 1	D 2	A 3	SA 4	Mdn	WA
HRM employ the right workers for the right job	f(%)	11(10.5)	0(0.00)	5(4.8)	45(42.9)	44(41.9)	3	32.1
Skill imbalance result in inability to response to health need by work force	f(%)	13(12.5)	1(0.9)	7(6.7)	0(0.00)	34(32.7)	3	15.1
Continuous training of staff is a welcome development in HRM	f(%)	2(1.9)	1(0.9)	0(0.0)	31(29.0)	73(68.2)	4	38.6

Recruitment of pharmacy technicians as work force is necessary	f(%)	21(20.2)	4(3.8)	7(6.7)	58(55.8)	14(13.5)	3	24.8
Pharmacy technicians are quality workforce for pharmacy practice	f(%)	20(19.0)	12(11.4)	9(8.6)	49(46.7)	15(14.3)	3	23.7
Shortages of health workers is a critical challenge in Pharmacy practice	f(%)	8(7.5)	4(3.7)	5(4.7)	44(41.1)	46(43.0)	3	33.0
Auxiliary staff that are not pharmacy technicians are better options	f(%)	9(8,3)	49(45.4)	34(31.5)	13(12.0)	3(2.8)	1	16.8
Pharmacy Council of Nigeria should be encouraged to continue the training of pharmacy technicians	f(%)	18(16.7)	7(6.5)	7(6.5)	54(50.0)	22(20.4)	3	27.1
In a pharmacy outlet skill preference should be attached to job specification	f(%)	10(9.5)	0(0.00)	3(2.9)	56(53.3)	36(34.3)	3	31.8
Mean of Weighted Average (MWA)								27.0

Keys: SA= Strongly Agree, A= Agree, N= Neutral, SD= Strongly Disagree, D= Disagree, WA= Weighted Average, Mdn= Median, f= frequency. %= percentage. HRM= Human Resources Management.

Table 5 shows the HRM practices of pharmacists. The statement of managing the pharmacy workforce education and training the pharmacy workforce was computed with the highest weighted average and the mean of weighted average for HRM practices is 27.7.

Table 5: Human Resources Management Practices.

Variables	**X**	**Nev 0**	**Rar 1**	**Som 2**	**Oft 3**	**Alw 4**	**Mdn**	**WA**
Managing the pharmacy workforce	f(%)	0(0.00)	0(0.00)	8(8.3)	26(27.1)	62(64.6)	4	34.2
Educating and training the pharmacy workforce	f(%)	0(0.00)	6(6.2)	12(12.4)	35(36.1)	44(45.4)	3	31.1
Regulate pharmacy workforce	f(%)	0(0.00)	3(3.2)	16(16.8)	33(34.7)	43(45.3)	3	30.6
Practices involves Regulate revenue retention	f(%)	3(3.1)	4(4.1)	18(18.6)	32(33.0)	39(40.2)	3	29.2
Practices involves Cost retention activities	f(%)	3(3.2)	2(2.1)	20(21.1)	32(33.7)	37(38.9)	3	28.6
Practices involves Technological changes	f(%)	2(2.1)	10(10.5)	24(25.3)	33(34.7)	26(27.4)	3	26.1
Manager's evaluation of employees is carried out	f(%)	1(1.1)	11(11.6)	22(23.2)	31(32.6)	30(31.6)	3	26.8
There is procedure for monitoring pilferages	f(%)	2(2.1)	1(1.0)	19(19.8)	34(35.4)	40(41.7)	3	30.1
Best staff of the company s carried out	f(%)	6(6.5)	25(26.9)	19(20.4)	20(21.5)	23(24.7)	2	21.5
Incentives are provided to staff	f(%)	6(6.3)	17(18.5)	26(28.3)	19(20.7)	24(26.1)	2	22.2
Employees are encouraged to discuss ideas with their superiors	f(%)	1(1.0)	4(4.2)	17(17.7)	30(37.3)	44(45.8)	3	30.4
Low levels of cadres impedes delegation of task and therefore waste resources	f(%)	6(6.5)	16(17.4)	31(33.7)	15(16.3)	24(26.1)	2	21.9
Mean of wighted Average(MWA)					27.7			

Keys: N=Never done, Rar= Rarely done (Once in a year), Som=Some Times(Once in a month), Oft= Often done(Once a week), Alw= Always(Day to day), WA= weighted Average, Mdn= Median, f= frequency, %= percentage.

DISCUSSION

The pharmaceutical sustainability is enhanced by the healthcare workforce as evidenced by total resource management.[9] The workforce of the health system is usually translated into the positive services sustainability. The workforce disparity is an index of the pharmaceutical sustainability as services are rendered through skill and competences of health workers including pharmacists and their support staff, showcasing the overall health status and assess to essential medicine.[10] Global reports substantiated the claim that shortages of health workers including pharmacists and support staff is a global phenomenon especially in middle and low income regions of the world.[10] The lack of healthcare workforce data hinders adequate planning and response to workforce crisis. It is known that 46% of the workforce being urban dwellers limiting rural pharmaceutical sustainability.[5] The global increase of female pharmacists rising trends is computed in this research which was also reported in 2016 by Bates *et al*[5]. Majority of pharmacists possess the minimum qualification, reinforce the need for expertise and skill development to enhance practice.[11] This era of clinical practice will demand support staff development which was strongly advocated by respondents and confirms pharmaceutical service support workforce. There is a strong preference for pharmacy technicians to nurses as support workforce. This is required to attaining the outcome for effective equitable access and rational medication use.[12]

CONCLUSION

There were clear indications that shortages of health workers is a critical challenges to pharmacy practice and pharmacists show preference acceptability of pharmacy technicians over Auxiliary nurses as support workforce. The necessity of pharmacists to build reputable workforce training and development is highly recommended. The establishment of policies that will build the necessary legislation for training workforce will promote effective environment for sustainable practice and guarantee organizational goals achievements.

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DECLARATION OF CONFLICTING INTERESTS.

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ETHICAL APPROVAL

Verbal consent was obtained from respondents. Anonymity of research participants was ensured.

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