Adequacy of Integrated Maternal Newborn and Child Health (IMNCH) Programme in Enugu State, Nigeria

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Abstract

Integrated maternal, newborn and child health (IMNCH) programme is an approach to improve the health of mothers, newborn and children. The purpose of this study was to determine the adequacy of Integrated Maternal Newborn and Child Health Programme in Enugu State. To achieve this purpose, three specific objectives with corresponding research questions and three hypotheses guided the study. The study adopted a descriptive cross sectional survey research design. The population for the study was 2,410 health providers from which a sample of 522 was drawn. The instrument used for data collection was a structured Integrated Maternal, Newborn and Child Health Questionnaire (IMNCHQ). Frequencies and percentages were used to answer the research questions while Chi-square statistics was used to test the hypotheses. The findings of the study showed that human resources (45.2%) and material (40.8%) for IMNCH programme were inadequate while financial (72.2%) resources for IMNCH programme were adequate. Also, adequacy of human resources and material resources for IMNCH programme differed according to private and public health facilities. Based on the findings the researchers recommended that the Government should improve the quantity and quality of resources by recruiting high skilled health staff and providing essential drugs and consumables for delivery.

Key words: Adequacy, Maternal health, Newborn health, Child health programme

Maternal, newborn and child health is a major public health concern due to the challenges women and children face during pregnancy and childbirth. Many women die from pregnancy-related diseases in both developed and developing countries (World Health Organization [WHO], 2016). World Health Organization also reported that more than 529,000 women and 9 million under-five children die yearly from pregnancy complications globally. The situation is severe in Nigeria with maternal deaths ranging from 800 to 1100 per 100, 000 live births (Sloan et al., 2018). Under-five deaths are also high in Nigeria with the rate of 201 per 1,000 live births. It was estimated that a woman's chance of dying from pregnancy and childbirth in Nigeria is one in thirteen compared to one in thirty-five in Ghana and one in 4,900 in developed countries (WHO, 2016). In Enugu State, maternal and child death was also high, with women and neonates dying because of poor access to basic health care, antenatal care and assistance during delivery by trained health personnel, lack of essential drugs, and equipment (Madu & Eze, 2015). The authors' findings also indicated that maternal mortality rate ranges from 772 to 998 per 100,000 live births. Fagbamigbe and Idemudia (2015) reported that with Integrated maternal, newborn and child health (IMNCH) programme the maternal mortality rate

and under-five mortality rate was expected to have dropped to 250 per 100,000 and 59 per 1000 live births respectively. Federal Ministry of Health (2018) reported that health services have failed majority of mothers and their children. To achieve universal coverage, it therefore requires the integration of existing vertical (separate services for mother, newborn or child) programme into nationwide integrated maternal, newborn and child health programme. This programme is otherwise called Integrated Maternal, Newborn and Child Health (IMNCH) programme.

Integrated maternal, newborn and child health programme is an approach to reduce maternal, newborn and child mortality, through the integration of maternal, newborn and child health (MNCH) services. Integrated maternal, newborn and child health programme was developed by Federal Ministry of Health in March 2007. The programme is designed to ensure that the interest of mothers and children do not compete, and to provide opportunities for the integrated implementation of interventions for maternal, newborn and child health (MNCH). Study such as Fagbamigbe and Idemudia (2015) showed that IMNCH programme aimed at reducing and eliminating some of the life-threatening health risks which pregnant women, infants and children suffer. However, mothers still experience health problems during pregnancy and childbirth. This may be attributed to the adequacy of IMNCH programme which motivated this study adequacy of IMNCH programme.

Integrated maternal, newborn and child health programme addresses the conditions responsible for over 90 per cent of maternal and child deaths (haemorrhage, infections, obstructed labour, hypertension, malaria pneumonia, diarrhoeal diseases, measles and HIV and AIDS and anaemia) (Bryce & Requejo, 2015). The authors added that IMNCH programme is an integrated health care initiated with the aim of reaching 90 per cent of the population of women, neonates and children in Nigeria. This programme targets 75 per cent reduction of maternal mortality and 66 per cent reduction in under-5 mortality rate. However, IMNCH programme is an approach designed to improve the health of the mothers, neonates and children through integration of maternal, newborn and child health (MNCH) services.

Good service provision enhances child survival and helps to achieve IMNCH objectives. Federal Ministry of Health (2012) highlighted the objectives of IMNCH to include: improve access to good quality health services, ensure adequate medical supplies; strengthen family capacity to utilise MNCH services; improve capacity management of MNCH; ensure adequate funding; strengthen supervision, monitoring, and establish and sustain partnership. Integration of MNCH would ensure the supply of necessary inputs, such as: drugs, equipment and facilities and professionally trained staff (Walker, Yenokyan, Freberg, & Bryce, 2013).

Maternal health refers to health of women aged 15 to 49 years. Care for women during pregnancy improves their health and pregnancy outcome (Bryce & Requejo, 2015). Women often face health problems resulting from many births and short-term birth spacing. Maternal health in this context refers to health of women during pregnancy, childbirth and postpartum period.

The major objective of maternal health services is to prevent the major causes of maternal death. Marchant (2013) stated that the objectives of maternal health are to: promote and preserve the life of mothers by ensuring that every expectant and nursing mother maintains good health; learn the acts of child care, has a normal delivery and bears healthy children. Findley et al. (2013), listed some services for mothers, these include: recognition and management of pregnancy-related complications, recognition and treatment of illness, screening for conditions and diseases, such as anaemia, tetanus, immunization and deworming.

Newborn health refers to the health of a recently born baby. According to Lawn et al. (2010), the day of birth and the first day of life are the riskiest time for both the mother and the baby. WHO (2016) affirmed that children who lose their mothers during childbirth have 66 per cent higher risk of death than those whose mother survive. Similarly CorisSubrammania (2014) mentioned that the major causes of neonatal mortality are intrapartum related injury (asphyxia), complication of preterm birth and severe infections. Wilunda et al. (2015) opined that death from infection may easily be prevented through birth hygiene and newborn health practices, such as: drying of newly delivered baby, sterile cord clamping and hygienic care, placing the baby in skin to skin contact with the mother, early and exclusive breastfeeding and routine eye care.

Child health refers to health of a child who is strictly under the protection of someone who may be the parents or guardian. Musa and Baros (2015) observed that a healthy child's development begins from the parents and once the baby is delivered, other matters such as breastfeeding, sleeping safely, health care appointment for check-ups and immunization are considered. According to the authors, child health is the health of a person who has not reached the age of 18 years. In the context of this study, child health refers to health of a person before the age of adolescence.

The objective of child health is to promote the health of children. Madu and Eze (2013) stated that the objectives of child health are to ensure that children achieve the optimal growth and development both physical and mental; protect children from major hazards through specific measures (immunization, chemoprophylaxis, dietary supplement) and through improvement in the level of care provided by the mothers and the family; treat disease and disorders with particular emphasis on early diagnosis. Ogunjimi, Ibe, and Ikorok (2012)

outlined the components of child health services to include growth monitoring, immunization, curative services, nutrition and oral rehydration therapy (ORS).

Adequacy refers to the state of sufficiency in quantity or quality to meet a need satisfactorily. Adequacy of equipment is the availability of such equipment in a required quantity and quality (Onunze, Samuel, & Kabiru, 2015). The authors stated that adequacy of equipment facilitates service delivery while reverse is the case in inadequacy of equipment. Adequacy of IMNCH programme may help to improve the health of mothers, neonate and children. According to Sloan et al. (2018), adequacy of IMNCH programme lies on the resources (material, human, financial). Ogba and Odo (2017) argued that for services to be adequate, the provision should be between 50 per cent and above. The authors noted disparities in the service provision at private and public health facilities.

Private health facilities are health facilities funded and operated by the owner which is typically a group or an individual. The owner of the facility will be in charge of budget, managing finance and ensuring compliance with strict State laws and federal registration (Pia, Karen, & Alabi, 2018). The owner is to recruit staff, draft contracts with doctors, purchase the equipment, invest in maintenance, and control the services provided. Polsa, Spens, Soneye, and Antai (2011) opined that private facilities tend to be the preferred choice of health care users. The reason according to the author was because they are not limited in their budget and are known for quality services in which patients receive individual care and attention. Patients also do not have to spend long period waiting to be seen because the number of patients per doctor is low. Public health facilities at the primary, secondary and tertiary levels in Nigeria are few and maldistributed politically (Pia, Karen, & Alabi, 2018). They lack facilities and personnel mostly at the LGA level (Asuzu, 2018). The author noted that because of insufficiency in public health service delivery, the private sectors exist to fill the vacuum. The private providers include: voluntary agencies, religious groups, private individuals and communities (Ogba & Odo, 2017). The authors asserted that private providers feature prominently in the provision of secondary health facilities.

Private health facilities are unevenly distributed among the States in Nigeria than the public health facilities. Pia, Karen, and Alabi (2018) grouped private health facilities in two categories: the profit and non-profit health institution. The authors opined that these institutions should be appropriately supervised by government agency to regulate the cost of services. Low quality and inadequacy of health services provided in public health facilities were identified as the reasons the private health sectors became the choice for consumer of health care in Nigeria (Pia, Karen, & Alabi, 2018). According to Mosadeghrad (2014), most of the personnel in public health facilities were owners of or workers in private health facilities. To the author about 30

per cent of all health institutions were private owned institutions. In Nigeria there are numerous private institutions and it is difficult to ascertain the exact number. This is because good number of private health facilities were said to be operating without license by State Ministry of Health (Asuzu, 2018). In this study, only registered private health facilities were considered.

Public facilities are said to be funded and operated by the government. The source of fund is mainly from tax payers or budgets set by federal, State or local government. The government purchase drugs, equipment and pay workers' salaries. Cost of service seems to be lower in government facilities (Mosadeghrad, 2014). There are 504 government and 335 private health facilities providing health services for mothers, neonate and children in Enugu State (State Ministry of Health [SMOH]).

Purpose of the Study

The purpose of the study was to investigate adequacy of integrated maternal, newborn and child health programme Enugu State, Nigeria**.** Specifically, the study determined:

1. adequacy of human resources for IMNCH programme in Enugu State;
2. adequacy of material resources for IMNCH programme in Enugu State; and
3. adequacy of financial resources for IMNCH programme in Enugu State;

Research Questions

1. What is the adequacy of human resources for IMNCH programme in Enugu State?
2. What is the adequacy of material resources for IMNCH programme in Enugu State?
3. What is the adequacy of financial resources for IMNCH programme in Enugu State?

Hypotheses

1. There is no significant difference in the adequacy of human resources for IMNCH programme according to public and private facilities in Enugu state.
2. There is no significant difference in the material resources for IMNCH programme according to public and private facilities in Enugu State.
3. There is no significant difference in the adequacy of financial resources for IMNCH programme according to public and private facilities in Enugu state.

Materials and Methods

The study adopted a descriptive cross sectional survey research design. The study was conducted in Enugu State, Nigeria from July through October, 2020. The population for the study comprised the health workers in health facilities providing IMNCH programme in Enugu State. The total population was 2,410 health workers (SMOH).

The multi-stage sampling procedure was employed to draw the sample for the study. The first stage involved using simple random sampling technique to select nine local Government Areas (LGAs) out of the 17 LGAs, in Enugu State. The second stage involved using proportionate random sampling technique to select 40 per cent of political wards from each selected LGAs (Nwana, 2010). Number of wards in each LGA selected are Enugu North 16, Ezeagu 20, Isi-Uzo 11, Nsukka 18, Oji-River 21, Udenu 10, Uzo-uwani 16, Udi 20, and Nkanu west 14 (Independent National Electoral Commission) The sample at this stage gave a total of 57 wards. The third stage involved using simple random sampling technique to select public and private health facilities from the 57 wards that were selected (Minimum of one and maximum of five). The reason is because each ward has at least one health facility (Primary Health Care). However, in each LGA 29 health facilities were selected. This gave a total of 261 out of 839 (private 335, public 504) health facility in Enugu State. The fourth stage involved using purposive sampling technique to select 522 health workers, two from each health facility (officer in charge and second in charge). This is based on the position they occupy which made them more knowledgeable.

The instruments used for data collection was researchers a self structured questionnaire titled Integrated Maternal Newborn and child health questionnaire. The instrument was validated by three experts from the Department of Human Kinetics and Health Education, University of Nigeria Nsukka. The copies of the questionnaire were administered to respondents through the co-operation of nine research assistants (one from each selected LGA). The research assistants were briefed on how to complete the instrument. Questionnaire were administered and retrieved within two weeks. This was to allow the health workers respond effectively outside the busy clinics hours, out of 522 questionnaire administered, 520 were retrieved given a return rate of 99.6 per cent. These were analyzed for the study. Research questions were answered using frequencies and percentages. Responses with cluster percentage of 50 and above were accepted to be adequate. All hypotheses were tested using chi-square test at .05 level of significance.

Results

The results of this study were organized and presented into two parts thus: data answering this research questions and data testing the null hypotheses.

Table 1: Adequacy of Human Resources for IMNCH Programme in Enugu State (n=520)

		Adequate		Inadequate	
S/No	**Offers' Cadre**	**F**	**%**	**F**	**%**
1.	Obstetrician/Gynecologist	177	34.1	343	65.9
2.	Public health nurses	142	27.3	378	72.6

3.	Nurses	306	58.9	214	41.1
4.	Midwives	181	34.8	339	65.2
5.	Community health officers	283	54.4	237	45.6
6.	Senior community health workers	289	55.6	231	44.4
7.	Junior community health workers	268	51.5	252	48.5
	Staff trained for IMNCH programme	144	27.8	376	72.2
	Overall		**43.1**		**56.9**

Key:

% = Score	Remarks
50 and above	Adequate
Below 50	Inadequate

Table 1 shows overall percentage of 43.1%, which indicated that human resources were inadequate since the overall percentage was below the criterion of 50 per cent set for acceptance. The Table further showed that adequacy of Nurses (58.9%), senior community health worker (55.6%), and community health officers (51.1%). The Table also showed that midwives (34.8%), obstetrician/gynecologist (34.3%), staff trained for IMNCH programme (27.8%) and public health nurses (27.3%) were inadequate.

Table 2: Adequacy of Material Resources for IMNCH Programme in Enugu State (n = 520)

S/No	Items	Adequate		Inadequate	
		F	**%**	**F**	%
1.	Functional weighing scale	470	50.4	50	49.6
2.	Microscope	449	13.7	71	86.3
3.	Fetoscope	383	53.7	137	46.3
4.	Sphygmomanometer	412	20.7	108	79.3
5.	Unistix	433	63.3	87	36.7
6.	Antenatal care guideline	374	51.9	146	48.1
7.	Needle and syringes	422	18.9	98	81.1
8.	Thermometer	435	53.7	185	46.3
9.	Suctioning machine	214	41.1	306	58.9
10.	Essential drugs and consumable for delivery	297	43.0	223	57.0
11.	Pathograph	291	57.4	229	42.6
12.	Antenatal register and delivery register	258	49.6	262	50.4
13.	Antiseptic solution	366	29.6	154	70.4
14.	Disposable glove	341	45.6	179	54.4
15.	Examination table	343	65.9	177	34.4
16.	Pregnancy test kits	372	28.4	148	71.6
17	Blood giving set	264	31.9	156	68.1
18	Vacuum extractors	262	35,9	257	64.1
19	Blood pressure apparatus	387	54.4	133	45.6
20	IEC(information education communication)	335	35.6	185	64.4
21	Tenaculum	379	27.0	141	73.0
	Cluster percentage		**47.71**		**52.29**

Key:
% Score Remark

50 and above Adequate
Below 50 Inadequate

Table 2 indicated a percentage of (47.71%) which was below criterion mean of 50 per cent set for acceptance. This implies that material resources for IMNCH programme were inadequate. The Table further revealed that majority of the respondents indicated that some of the material resources were adequate. The resources include functional weighing scale (50.4%), fetoscope (53.7%), uristix (63.3%), antenatal care guideline (51.9%), thermometer (53.7%), pathograph (57.4%), examination table (65.9%) and blood pressure apparatus (54.4%). The Table further showed that antenatal register (49.6%),microscope (13.7%) needle and syringes (18.9%), sphygmomanometer (20.7%), , pregnancy test kits (28.4%), antiseptic solution (29.6%), disposable glove (45.6%), essential drugs and consumable for delivery (43.0%). and delivery register (49.6%) were inadequate .

Table 3: Adequacy of Financial Resources for IMNCH Programme in Enugu State (n = 520)

		Adequate		**Inadequate**	
S/No		**F**	**%**	**F**	%
1.	Payment of workers salary and allowances	377	72.6	143	27.4
2.	Maintenances of equipments	306	41.1	214	58.9
3.	Fueling vehicles for referral services	339	65.2	181	34.8
4.	Power supply plant	283	54.4	237	45.6
5.	Laundry items	289	55.6	231	44.4
6.	Organizing seminar	268	48.5	252	51.5
7.	Essential drugs and consumable	376	27.2	144	72.8
	Overall		**52.0**		**48.0**

Key: % Score Remark , 50 and above = Adequate; Below 50 = Inadequate

Results in Table 5 showed that overall financial resource for IMNCH programme was adequate (52.0%). The Table further indicated that payment of workers' salaries and allowances (72.6%), fueling vehicles for referral services (65.2%), power supply plant (54.4%), laundry items (55.6%) were adequate while maintenance of vehicles/equipment (41.1%), organizing seminar (48.5%) and Essential drugs and consumable (27.2%) were inadequate.

Table 4: Summary of Chi-square (χ^2) Test of Difference in the level of Adequacy of Human Resources for IMNCH programme According to Public and Private Health Facility

	Health facility	Adequate	Not Adequate	χ^2	df	p-value	Decision
Human resource	Public	57(30.5)	130(69.5)	3.496	1	.062	Accepted
	Private	35(42.2)	48(57.8)				

Table 4 showed the χ^2 calculated value with the corresponding p-value for adequacy of human resources for IMNCH programme (χ^2=3.496, P = .062 > 0.05) which was greater than .05 level of significant at 1 degree of freedom. The null hypothesis of no significant difference was therefore accepted. This implies that the adequacy of human resources for IMNCH programme did not differ according to private and public health facilities.

Table 5: Summary of chi-square (χ^2) Test of Difference in the level of Adequacy of Material Resources for IMNCH programme According to Public and Private Health Facility

	Health facility	Adequate	Not Adequate	χ^2	d.f	p-value	Decision
Human resource	Public	176(94.1)	11(5.9)	5.090	1	.024*	Rejected
	Private	83(100.0)	0(0.0)				

Table 5 shows the calculated χ^2 value with the corresponding p-value for the adequacy of material resources (χ^2 = 5.090, p = .024 < .05), which was less than .05 level of significant at one degree freedom. The null hypothesis of no significant difference was rejected. This implies that material resources for IMNCH programme differed according to public and private health facilities.

Table 6: Summary of Chi-square (χ^2) Test of Difference in the level of Adequacy of Financial Resources for IMNCH programme According to Public and Private Health Facility

	Health facility	Adequate	Not Adequate	χ^2	d.f	p-value	Decision
Human resource	Public	129(69.0)	58(31.0)	.120	1	.723	Accepted
	Private	59(71.1)	24(28.9)				

Table 6 showed the χ^2 calculated value with the corresponding p-value for adequacy of financial resources for IMNCH programme (χ^2 = .120, p = .723 > .05), which was greater than .05 level of significant at 1 degree of freedom. The null hypothesis of no significant difference was therefore accepted. This implies that adequacy of financial resources for IMNCH programme did not differ according to public and private health facilities.

Discussion

Findings in Table 1 showed that human resources for IMNCH programme were not adequate. The finding was expected and not surprising because evidence suggests that many countries lack the human resources needed to deliver essential health interventions (Wilunda, et al., 2015). The finding is similar with those of Smithe el al. (2016) and Gilmore and Mcauliffe (2013) who reported that human resources were inadequate in health facilities, this resulted in long waiting and poor attention to clients. The similarity in the finding might be that the studies focused only on professional health providers. Findings in Table 1 also revealed that community health officers and senior community health extension workers were adequate in health facilities. This finding is in line with that of Wilunda, et al. (2015) who noted that community health extension workers are most used manpower in the health facilities in communities. This finding also agreed with that of Gilmore and Mcauliffe (2013) who reported that community health workers act as mitigating agents to the problem of human resources in health facilities.

Findings in Table 1 showed that material resources for IMNCH programme were inadequate. This finding was not surprising because Smithe el al. (2016) identified insufficient material resources as a major problem in health facilities and the cause of high mortality rate. This finding is in consonance with Mkoka, Golcolea, Kiwara, Mulangu, and Hurtig (2014) which stated that participants reported insufficient material resources (such as drugs and medical supplies) for emergency obstetric care and this resulted in high mortality rate.

Findings in Table 3 indicated that financial resources for IMNCH programme were adequate. This finding was not expected therefore a surprise, this is because many authors identified insufficient financial resources as a major problems in health facilities. The result contradicts that of Mkoka, Goicolea, Kiwara, Mwangu, and Hurting (2014) who reported that insufficient financial resources were among the reasons for not obtaining drugs and medical supplies for maternal and child care. This finding also disagrees with that of Mwaniki, Kabiru, and Mbuguai (2013) who reported that shortage of drugs, essential supplies, low quality treatment were as a result of finance. The major problems of health care delivery in Nigeria lies on finance and many health workers have a second source of income because of irregular payment of staff salaries. The disparity might be that the present study used both public and

private facilities. Irrespective of the salary private health staff receive they are paid at appointed time.

Finding in Table 4 revealed that there was no significant difference in the adequacy of human resources according to private and public health facilities. This finding contradicts that of Smithe, Sudhinarasset, and Montagu (2016) who reported existing differences between public and private health facilities. Numbers of health providers were more in private health facilities than in public health facilities. Private health facilities had 11.5 health providers per 10,000 population while public had 6.7 per 10,000 population. The finding agreed with that of Ogba and Odo (2017) assertion that there was no discrepancy in the number and quality of human resources used in both private and public health facility.

Table 5 showed that there was significant difference in adequacy of material resources according to public and private health facilities. This is similar with the finding of Smithe, Sudhinaraset, and Montagu (2016) who reported that private facility performed better than public health facility and that private are more equipped. Onuzulike (2015) also stated that private facilities perform better; in government health facilities drugs are out of stock, while they are easily available in private facilities. The reason for the finding might be that private owners have more intent in their facilities because is theirs.

The finding in table 6 revealed that there was no significant difference in adequacy of financial resources according to health facilities. This finding contradicts that of smith, Sudhinaraset, and Montagu (2016) who reported that differences existed between private and public health facilities. Polsa, Spens, Soneye, and Antai (2011) opined that private facilities tend to be the preferred choice because they are not as limited in their budget and are known for quality services, in which patients received individual care and attention. This finding was also in disagreement with that of Polsa, Spens, Soneye, and Antal (2011) who reported that health workers indicated consistent payment in private health facilities while there is irregular payment of workers salary in public health facilities

Conclusion

Based on the finding, the study concluded that human and material resources for IMNCH programme were inadequate while financial resources were adequate. There were no significant differences in adequacy of human and financial resources for IMNCH programme according to private and public health facilities while there was significant difference in material resources for IMNCH programme according to private and public health facilities.

Recommendations

1. Owners of health facilities should improve the quantity and quality of human resources by recruitment and retention of high skilled health staff that might have retired and as such involve them in workshop and seminar.
2. State Ministry of Health should provide material resources in order to attain adequacy in health facilities.
3. Ministry of Health should form monitoring and supervising group to ensure that private and public health facilities comply with the IMNCH programme guidelines (provision of essential drug, payment of salary and recruitment) for resource provision, to attain the same standard.
4. There is need for further research on IMNCH programme in different States.

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