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Structural quality of reproductive health services in South-Central Ethiopia

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Abstact

Background: The quality of health services has been known to be grossly deficient in developing countries, but only few studies were carried out to document the deficiencies in a systematic manner.

Objective: To assess the quality of reproductive health services in rural settings with emphasis on the structural aspect.

Methods: This is a descriptive cross-sectional study conducted in the peripheral health institutions of two administrative zones in South-Central Ethiopia. Data were collected using an interview questionnaire and observation checklist adopted from the WHO Safe Motherhood Need Assessment and the WHO training modules for EPI and STDs.

Findings: Multiple structural deficiencies were identified in all components of reproductive health care. Adequate amounts of the absolute minimum equipment required for maternity and neonatal care were not available in many health institutions. Sterilizers were available in 11(15.3%), essential drugs like iron tablets in 14 (19.4%), and ergometrine injection in 48 (66.7%) of the health institution. In the EPI section, refrigerator was available in 57(79.2%) and steam sterilizer in 43(59.7%) of the institutions. Mix of contraceptives was not available widely. Important laboratory tests like syphilis test, were available in only one (1.4%) health institution. Only 8(11.1%) health institutions had adequate IEC materials on all national reproductive health components.

Conclusion: Structural settings for reproductive health services are very poorly organized in the majority of the health institutions. Thus, strong emphasis should be given to strengthen the existing health institutions by correcting structural deficiencies besides building new institution that are needed to expand health services.

Introduction

Attempts to improve the health of mothers and children have been ongoing since the beginning of the nineteen century (1). Though industrialized countries succeeded to achieve phenomenal improvements, the situation in least developed countries did not show marked changes. Many women and children die and suffer due to lack of access to the basic minimum of health care

that is considered their right (2-4). Trained health workers attend less than 20% of deliveries. Up to 22% of women of reproductive age were reported to have STDs, such as syphilis and gonorrhea (4). The majority of the estimated two million deaths worldwide from vaccine preventable diseases in 1997 occurred in the developing countries (5). Mothers living in many developing countries rely on traditional care and continue to die from complications of child bearing (1,5,6).

Considering the seriousness of the problem, the Cairo International Conference on Development and Population (ICDP) in 1994 redefined reproductive health services. According to the ICDP, reproductive health care is supposed to provide a wide range of essential services, including family planning, safe delivery, child care, women's health care, treatment of reproductive tract infections, education and counseling on human sexuality and reproduction, effective referral, and prevention of harmful traditional practices (7).

In developing countries, the major challenge in providing health services has been low quantity of service outlets (8). The quality of the services provided in these areas has not been a concern until recently partly due to methodological problems related to the assessment of quality of health care (9-11). Advances in this area were made after Donabedian developed a three-dimensional health care quality measure that includes the structure, process, and outcome dimensions (8). Structural measures assess whether facilities, equipment, staff, material, and budget meet established standards. Process measures check if the right things have been done in the right sequence for service recipients. Outcome measures focus on the effects or results of the health care delivery. Outcomes could range from complete recovery to death.

The structural aspect of health institutions in developing countries is believed to be grossly deficient (9). The few studies conducted in Ethiopia have also indicated major structural deficiencies in the health institutions (12-14). However, more information is needed to institute appropriate measures at all levels. The underlying assumption in structural assessment is that if the structural settings are good, the process of care that occurs within it and the resulting outcomes will also be good. It should, however, be emphasized that good structure is a necessary but not a sufficient criterion for quality of health care (8,10,11,15).

Though a few studies have tried to assess the performance of specific components of the reproductive health services, to date, no attempt has been made in Ethiopia to assess the reproductive health programs as a package. The objective of this study was to assess the quality of reproductive health services with emphasis on the structural aspects. Emphasis was made only to structural components of quality assessment because, in least developed countries, the structural aspects of the health institutions are believed to be the core of the problems resulting to poor quality of health care (9).

Methods

This was a descriptive cross sectional study conducted in all health institutions of the Gurage and Hadiya Administrative Zones of the Southern Ethiopia Peoples' Nations, and Nationalities Regional State (SPNNRS). The study was conducted between May 1998 and July 1998.

The two study Zones are located in the south central part of Ethiopia. The Gurage Zone is divided into 11 districts and the Hadiya Zone into 4 districts. According to the 1994 Census, there were approximately 2.6 million people living in the two Zones: 1.6 million in Gurage Zone and one million in Hadiya Zone. In both zones more than 93% of the population lives in rural areas (1994 Census).

All health institutions in the Gurage and Hadiya Zones were the target of this study. There were a total of 79 health institutions reported to give reproductive health care in the two study Zones during the time of data collection. These included two hospitals, 15 health centers, and 62 health stations (clinics). The two hospitals were excluded from the analysis due to being small in number that would not allow any meaningful conclusion. Five of the 62 health stations were located in remote inaccessible areas (over 3 hours walking distance from the nearest site accessible by car).

Data collection was made using a structured questionnaire, which was adapted from the WHO Safe Motherhood Need Assessment Manual and from the WHO Training Modules for EPI and STD Control Programs. The questionnaire was written in English to avoid misinterpretation of technical terms. A pretest was conducted in health institutions in Addis Ababa. The pretest allowed for making appropriate modifications to the draft questionnaire and a more realistic estimate of the time needed to complete the questionnaire per health institution.

The questionnaire was designed to assess the availability and adequacy of basic and minimum requirements in terms of equipment, drugs, and materials as recommended by WHO for health institutions that provide antenatal care, delivery service, family planning, EPI, and STDs diagnosis and treatment services.

Data collectors were nurses with more than five years of work experience. They had received training on FP, EPI, and MCH programs. They also had experience in managerial positions in health centers and Zonal Health Departments. They were recruited from health units outside the study area. A five-day training on how to complete the questionnaire and on the procedures to be followed was given. Data were collected by interviewing heads of health institutions or delegates (in the absence of the head), and through direct observation of facilities. The data collector filled " 1" if the given item was adequately available and "2" if not available and " 3" if it was found to be inadequate on the visit day. In the analysis (result presentation) availability is equivalent to the code "1" in the data collection sheet. Besides interviewing the institutions head or delegates, direct observation of the available item was made by data collectors to assure quality of responses.

Permission to conduct the study was obtained from both Zonal Health Departments. Each data collector showed the letters from the Zonal and District Health Offices to the health institution's head (or delegate in the absence of the head). Interviewees were informed about the purpose of the study and the confidentiality of responses and interviews proceeded with their full consent. Completeness of the filled questionnaires was checked upon submission by the principal investigator.

Adequacy was operationally defined as the presence of supplies (equipment, drugs, and materials) that are sufficient to carry out the program effectively as reported by service providers. Availability was defined as the presence of essential structural setting at the time of data collection. Data were entered and processed using Epi Info version 6.4 statistical software. Frequencies and proportions were calculated to determine the availability of specific reproductive service components. Comparison of structural settings was made between the two study Zones using a Chi-square test. Statistical significance was set at 0.05 level.

Results

This paper analyzed data obtained from 72 health institutions, 15 health centers and 57 health stations in two administrative zones of the southern Ethiopia state (SNNPRS). They represent 93.5% (72 out of the total 77) of all institutions in the lower category. More health centers (10 out of 15) were located in the Gurage Zone whereas the number of health stations was similar in both Zones (28 in Gurage and 29 in Hadiya).

Basic equipments for reproductive health services were not available in a considerable proportion of the health institutions. The absolute minimum equipment required for delivery care, such as scissors and needle holders, were lacking in about 40% of the health institutions. The absolute minimum equipment required for neonatal resuscitation, such as mucous extractor and bag/mask was available adequately in 24(33.3%) and 9(12.5%), respectively. There was no equipment except needle holder, blood pressure apparatus, and vacuum extractor (Table 1).

Almost all essential consumables were not available adequately. Suturing materials were available in adequate amount in only 19(26.4%). Cloth/towel and blankets to dry and wrap babies after delivery were available in 15(20.9%) of the institutions in both Zones. Disposable syringes and needles were available in 31(43.0%), intravenous kits in 25(34.7%), and cord-tie in 21(29.7%) of the institutions. No statistically significant differences were observed in the availability of these items between the two Zones except for the adequacy of cord tie that was better in Hadiya Zone (Table 2).

Essential drugs supply for maternity care, family planning and childhood immunization was deficient in most of the health institutions. For example, iron tablets were found in adequate amounts in only 14(19.4%) of the health institutions; vaccines were not available in a quarter of the health institutions; ergometrine injection was available in 48(66.6%); intravenous fluids in 22(30.5%), and mechanical contraceptives, such as diaphragm and IUDs, were not available in over 90% of the institutions. Considerable differences between health centers and health stations were observed in the availability of vaccines and family planning methods, which was better in the health centers (Table 3).

Important laboratory tests were very rarely available in the health institutions. Only one (1.4%) health station in Gurage Zone had VDRL test at the time of the survey. Basic blood tests and urine analyses were done in less than 10% of the health institutions (Table4). IEC materials for reproductive health were deficient in the majority of the health institutions. Posters were the main tools available for health education (Table 5).

Shortage of appropriate health manpower for reproductive health services was observed in both Zones. Delivery and antenatal care were provided by midwifes in only three health institutions.

In the rest of the health institutions, these services were provided mainly by health assistants. Trained personnel to provide family planning and immunization services were available in 56 (78.8%) and 49 (69%) of the health institutions, respectively.

Other essential infrastructures were also deficient in most of the health institutions. Only 28(38.9%) of the health institutions had water sources in their compound. Lack of means of communication between the peripheral and next higher health units is a serious problem. Only 6(8.3%) of health institutions had telephone or two-way radio communication and 25(34.7%) of the health institutions had no means of transport facilities (car, motorcycle, bicycle, mule or horse).

Discussion

The availability of basic equipment, supplies, materials, and manpower in sufficient amounts is known to be a major determinant for the proper functioning of health institutions. Furthermore, proper care for mothers and newborns has been shown to be a crucial component of improving health status of population in developing countries (3,16,17). This survey has shown marked structural deficiencies in the quality of reproductive health care in peripheral health institutions in both Zones.

The deficiencies of absolute minimum equipment required for delivery and neonatal care found in this study are comparable to those found in the national study (12). Poor facilities for attending delivery and neonates indicates that most of the health institutions cannot provide clean and safe health care at the critical moments to prevent maternal and neonatal morbidity and mortality. Given that absolute minimum requirements are not available, care for complicated cases is unthinkable. Availability of consumables in most of the health institutions is precarious and lower than that reported in a national study (12). This might be related to the inclusion of more peripheral health institutions in this study compared to the national study. It must be noted, however, that even in this study some of the most remotely located health institutions are excluded.

Some basic equipment for maternity care were only available in a small proportion of health institutions. These findings show a worsening situation than that reported in the national survey (12) and Addis Ababa Family Planning Clinics (13). However, similar conditions were reported in Burkina Faso Family Planning Clinics (18). The absence of sterilizers in the majority of health institutions is a serious limitation on the side of service providers. In the era of HIV/AIDS, lack of proper sterilization is totally unacceptable and could worsen the already escalating problems of HIV/AIDS (19).

Essential drugs for prenatal care services, such as iron supplement tablet and antibiotics essential for treating infections due to complications of pregnancy and delivery were in markedly short supply compared to the national figure (12). A survey in rural Nigeria also reported that these drugs are rarely available in peripheral health care institutions (20). These findings indicate that most of the institutions are grossly under-stocked and are unable to provide essential obstetric care and to manage complicated cases before referral. Given that sepsis is one of the important causes of maternal deaths in Ethiopia (21), the contribution of the

peripheral units in reducing the high maternal mortality rate will be minimal unless supply of drugs is remarkably improved.

Refrigerators, steam sterilizers, and vaccines were not available in adequate amounts in a significant proportion of health institutions to provide immunization services. A similar situation was reported from West Gojam (14) but the situation is worse than that reported by BASICS Project in Southern Ethiopia (22). The deficiency observed in this study is a serious obstacle to achieving the EPI objective in rural areas.

Essential laboratory tests for reproductive health care were not available in the majority of health institutions surveyed. As have been reported by the national survey (12) and a study in Nigeria (20), facilities for screening for syphilis, anemia, and pre-eclampsia are available in only few institutions. Thus, for all practical reasons, one can not expect the pre-natal service of such nature would bring about any meaningful reduction in reproductive morbidity and mortality.

The gross absence of IEC materials for reproductive health care in most of the health institutions indicates that the necessary reproductive health information is not being conveyed to clients coming to these institutions, which also imply poor quality of service. The availability and types of IEC materials are similar to previous studies (12,22).

Though building health institutions close to the community is the beginning of expanding health coverage, even facilities that are nearest to people's is homes will have little value if they lack basic equipment and supplies. It has been described that in many African countries shortage of basic equipment arises partly because of faulty planning whereby new facilities are constructed before determining whether adequate running budget will be available to operate them (23). Adequate emphasis must be given to the operating cost of health facilities at the time of planning their construction.

Over a decade has passed since the international community endorsed the safe motherhood initiative to combat high maternal mortality and morbidity on three fronts simultaneously, namely, (i) reducing the number of high risk and unwanted pregnancies, (ii) reducing the number of obstetric complications, and (iii) reducing the case fatality rate in women with complications (24,25). The safe motherhood initiative devised four feasible strategies to achieve these goals: family planning; quality antenatal care; clean and safe delivery, and essential obstetric care (1,17). However, this study indicates that the structural settings of the health institutions of the two zones are poor and are not in a position to meaningfully contribute to the safe motherhood initiative. The findings of this study urge policy-makers and health managers at all levels to give emphasis to improving the quality of services in the existing health institutions along the efforts being made to construct new institutions to increase coverage. Unless corrective actions are taken without further delay, the efforts being made to prevent maternal and neonatal mortality and morbidity cannot be achieved.

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Tables

Table 1: **The availability of basic equipment for reproductive health care in lower level health institutions in South-Central Ethiopia, 1998.**

Basic equipment	Both Zones (n=72) No (%)	Gurage Zone (n=38) No (%)	Hadiya Zone (n=34) No (%)	P-value
Scissors	44 (61.1)	26 (68.4)	18 (52.9)	NS
Needle holder	41 (59.9)	28 (73.7)	13 (28.2)	0,005
Delivery couch	54 (75.0)	29 (76.3)	25 (73.5)	NS
Mucus extractor	24 (33.3)	12 (31.6)	12 (35.3)	NS
Bag and mask	9 (12.5)	6 (15.8)	3 (8.8)	NS
Sterilizer for general use	11 (15.3)	8 (21.1)	3 (8.8)	NS
B.P. apparatus	54 (75.0)	34 (89.5)	20 (58.8)	0,006
Stethoscope	54 (75.0)	32 (84.2)	22 (64.7)	NS
Fetoscope	60 (83.3)	32 (84.2)	28 (82.4)	NS
Weighing scale	41 (56.9)	25 (65.8)	19 (55.9)	NS
Vacuum extractor	22 (30.0)	16 (42.1)	6 (17.6)	0,04
Thermometer	58 (80.5)	31 (81.6)	27 (79.4)	NS
Refrigerator	57 (79.2)	34 (89.5)	24 (70.6)	NS
Steam Sterilizer for EPI	43 (59.7)	24 (63.2)	19 (55.9)	NS
Working Timer	40 (58.3)	23 (60.5)	17 (50.0)	NS

P-Value for ^{2} for difference between Zones

NS = Not statistically significant (P=value greater than 0.05) BP = Blood pressure

Table 2: **The availability of basic supplies and consumables for reproductive health care in lower level health institutions in South-Central Ethiopia, 1998.**

Supplies and consumable	Both Zones (n=72) No (%)	Gurage Zone (n=38) No (%)	Hadiya Zone (n=34) No (%)	P-value
Running Water in rooms	24 (33.3)	13 (34.2)	11 (32.4)	NS
Suture materials*	19 (26.4)	9 (23.7)	10 (29.4)	NS
Cloths/Blanket to wrap baby	15 (20.9)	8 (21.1)	7 (20.6)	NS
Syringes	38 (52.7)	21 (55.3)	17 (50.0)	NS
Needles	40 (58.3)	22 (57.9)	18 (52.9)	NS
Gloves	49 (68.0)	26 (68.4)	23 (67.6)	NS
Disposable syringes & needles	31 (43.0)	15 (39.5)	16 (47.1)	NS
IV kit	25 (34.7)	9 (23.7)	16 (47.1)	NS
Cord tie	21 (29.7)	6 (15.8)	15 (44.1)	0,01

P-Value for ^{2} for difference between Zones

NS = Not statistically significant (P=value greater than 0.05)

Table 3: **The availability of essential drugs for reproductive health services in lower level health institutions in South-Contral Ethiopia, 1998.**

Basic Drugs	Health Station (n=57) No (%)	Health Centre (n=15) No (%)	Total No (%)
Antibiotics (any form)			
Procaine penicillin	30 (52.6)	8 (53.3)	38 (52.7)
Benzathine penicillin	28 (49.1)	8 (53.3)	36 (60.0)
Ampicillin	20 (49.1)	6 (40.0)	26 (36.1)
TTC eye ointment	32 (56.1)	10 (66.7)	42 (58.3)
Erythromycin	0	1 (6.7)	1 (1.4)
Bactrim	15 (26.3)	4 (26.7)	19 (26.4)
Contraceptives			
Any oral	37 (64.9)	12 (80.0)	49 (68.0)
Any injectable	29 (50.9)	11 (73.3)	40 (55.5)
Condom	39 (68.4)	11 (73.3)	50 (69.4)
Diaphragm	4 (7.0)	2 (13.3)	6 (8.3)
IUDs	0	4 (26.7)	4 (5.5)
Vaccines			
BCG	41 (71.9)	14 (93.3)	55 (76.4)
DPT	40 (70.1)	14 (93.3)	54 (76.4)
Measles	41 (71.9)	14 (93.3)	55 (76.4)
TT injection	39 (68.4)	14 (93.3)	53 (73.6)
Other essential drugs			
Iron tablets	11 (19.3)	3 (20.0)	14 (19.4)
Ergometrine	39 (68.4)	9 (60.0)	48 (66.7)
Intravenous (IV) fluid	17 (29.8)	5 (33.3)	22 (30.5)

statistically significant difference between the two Zones in the availability of most

Table 4: **The availability of essential laboratory tests for reproductive health care in lower level health institutions in South-Central Ethiopia, 1998.**

Essential laboratory tests	Both Zones (n=72)	Gurage Zone (n=38)	Hadiya Zone (n=34)
syphilis test	1 (1.4)	1 (2.6)	0
Basic blood test (Hgb, Hct, WBC)	6 (8.3)	3 (7.9)	3 (8.8)
Urine analysis	10 (13.9)	5 (13.2)	5 (14.7)

Table 5: **The availability of essential health education materials in reproductive health in lower level health institutions in South-Central Ethiopia, 1998.**

Types of health Education (IEC) materials	Both zones (n=72)	Gurage zone (n=38)	Hadiya zone (n=34)	P-value
Poster	38 (52.8)	22 (57.9)	16 (47.1)	NS
Flip chart	18 (25.0)	13 (34.4)	7 (20.6)	NS
Brochure	14 (19.4)	9 (23.7)	6 (17.6)	NS
Pamphlet	17 (23.6)	11 (28.9)	6 (17.6)	NS

P-value for ^{2} test for diffeence between zones

NS=Not statistically significant (P-value greater than 0.05)

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