Maternal Health Services Equity between Reality and Imposed in Zagazig District, Sharkia Governorate, Egypt (2015/2016)

Taghreed M. Farahat MD[1], Hala M. Shaheen MD[1*], Aml A. Salama MD[1], Hanaa S. Said M.SC[2]
[1] Family Medicine department, Faculty of Medicine, Menoufia University.
[2] Family Medicine department, Faculty of Medicine, Zagazig University
[*]Corresponding author

Abstract

Background: Equity is an ethical concept. Equity in healthcare includes equal access to available care for equal need, and equal quality of care for all. The collapse of the Co-operative Medical System left many of the rural poor uninsured and unable to access the services necessary to maintain good health leading to poor health service utilization.

Objective: The current study aimed to assess equity of distribution and utilization of maternal health services between urban and rural strata in Zagazig district, Sharkia Governorate.

Methods: Cross sectional study through two stage cluster stratified random study technique was conducted on 400 married women in child bearing period. The calculated sample was collected from four primary health care facilities; these facilities were chosen randomly. Women were interviewed by predesigned questionnaire. Utilization rates were estimated. Assessment of inequity was carried out by simple and gradient measures.

Results: The study revealed that the utilization of antenatal full services and infant care services are higher in urban than rural health facilities 69.1 – 100% versus 7.8 4.3 %) according to the selected seven maternal health indicators. This was showed by significant difference in the indicators $P \leq 0.05$. Universal geographical accessibility was confirmed with significant difference to financial accessibility regarding residence. There was high residence inequality in utilization of health services. Socioeconomic status affect variably on service utilization.

Conclusion:residence affect greatly on health services utilization, urban residence more likely to use health services more than rural one. Universal geographical accessibility was achieved but financial accessibility affected by residence. Residence inequity was confirmed. Socioeconomic status as a social determinant affects health service utilization equity with variable extent by positive or negative association.

Key words: accessibility, gradient, inequity, utilization.

Introduction

The health care system in Egypt is quite complex with a large number of public entities involved in the management, financing and provision of care.(1) Maternal health is related not only to the health of a woman, but also has a direct bearing on the health of her newborn. About 15 % of all pregnant women experience life-threatening complications as a result of their pregnancy.(2)

Equity is an ethical concept. Equity is therefore concerned with creating equal opportunities for health and with bringing health differentials down to the lowest levels possible.(3) Equity and equality and their antonyms inequity and inequality are terms often used interchangeably to refer to similarities or differences in measures between groups. However Inequity (equity) refers to differences that are considered unfair or unjust, are largely due to factors beyond the individual's control and usually avoidable. (4) Equitable distribution of health care has two major categories: horizontal equity, the equal treatment of individuals or groups in the same circumstances; and vertical equity, the principle that individuals who are unequal should be treated differently according to their level of need.(5)

Maternal health services components include antenatal care, delivery (natal) care, post natal care, and family planning.(6) Selected seven maternal health indicators were chosen according to Egyptian Demographic and Health Survey 2014.(7) to assess inequity of maternal health services utilization which were antenatal full service use, tetanus toxoid coverage and number of antenatal follow up visits as antenatal indicators- home delivery under skilled person observation as natal indicator- postnatal mother and infant care as postnatal indicators- and family planning usage as family planning indicator.There is consistent evidence that economic and social factors affect health. More than half of Egyptian population (57%) living in rural areas according to Egypt health profile, 2011,(8) especially poor rural areas, have access to fewer health care services. The collapse of the Cooperative Medical System left many of the rural poor uninsured and unable to access the resources necessary to maintain good health. (9)Simple method assessed the existence of inequity in health care utilization by two ways, difference (absolute) measure and relative (ratio) measure.(10) Concentration index (CI) is another method. This index measures relative income-related inequality in health care use. Summarization of the distribution of each maternal health indicator over a gradient of the wealth index was carried out by a concentration index (CI) and a concentration curve (CC), The CI, which ranges from −1.0 to +1.0, captures the extent to which health outcomes and service use are concentrated among different population groups (in this case, the richest and the poorest). A CI of zero means an equal distribution of a particular indicator throughout the economic gradients.

A negative CI indicates a concentration among those who are poorer (i.e. the CC lies above the equality line of 45 degrees), and a positive CI reflects a concentration among those who are richer (i.e. the CC lies below the equality line).(11) Concentration index can be decomposed to show which factors constitute the inequity thus the concentration index helps to quantify the inequity.(12) The study was conducted to assess equity of distribution and utilization of maternal health services between urban and rural strata in Zagazig district representing rural and urban area in Sharkia Governorate, Egypt.

Methods:

Study setting and design: The study is a cross sectional study through two stage cluster stratified random technique for selection of the study setting. Zagazig district was selected to represent Sharkia governorate in Egypt. The district includes health facilities in rural and urban areas in the form of centers and units accredited by Ministry of health and non- accredited health facilities. Each of the urban and rural areas has one center not accredited which was selected. From rural area two units were selected randomly one accredited and the other not-accredited. So, four health facilities were selected to represent rural and urban areas.

Subjects: The calculated sample was 400 married women whether pregnant or not with excluding unmarried females as total number of married women in the child bearing period in Zagazig district was 181,535 women according to the last census recorded in the Zagazig district health and 30% frequency rate of babies having any postnatal care according to Egyptian Demographic Health Survey 2008 (13). Sample size was calculated using Epi-Info at 95% confidence interval and 5% standard errors. The target population was selected randomly from each health facility according to total population in each facility by proportional allocation method.

Data collection instruments: All participants were interviewed using validated maternal health services utilization questionnaire. The questionnaire was accepted to be used then it was translated into the Arabic language. The questionnaires were administered to women of selected health units and centers, the participants were interviewed by the researcher. The questionnaire included: personal data for assessment of socio-demographic characteristics, questions assessing antenatal- natal- postnatal and family planning services utilization, another assessing geographical and financial accessibility of the maternal health services provided by selected units and centers.

Ethical approval: The study was approved by the ethical committee of the faculty of medicine, Menoufia University. Verbal consent was obtained from women after simple clarification of the study objectives and methodology.

Statistical Analysis: Data were analyzed using Statistical Package of Social sciences (SPSS) software program version 18 and Stata/MP version 12.0 software programs. Qualitative data were expressed as number and percentage and analyzed by using Fisher's exact test (to compare the result in rural and urban health facilities). Simple inequity estimated by difference and relative measures. Concentration index and concentration curve were used to clarify gradient equity regarding socioeconomic status, decomposition of concentration index done to show the extent of wealth index affection on health services utilization (wealth used as inequity stratifier).

Results:

The study showed universal geographical accessibility in both urban and rural selected health facilities, with a significant difference between residence and financial accessibility to the provided maternal services as health services cost represent an obstacle in rural residence (Table 1). Simple equity estimation showed that antenatal service utilization was eight fold in urban more than rural, natal care use was twofold in urban more than in rural,

Table (1): Comparison of accessibility of maternal health care services to the studied women in rural and urban facilities at Zagazig district, Sharkia governorate

Variable	Rural (n=141)		Urban (n=259)		Total (n=400)		Fisher's exact test	P-value
	No	%	No	%	No	%		
1- Financial (cost) accessibility:								
▪ Tickets Fees affordable:								
○ Yes	132	93.6	259	100	391	97.75	16.91	<0.001*
○ No	9	6.4	0	0	9	2.25		
▪ Drug price affordable:								
○ Yes	132	93.6	259	100	391	97.75	16.91	<0.001*
○ No	9	6.4	0	0	9	2.25		
▪ Lab. investigation affordable:								
○ Yes	132	93.6	259	100	391	97.75	16.91	<0.001*
○ No	9	6.4	0	0	9	2.25		
▪ Ultra Sound price acceptable:								
▪ Yes	---	---	259	100	259	64.75	---	---
2- Geographical accessibility:								
Accessible	141	100	259	100	400	100	---	---

Table (2) Simple inequity measures for antenatal, natal, postnatal, family planning health indicators between rural and urban health facilities

Health Indicator	Percentage of Coverage	Absolute Inequity (Difference)	Relative Inequity (Ratio)
▪ **Antenatal indicators**			
1- Tetanus toxoid coverage	100	2.1	1.02
▪ Urban	97.9		
▪ Rural			
2- Use antenatal full services			
▪ Urban	69.1	61.3	8.85
▪ Rural	7.8		
▪ **Natal indicator**			
1- Home delivery under professional observation	87.6	45.8	2.09
▪ Urban	41.8		
▪ Rural			
▪ **Postnatal indicators**			
1- mother care			
▪ Urban	98.5	50.3	2.04
▪ Rural	48.2		
2- infant care			
▪ Urban	100	95.7	23.25
▪ Rural	4.3		
▪ **Family planning indicator**			
1- Utilization rate of the service			
▪ Urban	90.7	8.2	1.1
▪ Rural	82.3		

Concentration index (CI) showed that antenatal care (ANC) use (Fig.1), tetanus toxoid coverage and home delivery (HD) by skilled person (Fig.2) indicators were statistically significant in relation to socioeconomic status (SE) with high utilization and concentration in rich group represented by positive value of CI and the concentration curve (CC) lies below the equity line except tetanus toxoid coverage which had zero value referring to equal distribution through socioeconomic gradient, positive CI of mother education (ME) indicator (Fig.3) reflects its concentration among rich but without statistical significance, Postnatal mother care (PNMC) (Fig.4) and family planning usage (FP) (Fig.5) were significant and concentrated in poor group represented by negative value of CI and the CC lies above the equity line, postnatal infant

care was not significant with its concentration and high utilization among poor group (Table 3).

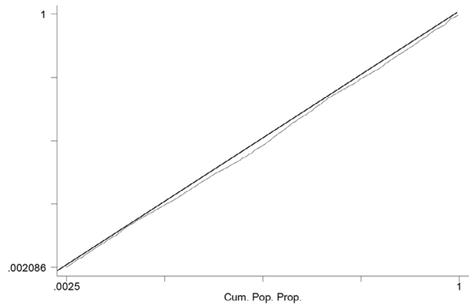

Figure 1: Concentration Curve of antenatal Care and Socioeconomic level

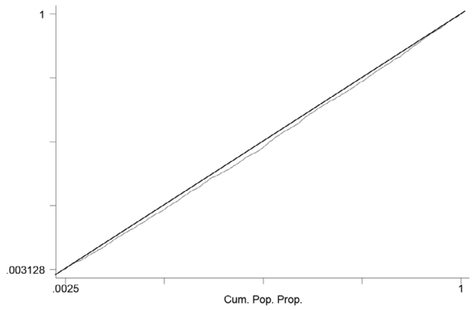

Figure 2: Concentration Curve of home delivery and socioeconomic level

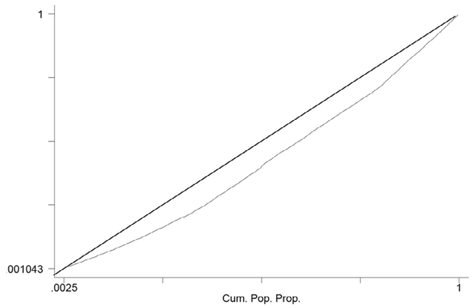

Figure 3: Concentration Curve of mother education and socioeconomic level

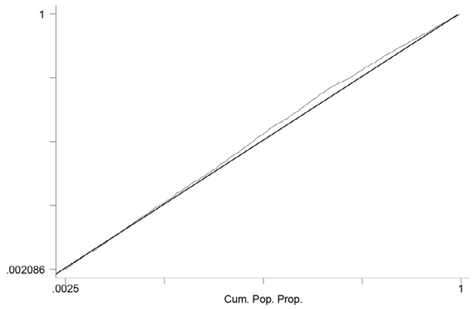

Figure 4: Concentration curve of postnatal mother care and socioeconomic level

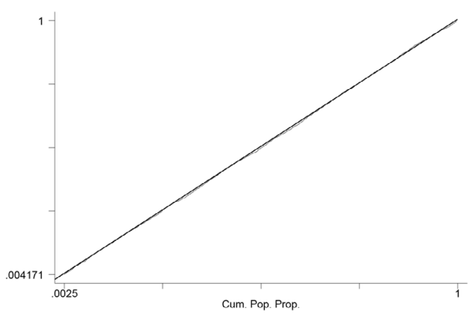

Figure 5: Concentration curve of family planning usage and socioeconomic level

Decomposing of concentration index showed Positive value of contribution regarding antenatal services utilization, postnatal mother care and mother education indicates pro-rich inequality, negative value of contribution regarding tetanus toxoid coverage, postnatal infant care and family planning and home delivery under skilled person observation indicates pro poor with negative association and outcomes (Table 3).

Table (3): Decomposition of concentration index for each maternal indicator in relation to social class

Indicator	Concentration index	Contribution	Share
1- Mother education	0.16750472	0.0027332	-0.22678
2- Using antenatal full services	0.01861477	0.000937274	-0.07777
3- Tetanus vaccination	0.00349876	-0.000391361	0.032472
4- Home delivery by skilled person	0.01501459	-0.002545682	0.211221
5- Postnatal mother care	-0.03606394	0.003107613	-0.25785
6- Postnatal infant care	-0.06333644	-0.004425012	0.367154
7-Consuming family planning services	-0.01250556	-0.003780385	0.313667

Discussion:

The study revealed universal geographical accessibility to primary health facilities with a significant difference between residence and financial accessibility to provided maternal services. A study done in China (14) revealed that almost all maternal units of Shenzhen area were accessible geographically with no significance in relation to residence the author referred the result to the governmental policies followed in this area which reflect the importance of upper health policies in achieving universal accessibility.

Antenatal service utilization was eight fold in urban more than rural, natal care use was twofold in urban more than in rural, postnatal infant care was over twenty fold in urban over rural by relative simple inequity assessment. This result agreed with a study done in Thailand (11) which revealed that women living in urban areas were up to 4% more likely than those in rural areas to receive prenatal and delivery care from a skilled health worker, and delivery in a health facility, but in general the urban–rural gap for MCH service coverage was small. Another study done in Sub-Saharan African countries (14) showed that there were marked relative and absolute urban-rural disparities between the utilization of antenatal services, skilled birth attendance and modern contraception in all countries especially in Madagascar.

Maternal health services utilization inequity was apparent with slight significance in antenatal services utilization and home delivery under skilled person observation and these indicators were concentrated in the richer subgroups, equal distribution to tetanus toxoid coverage indicator throughout the economic gradients and slight significant difference in distribution of postnatal

mother care and family planning services utilization indicators with their concentration among the poor. Negative concentration index of postnatal infant care reflects its concentration among relatively poor subgroups, but without statistical significance.

Positive concentration index of mother education indicator reflects its concentration among relatively rich subgroups but also without statistical significance. The result agreed with a study done in Thailand about equity in maternal and child health. (11) A study done in Sub-Saharan African countries (15) agreed with the result and showed an evidence that wealthier mothers utilized more antenatal services, skilled birth attendance and family planning services in all countries specially in Madagascar, Cameroon and Zimbabwe.

Decomposition analysis clarifies that wealth variable affect maternal health services utilization with relatively a same extent. Positive value of contribution regarding antenatal services utilization, postnatal mother care and mother education indicates pro-rich inequality. Negative value of contribution regarding tetanus toxoid coverage, postnatal infant care and family planning and home delivery under skilled person observation indicates pro-poor inequality with negative association to outcomes. Regarding share value and the extent of wealth effect on maternal health services utilization inequality we found that postnatal infant care and family planning services were the most affected indicators by wealth.

Conclusion:

Maternal health care inequity regarding residence was revealed by this study. Socio-economic status was social determinant that affect utilization rate. Antenatal services utilization and home delivery with skilled person were observed to be concentrated in rich group, equal distribution to tetanus toxoid coverage, postnatal mother care and family planning services were observed to be concentrated in poor group. Regarding share value of decomposition we found that postnatal infant care and family planning services were the most affected indicators by socioeconomic standard.

Declaration:

The study was approved by the ethical committee of the faculty of medicine, Menoufia University. There was no conflict of interest and there are no funding agencies.

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الملخص العربى

الانصاف في خدمات صحة الام بين الواقع والمأمول في مدينة الزقازيق، محافظة الشرقية، مصر (٢٠١٥/٢٠١٦)

ا.د. تغريد فرحات[١] - د هاله شاهين[١] - د. أمل سلامة[١] –ط.هناء صلاح[٢]
قسم طب الأسرة كلية طب المنوفية[١]- قسم طب الأسرة كلية طب االزقازيق[٢]

ان الإنصاف هو مفهوم أخلاقي. ويشمل الإنصاف في مجال الرعاية الصحية المساواة في الحصول على الرعاية المتاحةللجميع في وقت الحاجة. وأدي انهيار النظام الطبي التعاوني الي عدم حصول الفقراء أو غير المؤمن عليهم للخدمات الضرورية للحفاظ على الصحة الجيدة. مما يؤدي إلى سؤ استخدام الخدمات الصحية للفقراء و خاصة في الريف. وكان الهدف من الدراسه هو تقييم الانصاف في التوزيع والاستفادة من خدمات صحة الأم في الحضر والريف في مدينة الزقازيق،محافظة الشرقية أجريت دراسة عشوائية عنقودية مقارنة على ٤٠٠ امرأة متزوجة في. فترة الإنجاب. وقد تم جمع العينة المحسوبة من أربعة مرافق للرعاية الصحية الأولية؛ وقد تم اختيار هذه المرافق بشكل عشوائي. وأجريت مقابلات مع النساء من خلال استبيان مصمم مسبقا. وقدرت معدلات الاستخدام ومقارنة بشأن الإقامة. وجرى تقييم عدم الانصاف بالطريقة .البسيطة و المتدرجة وكشفت الدراسة أن معدل الاستخدام عالي لخدمات صحة الأم في منشأت المناطق الحضرية أكثر مما في المناطق الريفية. وقد ظهر ذلك بدلالة ذات أهمية إحصائية في سبعة مؤشرات خاصة بصحة الأم. وتأكد ذلك بعوائق في الاتاحة الجغرافية وكذلك الاتاحة المالية. كان هناك ارتفاع ملحوظ في عدم توافر للانصاف بالنسبة لمكان الإقامة من حيث الاستفادة من الخدمات الصحية. الوضع الاجتماعي والاقتصادي يؤثر بنسب مختلفة على استخدام الخدمات . الصحية وخلصت الدراسه الى ان مكانا لإقامة تؤثر بشكل كبير على استخدام الخدمات الصحية والإقامة في الحضر أكثر ميلا لاستخدام الخدمات الصحية. وبالنسبة للاتاحة المكانية متوافرةاما الاتاحةالمالية فتتأثر بالإقامة. تأكد عدم توافر للانصاف بالنسبة للإقامة. الوضع الاجتماعي والاقتصادي يعتبرعامل محدد يؤثر على الخدمات الصحية بطريقة.إيجابية أو سلبية