

Gender Disparity in Health: A Leading Role of Family Socioeconomic Status-A Community-Based Study

Madiha Said Abdel-Razik, Ghada Wahby Elhady and Nesreen Mohamed Kamal Elden

Department of Public Health, Faculty of Medicine, Cairo University, Cairo, Egypt

Abstract: This study investigated gender disparity in health across two different socioeconomic strata of families. Two groups of families were included; 200 Socioeconomically Disadvantaged Families (SDF) and 200 Socioeconomically Empowered Families (SEF). Results showed that the prevalence of non communicable diseases (hypertension and gastro-intestinal) was higher among females than males in SDF (OR=2.2 and 1.7 respectively, $p < 0.05$) but not in SEF ($p > 0.05$). Few (32.8%) SDF females sought private quality health facilities versus 76% of SDF males (OR=5.2, $p < 0.05$), SEF figures indicated insignificant gender differences. In conclusion: Improved socioeconomic status of families (males and females) is crucial to overcome gender health disparity.

Key words: Egypt • Gender disparity • Socioeconomic status of families • Non- communicable diseases • Health services utilization

INTRODUCTION

Health disparities are the differences in health between people due to socioeconomic and cultural determinants. Unfortunately, many cultural ideologies and practices contributed in creating gaps between women and men that lead women to become more vulnerable to morbidity and mortality and to have different barriers to access quality health care. This situation is termed as gender disparities in health [1]. The World Health Organization WHO [2] emphasized the importance of gender-responsive health programs to optimize the benefits for men, women and families. Accordingly, gender analyses studies are crucial to identify gender-based differences in health risk, gender disparity to improve access to quality health services [1]. There are different studies focusing on strategies for eliminating gender disparity through improving education and reducing poverty to improve world health [3]. Socioeconomic status (SES) measured as a combination of education, income and occupation, is considered as an important determinant of health (morbidity and mortality). As well, SES affects accessibility, affordability, acceptability and actual utilization of various available health facilities [4, 5].

Different initiatives had been carried out to integrate women in development projects to reduce the gender disparity [6-11]. Also, WHO Commission on Social Determinants of Health emphasized the adoption of multilevel strategies to reduce gender gaps [12]. However, the adoption of gender issues varies across countries as it is confronted with challenges related to cultural, social and economic issues, especially in developing countries [13].

Egypt cultural, social and economic aspects play a role in reducing women's autonomy, financial independence and access to health care services [14]. Despite substantial improvements in female literacy rates, enrolment rates, labor force participation, there remains a gender gap in favor of males. Egypt ranks 130 on the Gender Inequality Index out of 187 countries as per 2014 Human Development Report [15]. Also despite progress achieved in the area of health, lack of access to low cost health services and the absence of medical insurance schemes remain a challenge [3].

A study conducted in a low socioeconomic district in Cairo- Egypt had shown that the Ministry of Social Solidarity (MSS) policies include financial support to families who are categorized as vulnerable due to their poverty and chronic morbidity. This community-based

study conducted in 2009 in an urban district in Cairo-Egypt to identify priority families for preventive and curative health care showed that families headed by women were at an increased risk for morbidity, disability and mortality. The at-risk families comprised 15% of the families at district level [16]. Such findings raised the dispute that poverty at family level and gender health disparity are articulating and synergistic and should be addressed together. Having information about this articulating model guides decision makers in issues related to gender disparity in health within the agenda of socioeconomic status of families.

The current study tackled the questions: Is there an association between the family socioeconomic status and gender disparity in health? Does improved family socioeconomic status overcome gender disparity in health?

MATERIALS AND METHODS

Study Location: The study was conducted in a randomly selected sub-district (El-Atrees Shiaka) out of 15 sub-districts in El-Saida Zeinab District, which was one of the 37 districts in Cairo, the capital of Egypt. El-Saida Zeinab District is located within the catchment area of Cairo University Hospitals and has different Non Governmental Organizations (NGOs) and District Office for the MSS.

Study Design, Period and Population: The study was a community-based exploratory comparative study conducted on two groups of families. The first group represented all (n=200) the Socioeconomically Disadvantaged Families (SDF) within the sub-district; registered in the Egyptian MSS district office. The second group was 200 Socioeconomically Empowered Families (SEF) living within the same buildings of the SDF and matched with SDF by age of the mother (25-49). The SEF do not receive MSS financial support and not registered in the MSS district office. The data were collected throughout the period July 2011- October 2011.

Sample: According to census 2006 data- and estimated population data by CAPMAS [17], the total population resident in "El-Atrees Shiaka" is about 9000 individuals. The total families in El-Atrees Shiaka was 1800 families, with 900 families have ever-married women aging 25-49 years and 21% (n=189) of those families are

Socioeconomically Disadvantaged Families (SDF) according to MSS criteria. After updating of data by MSS district office, the SDF found to be 200. The sample size equaled to 200 SDF in addition to other 200 SEF that were included as a control group.

Inclusion Criteria: The inclusion criteria included all families resident in El-Atrees sub-district and registered in MSS-district office data base 2010 as SDF and have specific criteria set by MSS making them eligible for financial support. The study included families with age of the mother 25-49 years. Selection of mothers in this age group was aiming at having young families that represent current situation regarding socioeconomic and health status. Other 200 SEF were included as a control group and matched with the SDF by residence of the family and age of mother.

Site Selection and Data Collection: El-Atrees sub-district was a randomly selected sub-district out of 15 sub-districts in El-Saida Zeinab District, which was one of the 37 districts in Cairo, the capital of Egypt. The first group of the study participants represented the socioeconomically disadvantaged families (SDF) registered at the local office of MSS as target group for social and monthly financial support. This financial support is provided to families who are fulfilling the following criteria: their monthly spending on non-food essentials is less than certain value depending on the family size e.g. less than 299 LE for a family of 4 members according to Central Agency for Public Mobilization and Statistics (CAPMAS) [17], the household being headed (financially sponsored) by a woman and presence of disability of any family member.

The second group acted as a control group and consisted of the socioeconomically Empowered Families (SEF) that were neighbors of the SDF in the same buildings but not registered in the MSS office database and do not receive monthly support.

Reaching the index families (SDF) by data collectors and representatives of MSS office was done according to registered addresses for all those families having the mother 25-49 years old. The control group (SEF) included families resident in the same building with the mother's age matched with the mother in the index family. If more than one SEF fulfill the criteria were resident in the same building the one in the same floor was selected if fulfilling the criteria or randomly select another family from the same building.

The data were collected by two female researchers from the public health department and a representative of the MSS office facilitated communication with the study families.

Instruments/Tools of Data Collection: Communication was carried out with the staff members in the MSS office to orient them about the study objectives and the intended study outcomes. Representatives from the MSS office accompanied the researchers to the houses of the target families.

A structured questionnaire form was used during interview with mothers in each of the 400 families. The data collection tool in this study was designed based on the questionnaire form that was previously used and validated by Egypt Household Health Service Utilization and Expenditure Survey [18]. Pilot testing of the questionnaire was conducted before implementing the study.

The questionnaire was designed to gather information about: Socio-demographic background of the family members, Life-table for the family since marriage till the study time. Medical history for each member of the family, focusing on non-communicable diseases (NCD) (included 19 disease categories namely: 1- Hypertension 2- Joint 3- Liver 4- Gastrointestinal 5-Diabetes mellitus 6- Eye 7- Blood 8- Heart 9- Chest 10- Genital 11- Renal 12- Neurological. 13-Skin 14-Psychological 15-Cancer 16- Bone 17-Congenital 18-Acquired and 19-Others). Utilization pattern of health services by all family members during the last three months prior to the survey was also included.

Variables: The questionnaire form included three sections: (1) demographic and socioeconomic background of parents and total monthly income of the families, age and sex structure of the families (2) history of diagnosed NCDs among family members. (3) Utilization pattern of health services delivery points during the last three months prior to the survey.

Socioeconomic Status: comparison and tests of significance between parents in SDF and SEF according to percent distribution by education and work status were done. Economic status was assessed as average income per family member per month (total monthly income per family / total number of family members)

Assessment of *Gender Disparity in education* at family level (for SDF and SEF): Gender parity index (presented as the ratio of percent of female to male attained primary - secondary education) [19] was used to measure gender disparity in education attainment.

Gender Disparity in health: Test of significance was used to compare the proportion of males versus females of the same family group reported diagnosed NCDs.

Gender Disparity in Utilization of Quality Health Services: The study considered two service delivery sources for health services:

- Public sector: Primary health care facilities, public hospitals and governmental health insurance facilities which provide free or low fee-for service reasonable/low quality services
- Private sector: private clinics, hospitals, NGOs clinics and hospitals as well as pharmacies which provide fee-for service quality services.

Data Analysis: Collected data (pre-coded and recoded variables) were entered and processed using SPSS version 17.0 (SPSS Inc. Chicago IL, USA). Quantitative variables were presented by mean and standard deviation and comparison was done using t-test. On the other hand qualitative variables were presented by frequency and percentage. Comparison was done using Chi-square test. Odds ratio and 95% confidence interval were calculated. P value was considered significant if <0.05 .

Ethical Considerations: The study proposal and data collection form were approved by the Ethical Review Board of Faculty of Medicine and Public Health Department - Cairo University. Informed consent and active contribution of the district MSS staff representatives had been documented. Informed consent from the informants (women/wives) was obtained during conduction of the household survey. During the field work, referral of identified cases to get health services at Cairo University hospitals was done for all participants irrespective of their categories. Confidentiality was preserved by coding the recorded information and making it identifiable only to the research team.

RESULTS

Table (1) illustrates the socioeconomic and demographic characteristics of the two studied groups of families. There were insignificant difference between SDF and SEF families regarding the age of mothers and the mean number of family members. It is obvious from the table that husbands' education and wives' education differed significantly between both groups ($p=0.001$). More than half of the husbands (54.5%) and wives (57.5%) of SDF were non-educated versus 28.5% of the husbands and 36% of the wives related to SEF respectively. Within the same family group, gender

Table 1: Socio-demographic characteristics of studied families

Socio-demographic Parameters	*SDF (n=200) No. (%)	*SEF (n=200) No. (%)	p
Mothers' age (Y)			0.07 [†]
Median (minimum, maximum)	33 (25, 49)	33 (26, 49)	
Family Size (number of living family members)			0.13 [#]
Mean Number Family Members	4.6 (± 1.3)	4.7 (±0.6)	
Education of Husbands			0.001 [†]
Non-educated	109 (54.5)	57 (28.5)	
Primary- Secondary	70 (35.0)	101(50.5)	
High Education	21 (10.5)	42 (21.0)	
Education of Wives			0.001 [†]
Non-educated	115(57.5)	70 (36.0)	
Primary- Secondary	67 (33.5)	94 (46.5)	
High Education	18 (9.0)	36 (17.5)	
[GPI] for education(Primary- Secondary) [‡]	0.96	0.92	
[GPI] for education (High Education) [‡]	0.86	0.83	
Occupation of Husbands (dead husbands; n=28, are not included)			0.001 [*]
Not-working for cash	80 (46.5)	9 (4.5)	
Temporary job	74(43.0)	0 (0.0)	
Established job	18 (10.5)	191 (95.5)	
Occupation of Wives			0.001 [*]
Not-working for cash	69(34.5)	149(74.5)	
Temporary job	110(55.0)	1 (0.5)	
Established job	21 (10.5)	50(25.0)	
Crowdedness Index			0.13 [*]
≥ 2 persons /bed room	79(39.5)	94(47.0)	
More than 2 persons /bed room	121(60.5)	106(53.0)	
Income per family member:			0.001 [#]
Monthly Income (mean ± SD)/family member	LE 132.4±94	LE 209.4±153	
Total number of living family members	927	933	

*Socioeconomically disadvantaged families (SDF) and socioeconomically empowered families (SEF)

^{*}Chi square test, [#] t-test, [†] U test, p is significant if <0.05

[GPI]: Gender Parity Index

analysis indicated equity regarding education attainment with insignificant differences between fathers and mothers (p=0.1, OR=1.3, CI=0.8 -2.1 in SEF and p=0.2, OR=1.2, CI=0.9-1.6 in SDF). Gender parity index presented as the ratio of percent of female to male attained primary - secondary education was 0.92 in SEF and 0.96 in SDF. However, disparity in mother's education attainment was significantly obvious between the 2 groups. Mothers related to SEF were 2.5 times more likely to be educated than mothers related to SDF (p=0.00, OR=2.5, CI=1.7-3.8).

SEF had their economic resources from 95.5% of working fathers and 25.5% from working mothers (p=0.00, OR=62.0, CI =29.5-129.9), yet a reverse situation for SDF with economic dependency on 53.5% of working fathers and 65.5% of working mothers (p=0.02, OR=0.6, CI=0.4-0.9). Mothers related to SDF were 2 times more likely to be working than mothers related to SEF (p=0.000, OR=2.0, CI=0.1-0.3). Though, 84% of mothers in the SDF were involved in temporary/unstable low wage jobs.

A significant difference was detected between both groups as regards average monthly income per individual, being higher in SEF group than in SDF group (LE 209 ±153 vs. LE 132.4 ± 94 respectively).

Table (2) displays the demographic background of SDF and SEF members by age and sex. For SDF the total family members were 927 with female to male ratio 110:100. Off springs had female to male ratio of 106:100. For the age group less than 20 years the female to male ratio was 97:100. For the age group ≥20 years the female to male ratio was 121:100.

For SEF the total family members were 933 with female to male ratio 96:100. Off springs had female to male ratio of 93:100.

For the age group less than 20 years, the female to male ratio was 99:100. For the age group ≥20 years, the female to male ratio was 94:100.

Morbidity Profile of SDF and SEF by Gender of ≥ 20 year old Family members: Socioeconomic status as a protagonist / pivotal parameter that influences gender

Table 2: Demographic background of family members by gender and age; socioeconomically disadvantaged families (SDF) and socioeconomically empowered families (SEF), urban sub-district in Cairo, Egypt

Parameters	SDF members n=927 (100%)		SEF members n=933 (100%)	
	Females	Males	Females	Males
All family members	485 (52.3%)	442 (47.7%)	457 (49.0%)	476 (51%)
Family members <20 years	195 (21.1%)	202 (21.7%)	216 (23.2%)	219 (23.5%)
Family members ≥20 years	290 (31.3%)	240(25.9%)	241 (25.9%)	257 (27.4%)

Table 3: Percent of ≥ 20 years old family members with reported morbidity by gender for socioeconomically disadvantaged families (SDF) and socioeconomically empowered families (SEF), urban sub-district in Cairo, Egypt

Diseases among ≥ 20 Y old Family Members	SDF		SEF	
	Females (n=290)	Males (n=240)	Females (n=241)	Males (n=257)
Hypertension	15%	4%	14%	10%
†p	0.000		0.2	
‡OR (95% CI)	4.6 (2.2-9.6)	1.46 (0.85-2.5)		
Musculo-skeletal disorders	20%	11%	16%	9%
†p	0.005		0.02	
‡OR (95% CI)	2.1 (1.3-3.4)	1.96 (1.1-3.4)		
Liver diseases	6%	3%	3%	2%
†p	0.2		0.6	
GIT diseases	11%	5%	10%	5%
†p	0.007		0.055	
‡OR (95% CI)	2.7 (1.3-5.4)	2.0 (1.03-4.2)		
Diabetes	5%	7%	9%	6%
†p	0.5		0.2	
Heart diseases	6%	4%	2%	2%
†p	0.4		0.7	
Chest diseases	7%	7%	7%	6%
†p	0.7		0.7	
Ratio of disease conditions to family members = 20 Y old	57%	38%	55%	42%
†p	0.000		0.005	
‡OR (95% CI)	2.2 (1.5-3.1)		1.7 (1.2-2.4)	

† Chi square test, p is significant if < 0.05

‡OR calculated only when p is significant

Table 4: Percent of family members reported utilization of health services delivery points in the last three months, by gender and the last sought health sector; socioeconomically disadvantaged families (SDF) and socioeconomically empowered families (SEF), urban sub-district in Cairo, Egypt

Service Delivery Points	SDF		SEF	
	Females (n=485)	Males (n=442)	Females (n=457)	Males (n=476)
Any utilized health services (number)	192	93	86	76
Percent	39.6%	21.0%	18.8%	16.0%
†p	0.000		0.2	
‡OR (95% CI)	2.5 (1.8-3.3)			
Public Sector (number)	80 (41.7)	22	70	67
Percent	41.7%	23.6%	81.4%	88.2%
†p	0.000		0.2	
‡OR (95% CI)	4.6 (2.2-9.6)			
Private sector (number)	112	71	16	9
Percent	58.3%	76.3%	18.6%	17.8%
†p	0.00		0.2	
‡OR (95% CI)	5.2 (3.26-8.38)			

† Chi square test, p is significant if < 0.05

‡OR calculated only when p is significant

disparity in health was studied in relation to NCDs among ≥ 20 year old family members of SDF and SEF. As shown in Table 3, females in general had the tendency to suffer from diseases more than males for both SDF and SEF. The ratio of disease conditions among SDF females was 57% and among males was 38% ($p=0.00$, $OR=2.2$, $CI=1.5-3.1$) with counterpart figures for SEF 55% and 42% respectively ($p=0.005$, $OR=1.67$, $CI=1.2-2.4$). Females related to SDF suffered nearly five times more than males from hypertension ($p=0.00$, $OR=4.6$, $CI=2.2-9.6$), two times more than males in musculo-skeletal disorders ($p=0.00$, $OR=2$, $CI=1.3-3.4$) and nearly three times in GIT disorders ($p=0.007$, $OR=2.7$, $CI=1.3-5.4$).

Utilization of Different Health Service Delivery Points According to Gender: Table (4) shows utilization of health services during the last three months prior to the survey as reported by studied families and included all family members (927 members of SDF and 933 members of SEF) by the last source of service. As depicted from Table 4, higher proportion of females and males in the SDF than SEF had utilized health services. For SDF, females had 2.5 times more tendency to utilize health services than males ($p=0.000$, $OR=2.5$, $CI=1.8-3.3$). For SEF, there were insignificant differences in the proportion of males and females who utilized health services in the last three months ($p=0.2$). SDF males had more opportunities than females to utilize quality private health services (76.3% vs. 58.3%, $p=0.00$, $OR=5.2$, $CI=3.26-8.38$). For SEF, there were no significant differences between females and males regarding the sources of utilized health services; whether related to public (no or low fee for service) or private (quality high fee-for service) sectors ($p=0.2$).

DISCUSSION

The current study addressed gender analysis within three articulating issues that could influence family health: education, poverty and women's health. The study presented two life-models for two groups of families having the same living environment and cultural backgrounds. However, one group i.e. SEF succeeded to overcome gender disparity in health where there were no significant differences between males and females (≥ 20 years old) regarding the prevalence of diagnosed NCDs as hypertension and GIT disorders. Additionally those families provided equal accessibility for males and females to utilize private (high-fees good quality) and public (low fees- preventive and curative services) health sectors. For the other group of families (i.e. SDF), the

backwardness in education status of parents and low income made it clear how cultural factors put more pressure on women to work in unskilled low wages jobs, suffer the pressure of earning the family living and have less opportunity to access quality health service compared to males in the same family. Subsequently, such triggering socioeconomic background led females to suffer from NCDs with significantly higher prevalence than males in the same family. Additionally, gender disparity extended to make utilization of quality private services more feasible for males and limited for females.

The study provided different methodology approach where gender analysis was conducted for two categories of families: SDF and SEF who have the same living environment so as to eliminate the role of physical environment and cultural determinants for health on gender disparity in health. Therefore, the current study was designed to find out strategies for closing the gender gap in three issues e.g. education, poverty and health, which is a challenging issue in Egypt. From the economic policy debates that are currently prevailing in Egypt, there are more complex and competing issues involved for closing gender gap to reduce poverty [20]. Consequently, the current study was working on gender issue with assumption of preserving the status quo regarding socioeconomic status especially education for males and females, as it needs long term economic policies. Therefore, the study focused on female education/awareness and disease burden at family level.

Education stands alone as an important dimension of welfare. The right to education is recognized in the Universal Declaration of Human Rights and the second Millennium Development Goal (MDG) aims at providing primary education for all [21]. Most of the Middle East and North African countries have achieved gender parity in primary education, except for Iraq, Syria and Yemen. As for secondary education, Djibouti, Iraq, Morocco and Yemen still show a lower enrolment rate for females. Other countries, however, are showing higher enrolment rates for girls than for boys in secondary education, including Lebanon, Qatar, Saudi Arabia and Tunisia. Data for some countries reveal much higher literacy rates for young men as compared to young women [21-27] in particular Algeria, Egypt, Iraq, Morocco, Syria and Yemen [21]. Despite other studies on Egypt showed that males had more opportunities to attend schools than females at the national level (Gender parity Index for primary schools was 0.98 and it was 0.94 for secondary schools) with some variations across regions urban/rural [19, 24], the current study did not identify gender gaps regarding education

for two selected types of urban families SDF and SEF. The Gender parity Index (GPI) for female to male attained primary and secondary education was 0.96 and 0.92 for parents of SDF and SEF respectively. Similar figure (0.96) was reported by the World Bank in 2011 [7]. However, GPI of the current study is lower than the Egypt national level due to time of the study survey which included older cohort than Egypt Demographic and Health Survey (EDHS) 2014 [19]. This insignificant difference between males and females education status for specific community/socioeconomic strata indicates that gender education equity is there, but the issue of disparity is rather between females related to different socioeconomic strata.

Measurement of socio-economic markers depends on two mingling indicators: education and working for cash. As observed from the study, poor families were dependent mainly in their economic recourses on females. Females in those families were involved in a low wage, unstable jobs with less opportunity for official jobs that support their enrolment in health insurance programs. Therefore, the study adjusts an important dimension and indicator that is usually used in measuring women empowerment i.e. working for cash. The current study delineated that it is a less sensitive indicator, because working of non-educated woman in unskilled job and minimal unstable wage could have negative impact on her health (e.g. stress and less time devoted for health and nutrition care for herself and her family). Education of women and their partners are important indicators that could be used in gender analysis studies.

The study while accepting the biological differences between males and females regarding patterns of many health problems, it added another parameter that could influence gender disparity in health i.e. socioeconomic status at family level. Such findings concur with other studies. The differences between men and women in the living and working conditions and in their access to a wide range of resources put them at differential risk of developing some health problems, while protecting them from others [25].

Gender analysis studies conducted in Egypt were focusing on reproductive health especially for adolescents [26, 27]. In Africa, Secondary analysis of Demographic Health Survey (DHS) data from eight countries provided evidence that gender equity is associated with improved maternal and child health [28]. The current study focused on gender disparity regarding morbidity related to chronic NCDs among population \geq 20

years old. In-depth analysis of health data for the two categories of families delineated the outcome of synergism between poverty and illiteracy on family health. This synergism had made females within poor families suffer significantly higher morbidity than males, especially in chronic diseases as hypertension, musculo-skeletal disorders and GIT diseases. Hypertension was significantly more prevalent in females than males in the study conducted in Egypt, 2011 (19.3% vs. 15.8%) [29]. High illiteracy rates, poor access to health facilities, bad dietary habits, poverty and social stress are among the risk factors for hypertension [30]. As regards musculoskeletal disorders, other studies also revealed females predominance [31, 32]. On the other hand, previous study confirmed that women are more likely to have gastrointestinal (GI) disorders than men [33].

The findings of the current study related to high prevalence of diseases among females than males had been approved in different branches of medicine. Some studies attributed the problem to gender inequalities in access to health promoting resources which resulted in negative effect on women's health [4]. The current study approved this evidence as there were insignificant differences between males and females regarding prevalence of hypertension and GI disorders for SEF.

The pattern of utilization of different health service delivery points for preventive or curative care during a certain point of time depends on the demanded services. Affordability for the service delivery point influenced the choices of males and females related to the two groups of the studied families. The current study being conducted in an urban area had shown that women could access different health service facilities especially public hospitals which provide comprehensive low fee services and for different medical specialties. Such findings contradict the situation in other areas in Egypt as Rural Upper Egypt where there is transportation (structural) and financial barriers to access health services [34]. However, adult females in Egypt had more tendencies to utilize health services than men [35]. Gender disparity is more obvious among SDF regarding the utilization pattern of health services delivery points. For SDF, females had 2.5 times more tendency to utilize health services than males ($p=0.000$, $OR=2.5$, $CI=1.8-3.3$). For SEF there were insignificant differences in the proportion of males and females who utilized health services in the last three months ($p=0.2$). For SDF males had more opportunities than females to utilize quality private health services (76.3% vs. 58.3% respectively, $p=0.00$, $OR=5.2$, $CI=3.26-$

8.38). For SEF, there were no significant differences between females and males regarding the sources of utilized health services whether related to public (no or low fee- for- service) or private (quality high fee-for service) sectors.

Strengths: The study is a gender analysis research that provides an evidence that gender equity and human rights could be enhanced through improving education of males and females.

It is a community-based study for a well-defined district that highlighted the situation among the target vulnerable families compared to other families, rather than depending on the general average situation for the whole district that could be misleading while planning for gender equity interventions. The study design and sampling depended on multidisciplinary approach where, the Faculty of Medicine and MSS office contributed in providing list of the target women/families that represented the up-dated sample of the study and facilitated household access to the target families.

The study is family oriented rather than individual oriented. The study started by a sample of 200 SDF and 200 SEF, but included analysis of data for 1860 individuals (927 individuals related to SDF and 933 SEF). Therefore, gender disparity in health was studied across different generations.

Limitations: The study of disease burden depends on diagnosed cases among those who sought health care facilities. Undiagnosed cases are not included as they need epidemiological study to identify the prevalence of different diseases and according to specific "case definition" for each diagnosed case.

Implications: The information derived from the current study provided critical messages for stakeholders involved in policy reform to improve socioeconomic and health status of women within the concept of gender equity. Additionally, the study presents an advocacy to policy makers that gender equity; through emphasizing on female education, could reduce disease burden at family level and reduce the burden on health system due to high demands of female family members to different types of health services. Reallocation of resources to devote more support to female education could reduce the cost of management of disease burden at family level. Program planners for family medicine should consider the association between families' socioeconomic status and gender disparity in health.

ACKNOWLEDGEMENT

Authors do acknowledge all ministry of Social Solidarity district office members and families who participated in this study. As well, great appreciation goes to Cairo University Hospitals that received cases referred for medical care from the study households.

REFERENCES

1. Wikipedia, 2015. Gender disparities in health. (http://en.wikipedia.org/wiki/Gender_disparities_in_health). Accessed 6 October 2015
2. WHO (World Health Organization), 2015. Gender. Fact Sheet, pp: 403. August 2015. (<http://www.who.int/mediacentre/factsheets/fs403/en/>). Accessed 7 October 2015.
3. Tyer-Viola, L.A. and S.K. Cesario, 2010. Addressing poverty, education and gender equity to improve health of women worldwide. *Journal of Obstetric Gynecologic. and Neonatal Nursing*, 39(5): 580-589.
4. Schäfer, I., E.C. von Leitner, G. Schön, Daniela Koller, Heike Hansen, Tina Kolonko, Hanna Kaduszkiewicz, Karl Wegscheider, Gerd Glaeske and Hendrik van den Bussche, 2010. A new approach of disease clustering identifies complex interrelations between chronic conditions. *PLoS One*. 5(12): e15941. doi:10.1371/journal.pone.0015941.
5. Kok, R., M. Avendano and J.P. Mackenbach, 2008. The association between socioeconomic status and changes in health in Europe. In: *Health, ageing and retirement in Europe (2004-2007): starting the longitudinal dimension*. Mannheim Research Institute for the Economics of Aging (MEA) L13, 17 68131 Mannheim.
6. Doyal, L., 2001. Sex, Gender and health: the need for a new approach. *BMJ*. Nov 3, 323(7320): 1061-1063.
7. Vishwanath, T. and N. Krishnan, 2011. *Gender in the Middle East and North Africa: Progress and Remaining Challenges*. World Bank, Washington, DC. © World Bank. March; 36(3). Available at <https://openknowledge.worldbank.org/handle/10986/10896> License: CC BY 3.0 Unported. Accessed June 2014.
8. Caballero, 2007. *Luz; Alcahuasi, Nerida. Gender in Peru: Can Women be Integrated into Transport Projects?* World Bank, Washington, DC. © World Bank. <https://openknowledge.worldbank.org/handle/10986/10291> License: CC BY 3.0 Unported." Accessed June 2014.

9. Torkelsson, Asa, Rop, Rosemary and Wasike, Theresa, 2011. Truly Teaming: Partnering to Integrate Gender in Kenya's Water Sector. World Bank, Washington, DC. © World Bank. <https://openknowledge.worldbank.org/handle/10986/10436> License: CC BY 3.0 Unported." Accessed July 2014
10. Elena Maria Castro, 2007. Gender Equity Promotion in the Private Sector in Mexico: The Development of a Successful Model. World Bank, Washington, DC. © World Bank. <https://openknowledge.worldbank.org/handle/10986/10637> License: CC BY 3.0 Unported." Accessed July 2014.
11. Beath Andrew, Christia, Fotini, Enikolopov and Ruben, 2012. Empowering Women: Evidence from a Field Experiment in Afghanistan. World Bank, Washington, DC. © World Bank. <https://openknowledge.worldbank.org/handle/10986/12116> License: CC BY 3.0 Unported." Accessed June 2014
12. Sen Gita, Pirooska Östlin and Asha George, 2007. Unequal, unfair, ineffective and inefficient. Gender inequity in health: why it exists and how we can change it. Final Report from the Women and Gender Equity Knowledge Network.
13. Blackden and C. Mark, 1999. Gender, Growth and Poverty Reduction. © World Bank, Washington, DC. <https://openknowledge.worldbank.org/handle/10986/9873> License: CC BY 3.0 Unported." Accessed July 2014.
14. Abdel-Razik, M.S., 2003. Access to Health care among Egyptian Women In: Perspectives on Women's and Children's Health in Egypt. El-Zanaty and Associates and ORC Macro –USAID.
15. UNFPA, EGYPT. Gender overview., 2015. Available at <http://egypt.unfpa.org/english/Staticpage/3/419d6d02-ac4e-4c1f-af98-e48aa894b7cd/GENDER.aspx>. Accessed in March, 2015.
16. Abdel-Razik, M.S., 2012. Assessment of Disease Burden among Families Headed By Young Women. Final report. World Health Organization: Regional Office for the Eastern Mediterranean (EMRO). May.
17. CAPMAS, 2015. Poverty in Egypt increases to 26.3% in 2012/2013 Available at <http://www.dailynewsegypt.com/2013/12/02/26-3-of-egypt-is-poor-capmas/> Accessed in May.
18. Elzanaty and Associates, 2002. Egypt Household Service Utilization and Expenditure Survey. Ministry of Health and Population- Sector of Technical Support of Projects- Health Sector Reform Program.
19. Egypt Demographic and Health Survey. USAID, UNICEF, UNFPA, El-Zanaty and Associates, Ministry of Health and Population –Egypt; 2014.
20. Gunn, M., 2011. Egypt, Middle East gender gap is hampering economic growth: latest World Bank report. Alahram on line. Sept 19. Available at: <http://english.ahram.org.eg/NewsContent/3/12/21654/Business/Economy/Egypt,-Middle-East-gender-gap-is-hampering-economy.aspx> Accessed in March, 2014.
21. World Bank. Burkina Faso: Non-Monetary Poverty and Gender Inequalities, 1993-2010 Trends. Washington, DC. © World Bank. <https://openknowledge.worldbank.org/handle/10986/15992> License: CC BY 3.0 Unported. Accessed in June, 2014.
22. WHO. Countries, Egypt, statistics. 2013. available at <http://www.who.int/countries/egy/en/> Accessed June 2015.
23. UNICEF, 2011. Regional overview for the Middle East and North Africa. MENA Gender Equality Profile. Status of Girls and Women in the Middle East and North Africa, Available at <http://www.unicef.org/gender/files/REGIONAL-Gender-Equality-Profile-2011.pdf> Accessed in May, 2015.
24. Ali, J., R. Nady, M. Joseph and S. Fayez, 2014. Gender Gap in Basic Education in Egypt. Faculty of Economics And Political Science, Cairo University, Class; 2011. Available from <http://www.feps.edu.eg/en/departments/statistics/academicprograms/graduate/2011/3.pdf> Accessed in November.
25. WHO Gender, Woman and health. Available at <http://www.who.int/gender/genderandhealth/en/> Accessed in May, 2015.
26. Health Policy Initiative, Task Order I. Gender Assessment of the USAID/Egypt Health Program. Washington, DC: Futures Group. 2010.
27. Statistics IN Focus. Urban Adolescents: An Equity Challenge. Secondary Analysis of the Data of the Survey of Young People in Egypt UNICEF, Dec. 2010.
28. Singh, K., S. Bloom and P. Brodish, 2013. Gender Equality as a Means to Improve Maternal and Child Health in Africa. Health Care for Women International, pp: 1.
29. Arafa, N.A. and H.S. Ez-Elarab, 2011. Epidemiology of Prehypertension and Hypertension among Egyptian Adults The Egyptian Journal of Community Medicine, 29(1): 1-18.
30. Ibrahim, M. and Damasceno, 2012. Hypertension in developing countries. The lancet, 380(9841): 611-619.
31. Laaksonen, M., P. Martikainen, O. Rahkonen and E. Lahelma, 2008. Explanations for gender differences in sickness absence: evidence from middle-aged municipal employees from Finland. Occup Environ Med., 65: 325-30.

32. Wijnhoven, H.A., H.C. de Vet and H.S. Picavet, 2006. Prevalence of musculoskeletal disorders is systematically higher in women than in men. *Clin J. Pain.*, 22: 717-24.
33. Chang, L.B.B., S. Toner, E. Fukudo, G.R. Locke, N.J. Norton and A.D. Sperber, 2006. Gender, age, society, culture and the patient's perspective in the functional gastrointestinal disorders. *Gastroenterology*, 130(5): 1435-46.
34. Chifa, C., S.A. Labeeb, M. Higuchi, A.M. Ghareds and A. Aoyama, 2013. Nagoya Journal of Medical Science. Barriers to the use of basic health services among women in rural southern Egypt (Upper Egypt). *Nagoya J. Med. Sci.*, 75(3-4): 225-231.
35. Yount, K.M., E.M. Agree and C. Rebellon, 2004. Gender and use of health care among older adults in Egypt and Tunisia. *Social Science & Medicine*, 59(12): 2479-2497.