

## Acute Morbidity Patterns and Health Care Seeking Behavior- a Community Based Study, Mahsama Village, Ismailia Governorate, Egypt

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### Abstract:

**Background:** Information on the existing morbidity patterns and health care seeking behavior (HCSB) is essential for the analysis of most health related policy issues and enable governments to provide a need-based health care especially to rural communities. **Methods:** A community based cross sectional study was conducted from September 1st, 2015 to December 1st, 2015 in Mahsama village, Ismailia Governorate, Egypt to determine acute morbidity patterns and HCSB of 839 households. Data were acquired on predesigned and pretested questionnaire. The household heads were considered as the respondents. The questionnaire included information on household incidence of acute illnesses during the preceding 4 weeks and related HCSB. **Results:** 839 home interviews were conducted with household heads to assess their HCSB and morbidity profile of their family members within the preceding 4 weeks of the study. 442 of respondents (52.7%) reported 984 recent acute illnesses in their families. Upper Respiratory Tract Infection (URTI) presented the most common disease (71.64%). Most patients (53.55%) consulted non-qualified providers. While 46.45% of patients preferred to consult qualified practitioners. The low cost (26.37%) and effectiveness of care (21.82%) were the main reasons behind the selection of the non-qualified providers. Respondents' education level, family income and perception of disease severity were also found to be the main determinants of this pattern of HCSB. **Conclusion:** it is important to develop a need based health care delivery system and actions focusing on the morbidity patterns and beliefs of local community to direct their HCSB to qualified providers.

**Key words:** Acute morbidity incidence, rural health, health care seeking behavior.

**Introduction:** In rural Egypt, a large number of deaths occurs mostly from preventable and treatable infectious diseases, such as Respiratory Tract Infection (RTI), diarrhea, and malaria. Obtaining reliable estimates of morbidity patterns and HCSB is challenging in resource limited countries like Egypt, where poor people tend to access non-qualified health care providers. Information on the existing morbidity pattern and HCSB is also essential for the analysis of most health related policy issues and enable governments to provide a need-based health care to their communities.<sup>(1)</sup>

Egypt initiated its long-term Health Sector Reform Project in 1997. At the core of the reform was the primary health care (PHC) system. The Egyptian government substantially aiming to shift the focus of healthcare from reliance on specialist care to a less costly and more widely

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the Ministry of Health (MOH) serve more than 90 million Egyptians and are geographically and financially accessible to almost all the population.<sup>(2,3)</sup>

However, after 2 decades of the reform, these practices are still widely perceived by the public as a poor source of quality health care, and this is reflected in underutilization of PHC services. Only 6% of patients seeking outpatient care choose MOH primary care practices, whereas 14% self-refer themselves to public hospitals and secondary care providers, and around 80% choose private providers. The high incidence of morbidity cuts a high percentage of household income as most of medical costs is paid out of their pockets. One possible consequence of this could be pushing these families into a zone of more poverty.<sup>(4,5)</sup>

The HCSB refers to the sequence of remedial actions that individuals undertake to rectify perceived ill health. Treatment choice involves a myriad of factors related to illness type and severity, pre-existing lay beliefs about illness causation, the range and accessibility of therapeutic options available, and their perceived efficacy, convenience, opportunity costs, quality of service, staff attitudes as well as the age, gender and social circumstances of the sick individual.<sup>(6,7,8)</sup>

Thus healthcare-seeking pattern and related outcomes have been the focus of community level improvement of health systems worldwide and Egypt is no exception. In last few years, studies have shown that household information based on door-to-door visits were useful for the identification of gaps in perceived morbidity and resultant healthcare-seeking in both urban and rural areas.<sup>(9,10)</sup> Diverse healthcare-seeking patterns, especially involving non-qualified practitioners and pharmacists often resulted in inadequate treatment, improper dosing and over-the-counter purchase of drugs, frequently culminating into development of antimicrobial resistance and other unfavorable outcomes.<sup>(11,12)</sup>

In order to make the existing health-care delivery system more pro-poor, knowledge of morbidity patterns and HCSB is mandatory. Identification of individual factors that may facilitate or impede the effective use of health care services may help us to identify those who may be particularly vulnerable, and provide information that policy makers can use to target services to those in greatest need. Therefore, this study has been designed with expectation to determine the disease pattern and health seeking behavior in Mahsama village, rural Egypt.

**Methods:** The current study is a community based cross-sectional study. It was carried out in a rural community with a population of 5873 as per the 2014 local census. The study was conducted from 1<sup>st</sup> September 2015 to 1<sup>st</sup> December 2015. This community is served by a variety of health care providers, including two family health centers. One is owned by Suez Canal University and the second is owned by Ministry of Health (MOH). As well a variety of non-qualified health practitioners (defined as health care practitioners who are not allowed to treat or prescribe medications for patients) is available and includes pharmacists and traditional healers. The nearest MOH public hospital is located 40 Km far of the village while, the university hospital is 35Km far.

The study included all permanent residents of household heads in the catchment area of Mahsama Family Health Center (839 households) who agreed to participate in the study and signed informed consents. They reported data of 984 acute health problems among their family members during 4 weeks preceding the interview. The reason for seeking health care in our study was based on the patient's complaint and the diagnosis given by the person who treated the patient. HCSB was assessed using 13 item questionnaire, which passed a series of face and content validations including the pilot study and expert review. The questionnaire included questions related to the socioeconomic profile of household heads and patients, the type of last acute illness among any family member, the related HCSB of the household heads and factors that might influence this behavior. The last acute illness of any family member during 4 weeks preceding the interview had been included in counting the overall incidence of acute morbidities.

A census has been done before the study to define the permanent resident of the catchment area of the University Family Health Center (UFHC). Thereafter a group of 7 individuals working in the same health center have been trained to use the questionnaire and interview the permanent household heads (respondents). An informed consent was received from each respondent prior to inclusion. HCSB was defined as using any type of treatment or visiting any qualified or non-qualified health care provider. Appropriate or desired HCSB was defined as seeking treatment and health advice through qualified practitioners working in Primary Health Care (PHC) centers, governmental hospitals, private hospitals/clinics or health insurance.

**Data Mangment:** Recorded data were analyzed using the statistical package for social sciences (SPSS), version 20.0.<sup>(12)</sup> Quantitative data were expressed as mean± standard deviation (SD). Qualitative data were expressed as frequency and percentage. Chi-square ( $X^2$ ) test of significance was used in order to compare proportions between two qualitative parameters. P-value  $\leq 0.05$  was considered significant.

**Ethical considerations:** The study proposal was approved by the Family Medicine Department Ethics Committee, Suez Canal University and verbal informed consent were obtained from all the participants of the study.

**Results:** From 1<sup>st</sup> September 2015 to 1<sup>st</sup> December 2015, 839 home interviews were conducted with household heads to assess their health care seeking behavior and morbidity profile of their family members within the preceding 4 weeks of the study. A total of 839 respondents were interviewed presenting 984 patients in their families. Most of patients aged <19 years old (71.85%), with slightly more females (55.39%). Most of respondents were either illiterate (26.23%) or had formal education up to primary/preparatory (45.54%) and most of them (62.93%) reported unsatisfactory income.

More than 4 hundreds (442) of respondents (52.7%) reported 984 recent acute illnesses in their families. 71.85% of these patients were < 18 years old and 55.39% were females. The URTI presented the most common disease (71.64%), followed by skin infections (7.52%), genitourinary problems (6.40%) and Gastro-Intestinal Tract (GIT) problems (4.87%).

Most respondents (527) comprising 53.55% consulted non-qualified health care practitioners with pharmacy as the first choice (55.03%) followed by home remedy (22.77%). While a lesser number of respondents (457) preferred to consult qualified practitioners in 46.45% of patients with PHC centers of MOH as the first choice (41.57%) followed by the university family health center (15.65%). The respondents reported that low cost (26.37%) and effectiveness of care (21.82%) were the main reasons behind their selection of the non-qualified health care practitioners. Respondents' education level, family income and perception of disease severity were also found to be the main determinants of this pattern of HCSB.

More respondents (53.56%) preferred non-qualified medical care providers than qualified one (46.44%). 29.5% opted for pharmacist as the first priority health care provider for their illnesses, followed by PHCC of the ministry of health (19.3%) and university family practice center(15.7%). Meanwhile health insurance was the least health care provision resource. Perceived low seriousness of the medical encounter and low priced services were the most important reasons behind preference of seeking non formal medical care constituting 38.89% and 34.34% of the reasons respectively. Likelihood of visiting qualified practitioners were higher among subjects who were more educated, having satisfactory income or perceiving the medical encounter as serious. Meanwhile patient's gender was not a determinant.

**Discussion:** The present study was undertaken to assess the morbidity patterns and HCSB in a rural setting of Egypt. The study found that the majority (52.7%) of respondents reported a recent morbidity among their family members. This figure was considerably higher than previously reported values in other developing countries (ranged between 27% and 48%).<sup>(13)</sup> Infectious diseases presented the majority of acute morbidities in the present study (> 90%) which reflects the high prevalence of communicable diseases in Egypt and agrees with the findings revealed by the surveillance of communicable diseases for decision-making in Egypt which has been conducted between 2006 and 2013.<sup>(14)</sup> This high prevalence of communicable disease in Egypt have been always linked to insanitary water and food supply. This highlights the need for a multispectral approach to the prevention of communicable diseases.

The majority of patients seeking curative services in the present study were found to present with relatively minor conditions such as URTI (71.64%), skin (7.52%), genitourinary (6.4%) and GIT (4.87%) rather than more serious ones as reported by surveillance of communicable diseases for decision-making in Egypt which has been conducted between 2006 and 2013.<sup>(14)</sup> where the 3 diseases with the highest incidence rates in 2006 were undifferentiated hepatitis (17.8/100 000), bloody diarrhea (16.8/100 000) and typhoid fever (12.7/100 000). However, in our study only one case of hepatitis A was reported. Findings comparable to the present study were also reported by a similar study where respiratory infections and gastroenteritis were among the most common reasons for encountering healthcare.<sup>(15)</sup>

The results of the present study as regard with the pattern of morbidities are consistent with the studies done in other parts of the world. A Saudi study regarding the utilization of

primary health care centers revealed that acute respiratory infections were the commonest to be reported followed by gastrointestinal problem.<sup>(16)</sup> Another study done in Pakistan showed similar results, ranking respiratory diseases as the most common followed by respiratory infections, parasitic infestations, diseases of the skin and those of the nervous system.<sup>(17)</sup> A multicenter study identifying health problems in family practice showed that the most common acute problems were upper respiratory tract infections, accidents and mental disorders.<sup>(18)</sup>

Many other studies done on children, adolescents and geriatric populations also showed that upper respiratory tract infections to be the most common presentations at the primary health care settings.<sup>(19-24)</sup> Notably, while neuropsychiatric conditions account for 15% of the national burden of disease in Egypt<sup>(25)</sup>, none of these conditions was reported in the present study. This could be attributed to a number of factors which might include social and cultural stigma, taboos and misconceptions attached to mental disorders in Egypt which may discourage neuropsychiatric patients and their families from seeking or reporting medical care for these conditions. Alternatively, patients with psychiatric conditions may present with physical symptoms (i.e. somatization) and may be misdiagnosed by the doctor as having physical condition.<sup>(26)</sup>

A number of studies have shown that trends in seeking health care system, public or private, formal or non-formal vary depending on factors such as age, gender, women's autonomy, urban or rural habitat, economic status, severity of illness, availability of physical infrastructure and type of health provider. The type of symptoms experienced for the illness and the number of days of illness are major determinants of health-seeking behavior and choice of care provider. In case of a mild single symptom such as fever, home remedies or folk prescriptions are used, whereas with multiple symptoms and longer period of illness, biomedical health provider is more likely to be consulted.<sup>(27,28)</sup>

In the present study only 46.4 of respondents preferred formal consultations for acute morbidities of them only 57% opted the PHC. This finding could be explained by the absence of a gate-keeping mechanism in the Egyptian healthcare system. Meanwhile, more respondents (53.56%) preferred non-qualified medical care providers. 29.5% opted for pharmacist as the first priority health care provider for their illnesses, followed by PHCC of the ministry of health (19.3%) and university family practice center (15.7%). Perceived low seriousness of the medical

encounter and low priced services were the most important reasons behind seeking non formal medical care constituting 38.89% and 34.34% of the reasons respectively.

These findings were correspondent with the other studies conducted among the same population in a study from Bangladesh, although fever was the most reported illness, only 42.3% took service from qualified medical personnel or health facility and the highest percentage of patients went to unqualified practitioners for the treatment of fever, whereas 11.8% sought no treatment at all<sup>(29)</sup>. In contrast to our findings, in a study of rural Kenya, half of those seeking care went to formal health facilities where providers are considered to be consistent and medications are free. After health facilities, chemists or unlicensed/unregulated drug sellers were the most favored points for care<sup>(30)</sup>.

In a Cambodian study, 48.75% opted for government doctor, 28% private doctor, 12.25% health workers, 10% auxiliary nurse midwives, and 1% opted for pharmacist as the first priority health care provider for their illnesses. In 54% cases, 18.25% opted government doctors and 35.75% preferred private or unlicensed practitioners in case illness was not cured or the treatment given by first health care provider was not satisfactory<sup>(31)</sup>. Our study also revealed that the likelihood of visiting qualified practitioners were higher among subjects who were more educated, having satisfactory income or perceiving the medical encounter as serious.

Unexpectedly patient's sex even between children was not a determinant of the HCSB in contrast to the general impression that rural people give more care including health care to males than that given to females. This might be explained partly by improvement among rural communities as regard with female rights with a resulting less discrimination between males and females. This finding is contradictory to a massive review done by carol<sup>(32)</sup> who concluded a widespread gender bias towards men in terms of the type of health care and support received from their families, and this helped them respond better to their illness.

**Limitations of the Study:** The period of the study was selected from September to December to represent the seasonal variation of atmosphere which was not completely accurate.. In order to estimate the size of the seasonal variation effect, we compared our results to those from the healthcare utilization household survey (presented above)<sup>(20)</sup>, which was conducted in two phases, summer and winter. As anticipated, respiratory infections were less common in our study (22% compared to 35%) whereas gastroenteritis was found to be more common (9% vs. 5%).

We thus acknowledge that respiratory infections may be under-represented and gastrointestinal

infections may be over-represented compared to annual presentation rates. Another limitation was that the study included only acute morbidities.

**Conclusion and Recommendations:** It is important to develop a need based health care delivery system and actions focusing on the morbidity patterns and beliefs of local community to direct their HCSB to qualified providers. This study provides an illustration of patterns of disease presentation and health care seeking behavior and sheds light on the substantial scope for future research in the Egyptian rural health care, but a comparison between rural and urban areas of Egypt would give more generalizable results and allow for identifying differences in disease presentation –and accordingly differences in health needs- in different geographical areas across Egypt. Future reform efforts aiming to foster the role of primary care need a clearer understanding as to why patients refrain from seeking care at primary care practices for conditions that could be addressed at that level.

**Conflict of interests:** We confirm that there are no known conflicts of interest associated with this publication.

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**Table (1): Demographic Data Distribution of the Studied Population.**

<b>Demographic data</b>		
<b>Patients (N=984)</b>		
<b>Age (years)</b>	(N=984)	%
▪ Infants	57	5.79
▪ Pre-school	400	40.65
▪ School age	100	10.16
▪ Adolescents	150	15.24
▪ Adults	200	20.32
▪ Geriatrics	77	7.83
<b>Sex</b>		
▪ Male	439	44.61%
▪ Female	545	55.39%
<b>Respondents (N=839)</b>		
<b>Sex</b>		
▪ Male	704	83.9%
▪ Female	135	16.1%
<b>Perceived Family Income</b>		
▪ Satisfactory	311	37.07%
▪ Unsatisfactory	528	62.93%
<b>Education</b>	N=839	%
▪ Illiterate	220	26.23%
▪ Primary/preparatory	382	45.54%
▪ Secondary	157	18.71%
▪ Intermediate	50	5.95%
▪ University/higher education	30	3.57%

(N= Number)

**Table (2): Reasons of Encountering Care for Acute Morbidities during Preceding 4 Weeks of the Study (N= 984)**

ICD 10 Code	Type of illness	Frequency	%	Gender		Age group					
				M	F	Infant (57)	Pre-school (400)	School (100)	Adolescent (150)	Adults (200)	Geriatric (77)
J00-J99	Upper respiratory tract infection (URTI)	705	71.64%	34.45	37.19	21	237	46	44	28	7
L00-L99	Disease of the skin and subcutaneous tissue	74	7.52%	3.21	4.31	16	52	14	20	13	3
N00-N99	Disease of the Genitourinary system	63	6.40%	1.46	5.02	1	31	13	29	58	9
K00-K93	Disease of the digestive system	48	4.87%	2.25	2.62	15	39	10	10	40	3
G00-G99	Headache/ Nervous system	5	0.50%	0.21	0.29	-	1	-	13	15	4
J00-J99	Lower respiratory tract infection (LRTI)	20	2.03%	1.05	0.98	1	4	1	1	3	5
D50-D89	Disease of blood and blood forming organs	20	2.03%	1	1.03	-	19	8	21	3	2
M00-M99	Disease of the musculoskeletal system and connective tissue	18	1.82%	1	0.82	-	1	1	5	20	21
H00-H59	Disease of eye and adnexa	10	1.01%	0.6	0.5	3	15	4	2	13	15
S00-T98	Injury and poisoning	21	2.13%	1.7	0.43	-	1	2	15	7	8

**Table (3): Pattern of Respondents' Health Care Seeking Behavior during Illness of Their Family Members**

Type of health care seeking behavior (N= 984)					
Seeking formal medical care (N= 457)			Seeking Non formal medical care (N= 527)		
▪ PHCC(MOH)	190	41.57%	Pharmacy	290	55.03%
▪ FPC	154	15.65%	Home/family	120	22.77 %
▪ Private doctor	67	14.66%	Herbal shop	65	12.33%
▪ Governmental hospital	35	3.55%	Neighbor	30	5.69%
▪ Health insurance	11	1.11%	Folk practitioner	22	4.17%

(N=Number, PHCC=Primary Health Care Centers, MOH=Ministry of Health, FPC= Family Practice Center)

**Table (4): Causes of Seeking Non-Qualified Health Care Practitioners.**

Cause	Number(527)	%
▪ Illness was not serious	205	38.89 %
▪ Less costly	181	34.34 %
▪ Effectiveness of non-qualified practitioners	50	9.48 %
▪ Available most of time	46	8.72 %
▪ Dissatisfaction with formal health services.	40	7.59 %
▪ less waiting time	5	0.94 %

**Table (5): Relation of Respondents' Health Care Seeking Behavior and Some Socio-Economic Characteristics.**

Socio-economic characteristics of either respondents or patients		Health care seeking behavior				x <sup>2</sup>	P
		Sought formal care (N= 457)		Did not seek formal care (N=527 )			
<b>Patient gender</b>	▪ Male (439)	227	49.7%	212	40.2%	8.456	0.073 NS
	▪ Female (545)	230	50.3%	315	59.8%		
<b>Respondent's education</b>	▪ Illiterate (238)	24	5.3%	214	40.6%	62.249	<0.001
	▪ Primary (236)	89	19.5%	147	27.9%		
	▪ Preparatory (231)	148	32.4%	83	15.7%		
	▪ Secondary (246)	172	37.6%	74	14.0%		
	▪ High (33)	24	5.3%	9	1.7%		
<b>Family Income</b>	▪ Perceived as adequate (321)	289	63.2%	32	6.1%	71.306	<0.001
	▪ Perceived as inadequate (663)	168	36.8%	495	93.9%		
<b>Respondent's Perception of disease severity</b>	▪ Perceived as severe (718)	389	85.1%	329	62.4%	92.267	<0.001
	▪ Perceived as not severe (266)	68	14.9%	198	37.6%		

(N=Number, x<sup>2</sup>= Quai-square Test, P= p-value, NS= non-significant)

## الملخص العربي

أنماط الاعتلال الحادة و سلوك التماس الرعاية الصحية – دراسة مجتمعية - قرية المحسمة – محافظة الإسماعيلية- مصر

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**الخلفية العلمية:** تعتبر المعلومات المتعلقة بأنماط الاعتلال الحادة وسلوك البحث عن الرعاية الصحية أساسية لتحليل معظم قضايا السياسات المتعلقة بالصحة وتمكين الحكومات من توفير رعاية صحية قائمة على الحاجة ، خاصة للمجتمعات الريفية. **طرق البحث والمنهجية العلمية:** أجريت دراسة مقطعية مستعرضة من 1 سبتمبر 2015 إلى 1 ديسمبر 2015 في قرية المحسمة بمحافظة الإسماعيلية بمصر لتحديد أنماط الاعتلال الحادة و سلوك البحث عن الرعاية الصحية في 839 أسرة. تم الحصول على البيانات باستخدام استمارة استبيان مصممة ومسبق الاختبار. تضمن الاستبيان معلومات عن حالات الإصابة بأمراض حادة في أفراد الأسرة خلال الأسابيع الأربعة السابقة للدراسة وما يتصل بها من سلوك البحث عن الرعاية الصحية. **النتائج:** أجريت 839 مقابلة منزلية مع رؤساء أسر لسؤالهم عن الامراض الحادة في أفراد أسرهم خلال الأسابيع الأربعة السابقة من الدراسة. أفاد 442 من المستجيبين (52.7%) عن 984 مرض حاد في عائلاتهم. كان ألتهاب الجهاز التنفسي العلوى المرض الأكثر شيوعا (71.64%). استشار معظم المرضى (53.55%) مقدمي خدمة غير مؤهلين. بينما فضل 46.45% من المرضى استشارة الممارسين المؤهلين. كانت التكلفة المنخفضة (26.37%) وفعالية الرعاية (21.82%) هي الأسباب الرئيسية وراء اختيار مقدمي الخدمات غير المؤهلين. كما تبين أن المستوى التعليمي للمستجيبين ودخل الأسرة وتصور شدة المرض من المحددات الرئيسية لهذا النمط من سلوك البحث عن الرعاية الصحية. **الأستنتاجات و التوصيات:** من المهم وضع نظام لتقديم الرعاية الصحية القائمة على الحاجة والإجراءات التي تركز على أنماط الاعتلال ومعتقدات المجتمع المحلي لتوجيه سلوك البحث عن الرعاية الصحية إلى مقدمي الخدمة المؤهلين.