# Use of Family Health Status Index as a Tool for Identification of the At-Risk Families at the Community Level

## Thesis

**Submitted in Partial Fulfillment of Master Degree in Public Health & Community Medicine**

*BY*

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2009

# استخدام دليل الحالة الصحية للأسرة كأداه للتعرف على الأسر المعرضة للخطورة على مستوى المجتمع.

رسالة مقدمة من

الطبيبة / هند على صبرى أحمد سعد

توطئة للحصول علي درجة الماجستير

في

الصحة العامة

تحت اشراف

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٢٠٠٩

# List of Contents

## Acknowledgement

I am extremely grateful to *God* for without his support this work would have not been accomplished.

My deepest gratitude is to ***Professor Dr. Madiha Said, Professor*** of Public health & Community medicine, Cairo University. Her real continuous help & supervision was of great value during this work. She has spared no effort in her help & advice during the work.

I would like to extend my sincere thanks to ***Professor Dr Sahar Yassin,*** Professor of Public health & Community medicine, Cairo University. I wish to thank her for her supervision & encouragement during this work.

Also, I would like to express my appreciation to ***Dr. Doa'a Essawi,*** Lecturer of Public health & Community medicine, Cairo University, for her support & help throughout this work.

I am deeply thankful to **Professor Dr. Mohamed Emad Salem, Professor Dr. Lamia Mohsen, and Professor Dr. Wael Lotfy,** center of preventive and social medicine(CSPM) for their continous support.

Finally, I am indebted and grateful to my father & mother for their blessing, care & help throughout my life.

# Abstract

***Introduction:*** Programs involved in family health, and emphasizing on equity in health care have no sensitive tool to identify at-risk families at the district level.

***Aim of work***: Develop and test Family Health Status Index (FHSI) that fulfills the holistic approach in health care, to identify the volume and define the characteristics of the at-risk families in a target community.

***Methods:*** Public health informatics technique had been used in a community-based study in the catchment area (2 districts) of the Center for Preventive and Social Medicine (CSPM)-Kasr-Al-Aini Faculty of Medicine, and included 5400 families. Family Disease Burden Index (FDBI) as a dependent variable has been computed for each quintile of the Family Socioeconomic Risk Index (FSRI) as independent variable. The association between the each level of the FSRI and each component of FDBI was analyzed using unconditioned logistic regression analysis, expressed as a crude OR and 95% CI, with the lowest FSRI quintile as the reference.

***Results:*** Morbidities at the family level are classified as: diseases significantly increase with the increase in FSRI (e.g. Anemia, respiratory and GIT diseases), diseases significantly decrease with the increase in FSRI (e.g. diabetes) and diseases with "U" shaped association with the FSRI (e.g. Hypertension, liver diseases). At-risk families defined to be having **risk line markers** of: FSRI $\geq$ 7/12 and FHSI $\geq$8 /34, and they constituted 15% of families served by CSPM.

***Conclusion:*** FHSI and its disaggregated components FSRI and FDBI could be used as reliable tools to identify and define "at-risk families for health support" in specific community



***Key words:*** Family Health, Equity, Family Health Status Index, District planning, at-risk families, Risk-Line Markers, Public Health Informatics, CSPM

# List of abbreviations

- **CHDs:** coronary heart diseases.
- **CSPM:** center of social and preventive medicine.
- **DALYs:** disability adjusted life years.
- **DPO:** district provider organization.
- **EDHS**: Egypt Demographic and Health Survey**.**
- **FDBI:** Family Disease Burden Index.
- **FHCs:** family health centers.
- **FHF:** family health fund.
- **FHM:** family health model.
- **FHRIs:** family health risk indices.
- **FHSC:** family health status checklist.
- **FHSI:** Family Health Status Index.
- **FHSQF:** Family Health Status Questionnaire form**.**
- **FHUs:** family health units.
- **FSRI:** Family Socioeconomic Risk Index.
- **GATP:** Geographic Approach targeting the poor.
- **GDP:** growth development product.
- **HDI:** human development index.
- **HDR:** human development report.
- **HSRP:** health sector reform program.
- **MD:** Ministerial Decree.
- **MFP:** ministry of family and population.
- **MOHP:** ministry of health and population.
- **NGO's:** non governmental organizations.
- **PHC:** primary health care.
- **QALYs:** quality adjusted life years.
- **SES:** socioeconomic status.
- **SHS:** second-hand smoker.
- **UCW:** urban community worker.
- **UNICEF:** united nations children fund.
- **UNFPA:** united nations fund for population program.
- **WHO:** world health organization.

# List of Tables

# List of Figures

# INTRODUCTION

**Planning for health programs** includes different models which are composed of extensive lists describing schematic approach to studying and interacting with the community, and changing system or situation. All models use wide range of **tools** to help complete the planned tasks. The common planning tools are surveys to ***measure health***, calculating risk ratios, research, process mapping and group management tools. One of the technical sides of planning emphasizes on learning how to select and use the proper tools for specific task **(Peddecord, 2008).**

There are tools to measure health as defined by the World Health Organization "*complete physical, mental and social well-being and not merely the absence of disease or infirmity*". However, those tools have some limitations because they do not consider the ***holistic aspects of health*** and its determinants. Gordis (2004) described morbidity and mortality statistics at the ***community level***, which do not consider other aspects of health. Morbidity indicators are disease- oriented (incidence and prevalence) focusing on frequency, severity, time, place and at-risk groups. Mortality statistics focuses on causes and specific group mortality. Disability Adjusted Life Years (DALYs) and Quality Adjusted Life Years (QALYs) are also measures of disease burden at the community level, and have the limitations regarding their use in measurement of health-as defined by WHO **White and Nanan, 2008).**

The Human Development Index (HDI) includes more than one variable to reflect health and its determinants: life expectancy at birth, education attainment and GDP per capita (**UNDP, 2005).** However, HDI has several limitations to be used in health programs. The HDI adds little to the value of the ***individual measures*** composing it; because of weighting of few aspects of social development. HDI as a number producing a relative **ranking** which is useless for inter-temporal comparisons, and difficult to interpret because the HDI for a country in a given year depends on the levels of, other factors as for example, life expectancy or GDP per capita of other countries in that year. Additionally, HDI cannot reflect *distributional aspect of development*, particularly the issue of inequality (Jahan, 2000, Watkins, 2007). HDI includes life expectancy at birth which is heavily weighted by death at younger ages, to account for survivorship at older ages in various states of health due to epidemiologic and demographic transition **(White and Nanan, 2008)**. Such morbidity and disability issues are not included in the HDI.

The data derived from the Human Development Report (HDR) could be used in ecological correlational studies **(Grimes and Schulz, 2002).** For example, the HDR data (NIP and UNDP, 2003) were used to develop input, outcome and impact compound indices to predict child health status at Egypt Governorates level (Abdel-**Razik and Abou Zeina, 2005).** Despite, the developed compound indices reflect disparity between governorates they do not reflect disparity in health status of households within each governorate.

The demographic and health survey categorizes households according to the wealth index, to describe its association with health status and utilization

pattern of health services (El-Zanaty and Way 2005, El-Zanaty & Associates, 2008). The wealth index depends on **household** assets, as a proxy index to income. However, **Watkins (2007)** considered that i**ncome is the weakest** measure to measure health determinants. It is suggested that families have to be recruited as "poor" on the **basis of capability** (or human development) not income poverty.

Considering the advantages and limitations of health indicators and indices, it could be concluded that, continuous development of more sensitive tools to measure health is crucial to respond to the changing health systems in any country.

In 1997 the government of Egypt officially launched the Health Sector Reform Program (HSRP) to reform the health system over a period 15-20 years. The HSRP has 5 guiding principles: Universality, **equity, quality,** efficiency and sustainability **MOHP (2003a).** The HSRP has four objectives (**MOHP, 2005)**: (1) Achieving universal coverage with basic health services (through National Health Insurance/**Family Health Fund (FHF)**) (2) Improved organization and management of the health system (through centralizing policy making and decentralizing management through **District** Provider Organization, and improving the management systems), (3) Improved health service delivery (through accreditation of health facilities, and improve performance of the staff in integrated family health services) and (4)Improved the pharmaceutical system.

The HSRP had introduced the Family Health Model (FHM), which is a network of public and private Family Health Units (FHUs) and Family Health Centers (FHCs) that, together with the district referral hospital, have to offer comprehensive package of integrated health services to all members of the family with continuous improvement of quality and access to Primary Health Care (PHC) **(PHR Plus www.phrplus.org**).

The Ministerial Decree (MD) 147 is applied to FHUs and FHCs that fulfill the criteria of implementing HSRP, accredited and contracted with FHF. The **poor** are exempted from payments. The poor people have to be indentified after conduction of **socioeconomic investigations** at the facility level (FHU). Once identified, poor families could be enrolled in the FHU services, have folders and to get specific number of tickets annually to get free medical consultations and drugs. The percent of exempted families should not exceed 15-20% of the families served by each FHU **(MOHP 2004a and MOHP, 2004c).** This percent of poor families (15%-20%) has been published in the human development report (**NIP and UNDP, 2003**). At the same time the percent of poor at the governorate level has been determined through project "Geographic Approach Targeting the poor" (GATP) using the form in **Annex** I

The forms used by the MOH and GATP project to investigate the socioeconomic condition of the family, to categorize the family as "poor"

depends on data on: household assets, education, 5 types of chronic morbidity and types of disability **(Annex I and II)**.

After implementation of HSRP in many countries, **Hearst and Blast (2002)** raised the issue that, HSRP have many challenges to achieve equity in health care. Despite researchers have contributed valuable conceptual frameworks for approaching equity issues, they have not yet reached to a tool that could help in effective identification of the "poor" as well as defining inequalities among households.

Experiences from Egypt about family medicine showed the lack of community satisfaction, which points to the current community approach in family care was not responding to families' expectations (Abdel-Razik et al, 2006). **El-Zanaty & Associates (2008)** raised the issue that the community does not have any information about exemption of the poor from fee for the service. The program managers at the governorate and district level as well as service providers suggested that fee waivers should be restricted to people who have chronic diseases, because all preventive health services are provided freely to all families (i.e. immunization, antenatal care and family planning). However, women and men in the FHM community mentioned that they have to pay for medical consultations, drugs and specialist services. Therefore, they prefer to seek the private physician, being more cost-effective.

In regard to the phase of rolling out of the HSRP-FHM in Egypt to be fully implemented by year 2020, it is **crucial** to have specific tool to measure health needs and health status at the family level to be adopted by the family health model facilities.

Furthermore, the recently established Ministry of Family and Population (MFP), has its mission of improving the demographic, social, behavioral and health of the Egyptian families. The available information system in the MFP provides "vertical-population data" derived from three councils: National Population Council, National Council for Motherhood and Childhood, and the National Council for Addiction Control. There is no family-oriented information system to support policy and decision making by the MFP.

Despite, it is necessary to have a tool/index to measure health status at the family level to support policy making and planning for family-oriented health program, currently, there is no such simple and specific tool/index. Consequently, there are needs to develop an index that measures health status at the family level and at the same time considers the holistic approach in health: demographic, socioeconomic, environmental, behavioral, morbidity, disability and mortality. The needed family health status index has to consider the objectivity of the data, feasibility of data collection at the community level. Additionally, the needed index has to depend on public health informatics that could be institutionalized within health facilities to

provide scientific evidence and support for policy making at the national, governorate and district levels.

## Policy and Programmatic Implications

Family Health Status Index (FHSI) as a tool reflecting the holistic approach in health and its determinants and its being based on objective data and public health informatics techniques, could support many family-oriented health programs. FHSI could be used as a tool for: community needs assessment for health services, identification/define of the at-risk families for health support, monitoring and evaluation of health programs at the family/community level. MOHP-FHM facilities could use/readjust this tool to identify the at-risk families to receive fee-free services. Ministry of Family and Population, could use FHSI/or its adjusted form to develop population policies and strategic plans to improve characteristic of families according to the situation in each governorate and communities within governorates.

## Background:

The Center of Social and Preventive Medicine (CSPM) is affiliated to the Kasr-Al-Aini- Medical School, Cairo University. CSPM mission statement includes providing community health services. CSPM manage a wide spectrum of activities: health services delivery (through pediatric clinics and maternal care clinics), medical education, research studies and outreach social services and health awareness programs through community workers. CSPM has a Steering Board that includes key figures at the national level as