Economic Analysis of The Nurse Shortage in Egypt

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Abstract

The health sector in Egypt suffers from a severe shortage of qualified nurses (nurses with at least 2 years of post high school nursing education) and a much less apparent perceived/real shortage of all-type nurses. This paper examines the nurse labor market in Egypt for evidence of such shortages and explores potential reasons behind them. The paper adopts a case-study approach to provide an overall understanding of the demand for and supply of nurses in Egypt; it employs both qualitative and quantitative techniques. Focus groups and in-depth interviews were conducted with 19 nurses in addition to secondary analysis of data from World Health Organization- East Mediterranean Region, High Council for University Students in Egypt and Ministry of Health and Population. I find that the main reason for the shortage of the stock of qualified nurses is –to a large extent- the restricted supply of nursing education, which is provided entirely by the public sector today. The overall perceived/real shortage of all-type nurses on the other hand does not seem to be related to a shortage of the stock of all nurses but rather nurse supply decisions at the current nurse wage levels and nurse working conditions in Egypt. The Ministry of Health and Population current approach is to upgrade the quality of nursing education in Egypt to eliminate high school level nursing education in the future; this seems to be the right approach. However, as a result of lack of quantitative labor market data, it is not possible to predict the likely effect of such policy on the shortage. Since a more educated nurse is more employable in the private sector and abroad, this might very well mean that more nurses will exit the public sector leading to more severe shortages in the public sector and therefore such policy should be accompanied by nurse retention strategies tailored to the nature of the supply nurses. Lack of data makes it difficult to generate the evidence necessary to guide such policies. Investing in data infrastructures is essential to support evidence based health policy in Egypt. Finally, with Egypt high unemployment rate (particularly for female unemployment), it is possible to view the availability of foreign markets for Egyptian nurses as an opportunity instead of a threat if the right policies aimed at protecting the local market for nurses and public investments in nurse education are adopted.

1. Introduction

A key challenge facing health policy makers in Egypt today is the shortage of nurses (particularly qualified nurses); the shortage has implications both on the quality of health care and the efficiency of the production of health services. (Gericke, 2005) (Sakr, 2006) (Hotchkiss,1996). The nurse to population ratio was estimated to be 2.67 nurses per 1000 population in 2007 (official MOHP records). However, depending on how the term "practising" nurse is defined, the ratio was estimated by Sakr et al to be 1.33 per 1000 population in 2005 (Sakr, 2006). Egypt's nurse to population ratio of 1.33 - 2.67 nurses per 1000 population compares to 6.17 in Qatar and 3.3 in Jordan and an average for of 8.9 nurses per 1000 population in OECD countries in 2005. There is no "right" nurse to population ratio since nurses represent one of the inputs used with other resources to produce health services. However, obviously a serious shortage in qualified nurses would most likely have serious implications on the quality of care.

There are currently 7 types of nurses practising in Egypt because of different nurse education programs that existed since 1972 (Former Director of Nursing Department in the Ministry of Health and Population-MOHP). However, there are 3 types of nurse education and predominantly three types of nurses in Egypt today:

- High school nursing education which is a type of vocational education that takes place in lieu of high school (referred to as secondary level school in Egypt)
- Technical institute nursing education (2 years of post high school education)
- University nursing education (4 years of post high school education)

All nurses in other countries of the region with the exception of Egypt, Yemen and Afghanistan have a minimum of 2 years post secondary education. Only Afganistan, Yemen and Egypt maintain high school nursing education programs (WHO-EMRO Director of Nursing). If the definition of nurses is restricted to qualified nurses (nurses who have at least 2 years of post-secondary/ high school education) then the ratio in Egypt drops to 0.18 nurses per 1000 population, which is an extremely low ratio by any standards.

The official doctor to nurse (all types) ratio in Egypt was estimated to be 1.18 nurses per doctor using official sources. However Sakr et al. estimated it to be 1 nurse per 1.7 doctors in 2005. The average ratio in OECD countries was 2.98 nurses per doctor in 2005. There are large variations in the skill mix of professional nurses and doctors among developed and developing countries alike. However, the ratio of nurse to doctor in Egypt compared to international norms indicate economic inefficiency in the input mix as health services are produced using more of the expensive resources (doctors whose training takes considerably longer than nurses). (Gericke, 2005).

The nurse situation in Egypt can be summarized as follows: 1) The MOHP estimates that Egypt suffers from a shortage of 44,000 nurses (all types) in 2008; 2) The majority of nurses in Egypt (almost 90%) are high school level nurses which is considered to be inadequate/insufficient quality nurse education not only internationally but even by the region's standard; and 3) There is certainly a severe and serious shortage of qualified nurses (nurses who have at least 2 years of post-high school education) in the country. In this paper, I examine the demand and supply of nurses with particular attention to qualified nurses, which is the focus of this paper.

The shortage of nurses (particularly qualified) in Egypt is not a new problem; it has been formally recognized as an issue by the Ministry of Health for the last 17 years with a history of discussions, policy papers and failed attempts to address the problem (Director of nursing at the MOHP). Vujicic et al argued that ignoring labor market dynamics is one of the main reasons why human resource policies in developing countries often fail to achieve their objectives (Vujicic,2006). Policy makers in developing countries - especially where health systems are predominantly public- have traditionally addressed human resource shortages in a top-down manner that implicitly assumes that producing sufficient numbers of nurses and doctors and employing them can be planned and executed in a manner similar to moving chess pieces; this paper is an attempt to move away from this tradition by providing a basic economic analysis of the problem of the nurse shortage in Egypt and an evaluation of the policy options.

2. Methods

This paper attempts to answer the following questions:

- Is there a shortage of all nurses in Egypt? What are the causes?
- Why is there a severe shortage of qualified nurses?
- What are the likely effects of the planned policy changes on the problem?

I adopt a case study approach similar to the one employed by Wahba (Wahba, 2003). This paper uses a mixed methods approach. Secondary data from World Health Organization East Mediterranean Region WHO-EMRO, Ministry of Health and Population MOHP and High Council for University Education (HCUE) were analyzed. Qualitative approaches were used to examine questions regarding the nature of the demand for nurses in Egypt and nurse supply & nurse education decisions. A group of 19 nurses (all levels) were selected using snowball sampling techniques. The nurses were recruited to represent the diverse demography and qualifications with respect to age, level of education, experience. Focus groups and in-depth interviews were conducted in Shebin E-l-Kom (Rural Governorate in the Delta) and Cairo over the course of one month. I developed semistructured interview schedules that provided sufficient flexibility to allow respondents to express ideas. In-depth interviews with key policy makers and experts (Previous and current directors of the MOHP nursing department, Director of nursing at a major teaching hospital, representatives from the professional association of nurses- syndicate, representative of the syndicate of medical professions, WHO nursing and human resource policy advisor) in the nurse health policy arena were also conducted.

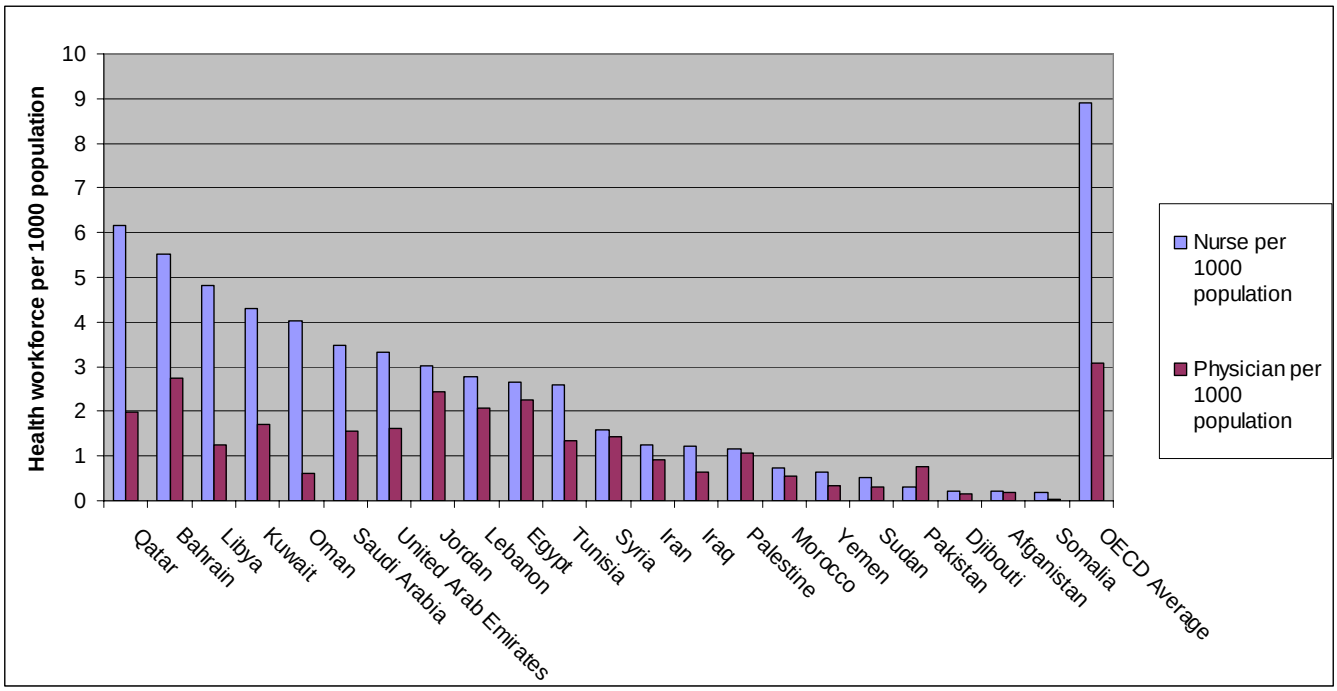
3. Context: Egypt and the East Mediterranean region

This section provides contextual background about health workforce distribution in the East Mediterranean region. The purpose of presenting these comparisons is to first understand where Egypt is relative to other countries of the region.

Egypt's nurse to population ratio of 1.33- 2.67 nurses per 1000 population puts it in the middle of distribution of nurse to population ratios in the region presented in Figure1. Qatar has the highest nurse to population ration in the region of 6.17 nurses per 1000 population followed by Bahrain. Somalia and Afganistan have the lowest ratios of about 0.20 per 1000 population in the region. The OECD average is 8.9

nurses per 1000 population and it is presented here to provide an international benchmark against which the countries of the region can be compared.

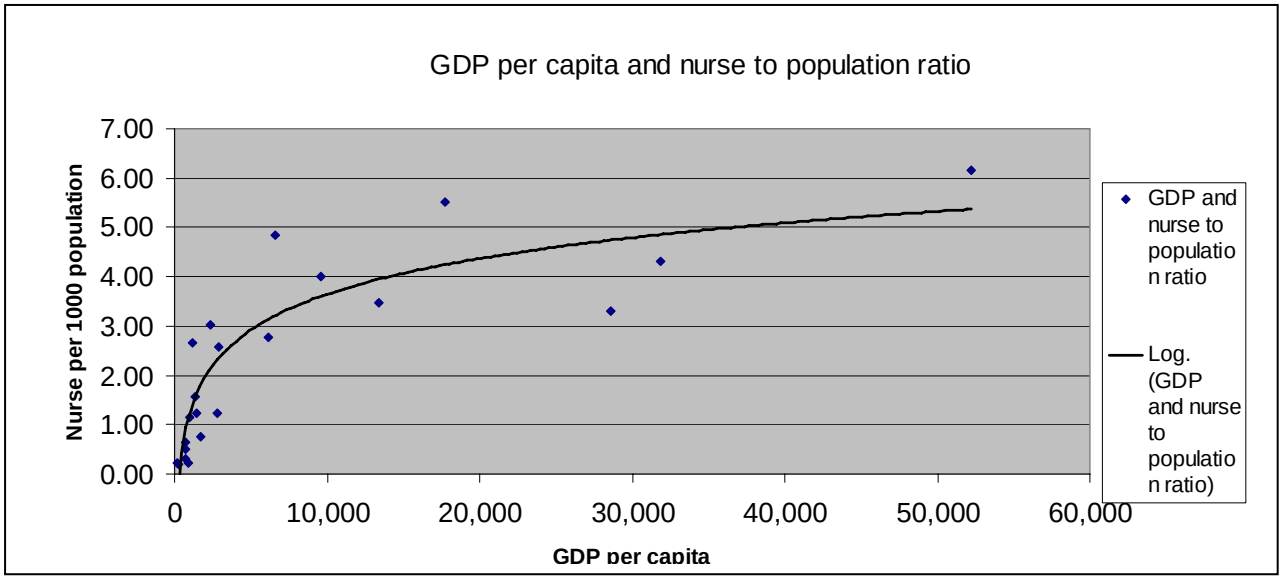
Fig 1: Nurse to population ratio in the East Mediterranean region (2005)



Source of data: WHO EMRO

If we consider the total number of nurses (all types) in Egypt, the low end of the estimate of 1.33 nurses per 1000 population is below what would be expected in a country with Egypt's GDP per capita. However, the high end of 2.67 nurses per 1000 is only slightly below what would be expected (see figure 2). Figure 2 depicts the relationship between a country's wealth and the ratio of nurses to population. Wealthier countries in the East Mediterranean region have higher nurse to population ratios. The nurse to population ratio seems to be positively associated with GDP per capita but the increase in nurse to population ratio takes places at a decreasing rate as GDP grows.

Figure 2: GDP per capita and nurse to population ratio in the EM region (2005)

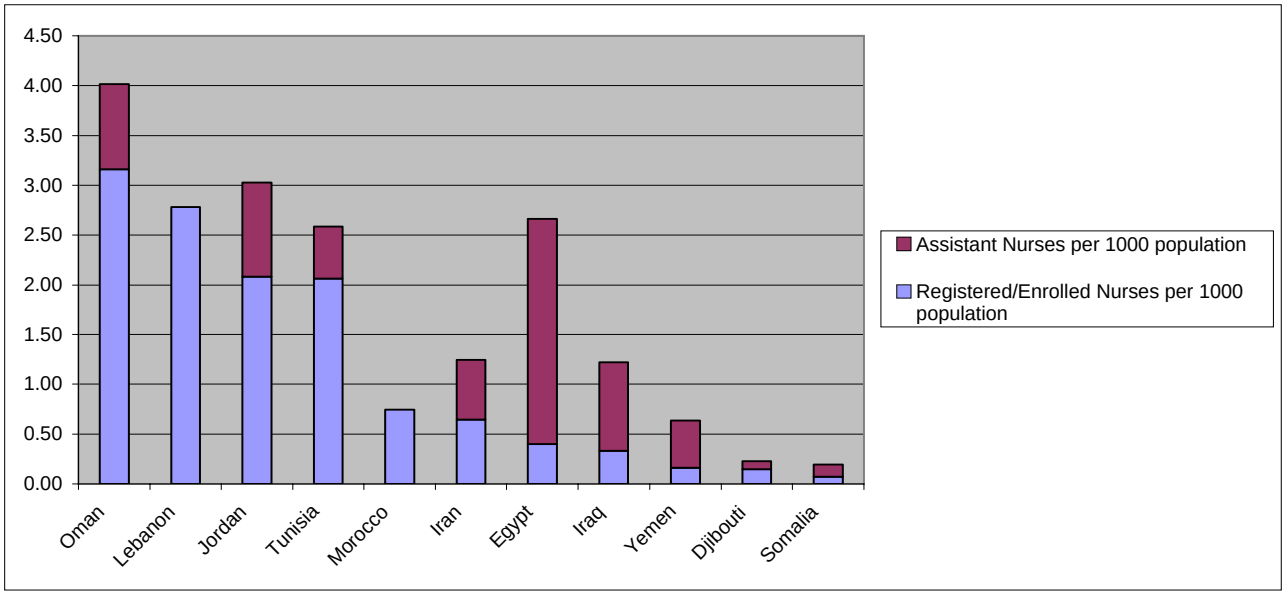


Data source: WHO-EMRO, WB

Figure 3 shows the composition of the supply of nurses in countries of the region where data were available. Egypt has one of the lowest qualified nurse to population ratios in the region. The numbers of registered, enrolled and assistant nurses were reported by the countries and therefore the definitions may not be completely consistent across countries. Assistant nurses are typically the lower educated nurse category. In all the other countries- with the exception of Egypt and Yemen- this category includes nurses with 2 years of post high school nursing education. However, in Egypt and Yemen, this category includes nurses with only high school level education. Fig 3 shows that Egypt is -in fact- an outlier, the composition of nurse supply in Egypt is different from all other countries of the region; it is dominated by the less educated category. Egypt's actual qualified nurse to population ratio is also one of the lowest in the region followed only by Yemen, Djibouti and Somalia.

Therefore when the number of nurses is restricted to only qualified (defined as nurses with a minimum of 2 years post high school nursing education} nurses; the ratio of qualified nurses to population in Egypt is decidedly lower than any desirable level.

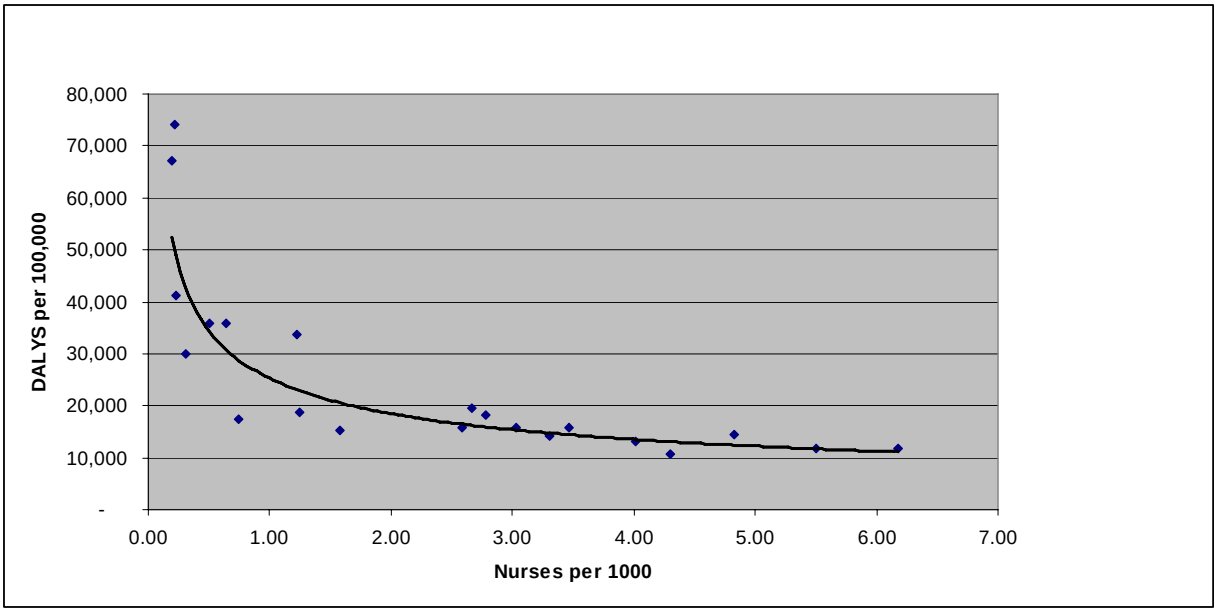
Fig 3: The composition of nurse supply in selected EM countries (2005)



Data source: WHO-EMRO, WB

It is important to note that there are geographical disparities across the 27 Governorates in the distribution of both qualified (Bachelor and Technical Institute graduates) and assistant (High school diploma graduates) nurses in Egypt. The shortage is much more severe in Upper Egypt (Egypt Human Development Report, 2005). However, the issue of geographical disparities is out of the scope of this paper.

Fig4: Nurse to population ratio and Burden of Disease in the region (2003)



Data source: WHO-EMRO and WHO BOD database

Recent US-based studies find evidence of a link between nurse to population ratio and population health (Bigbee, 2003). Figure1 shows that countries in the region that have more nurses per population have healthier populations. The graph shows a negative association between burden of disease and availability of nurses. Countries with lower nurse to population ratios are the same countries which have a higher burden of disease expressed in DALYS per 100,000 (Disability Adjusted Life Years-lost to illness). However, no causal inferences can be made based on this association because of the small dataset, availability of only one year of data and inability to control for other influences on population's health. Even though it is not possible to conclusively say something about how much the availability of nurses contributes to the health of populations; this association –which should be examined further in future research points to the importance of paying more attention to nurse shortages in the region because of its potential implications.

4. Is there a nurse shortage in Egypt - Why?

A shortage of nurses (qualified nurses in particular) in an economic sense means that there is excess demand than supply and it manifests itself by the persistent presence of vacancies. A certain nurse to population ratio does not represent a shortage in an economic sense; it simply represents a choice of a specific production technology of health care services. The technology of production may be inefficient and may have negative consequences on the quality of care; however, it still does not mean that there is a shortage in an economic sense. I examine both sides of the market (demand and supply) for evidence of the shortage and to provide an analysis of the reasons behind this shortage.

5. Demand for nurses

The labor market for nurses in Egypt is influenced by both the local and international demand for Egyptian nurses; I discuss both types of demand in this section.

5.1 Local demand for nurses

5.1.1.Demand for nurses and population needs

The demand for human resources for health care including nurses is a derived from the demand for health care services. The demand for health care services in turn is

influenced by population health needs and people/government willingness to pay for health care services, which is certainly related to ability to pay (wealth and distribution of wealth). “Demand for human resources for health is often influenced by political, economic and social factors beyond the health care needs of the population.” (Vujicic, 2006). In Egypt, there is a clear disconnect between population needs and demand for human resources for health. The Ministry of Education and Ministry of Higher Education control the production for human resources for health (doctors and nurses). The Ministry of Health controls a large part of the demand for human resources for health, as the government is committed -by law- to hire graduates of the faculties of Medicine and Nursing and high schools of nursing. The role of the Ministry of Health and Population in determining the numbers of accepted students in medical and nursing faculties is at best limited. The Ministry of education is not mainly concerned about population health needs but rather, they are focused on the demand for different kinds of education and the available capacity of educational institutions. Therefore, the demand for human resources for health in Egypt is influenced by many things other than population needs.

5.1.2. Public and Private Demand for nurses

The public sector plays a major role in the provision of health care in Egypt. The MOHP runs a nationwide system of health services, ranging from outpatient clinics to large urban-based hospitals, and providing a mix of inpatient and outpatient care. The Health Insurance Organization HIO, which is a parastatal organization, also runs a large number of outpatient and inpatient facilities. The inpatient health care sector is predominantly public but the reverse is true for the outpatient sector (Rannan-Eliya, 1997). However, there is strong presence of the private inpatient sector in urban governorates especially Cairo and Alexandria. The demand for nurses in Egypt seems to be bifurcated. Vast differences in wage levels are observed. The salary of a nurse in the public sector ranges from of about LE 165 for a Diploma level nurse (nurse with high school nurse) to about LE 250 for a Bachelor level nurse (nurse with 4 years of post high school university education). There are special allowances and incentives for experience and participation in management activities and the such; including all these incentives, the salary of a nurse in the public sector does not exceed LE 1000. While in the private sector, it is common to find starting salaries advertised at LE 800 and up to LE 7000 for qualified and experienced bachelor level nurses in private hospitals in Cairo. In one hospital in Cairo, the chief nurse position was advertised for LE 10,000 (Director of MOHP nursig).

An interesting question to pose regarding the bifurcated nature of the demand for nurses is: why does any nurse work in the public sector considering the vast differences between salary levels between the public and private sectors? The answer could be summarized as follows:

- Firstly, dual employment is prevalent in Egypt; about 50% of nurses who work in the public sector also work in the private sector (MOHP Director of Nursing)
- secondly, the private sector presence is strongest in Cairo and Alexandria; however it is not as prevalent in rural governorates and therefore, it is not always a viable option for a nurse depending on her geographical location;
- thirdly and most importantly is that nurses choose to work in the public sector for considerations other than wage such as the job guarantee, far less demanding work life, public health insurance benefits and pension benefits. (Results of focus groups with nurses)

5.1.3. Demand for nurses in the public sector

About 65% of nurses are employed by the public sector in 2008 according to MOHP sources (Director of MOHP nursig). The MOHP and HIO are the biggest buyers of nursing services in the country; the MOHP being the largest. Salary levels are determined by the central government as part of overall public sector payment structure. There is a large body of literature about the nature of the market for nurses in the US and whether it is an example of classic/new monopsony or not (Hirsch and Schumacher, 1995), (Hirsch and Schumacher, 2005) ; this is somewhat irrelevant to the situation in Egypt because of the way wages in the public sector are determined.

MOHP Health facilities are responsible for identifying their needs of nurses and communicating this information to the MOHP. The process of hiring new nurses is completely centralized at the Ministry of Health. The head of the nursing department at the central MOHP allocates newly graduated nurses[1] to hospitals and outpatient clinics based on health facilities' needs. The director of the nursing department at the MOHP takes all the requests and attempts to distribute nurses in the best possible way. The process involves negotiations between health facilities and the MOHP in order for facilities to obtain more nurses. The MOHP does not advertise positions and there are no "vacancies" for which nurses can apply; human resources are appointed to positions instead. In the absence of vacancies as a sign of shortage, the level of

[1] Newly graduated nurses are required by law to serve 2 years in public facilities. However, many nurses choose to opt out and pay the fine if they obtained work contracts abroad for example.

internal competition among health facilities over nurses can provide such signal. The second very important signal of the excess demand for nurses is the time it takes for a nurse to get hired after graduation.

In-depth interviews with key stakeholders indicate that the MOHP is experiencing a shortage of all nurses and a much more serious shortage of qualified nurses. The former director of the nursing department in the central MOHP spoke of juggling resources and described the difficulty of negotiating with hospitals over how many nurses she can provide for each hospital (Former Director of Nursing at the MOHP). The head of nursing in a public teaching hospital also spoke of her nurse resources being spread too thin; *"We requested 50 newly graduated nurses to meet our work demands last year and we only get 10- I keep juggling nurses between departments to keep work going"* (Head nurse 3). Health administrators at public sector hospitals also noted that the number of nurses allocated/appointed to work in a hospital is typically much less than the number actually working in the hospital; *"In our Hospital out of the 600 appointed nurses, only 400 are actually working in the hospital- the rest took various types of permission to leave with or without pay mainly to work in the private sector or work abroad and that is also considering that the private sector here is not as strong as it is Cairo"* (Head nurse 1). All head nurses who were interviewed indicated that their health facilities experience a shortage of all nurses but the problem is much more aggravated in the case of university level nurses. "University nurses are rare" (Head nurse 2).

Further evidence of excess demand for nurses in the public sector is the time it takes to hire/appoint a nurse. While, it takes 15 years or more for a graduate of the faculty of commerce or law to get appointed in the public sector; it takes a maximum of year for any type of a nurse graduate (university or high school) to get her appointment in the public sector. These shortages persist in the public sector since shortages do not manifest themselves beyond complaints of health administers and professionals at health facilities.

5.1.4. Demand for nurses in the private sector

The evidence of the shortage in the private sector is the persistence of vacancies advertised and nurses' wages on the rise for private sector jobs. In summary, I find that not only the ratio of qualified nurses to population and the ratio of nurses to doctors in Egypt are indicative of a poor choice of the technology of production but

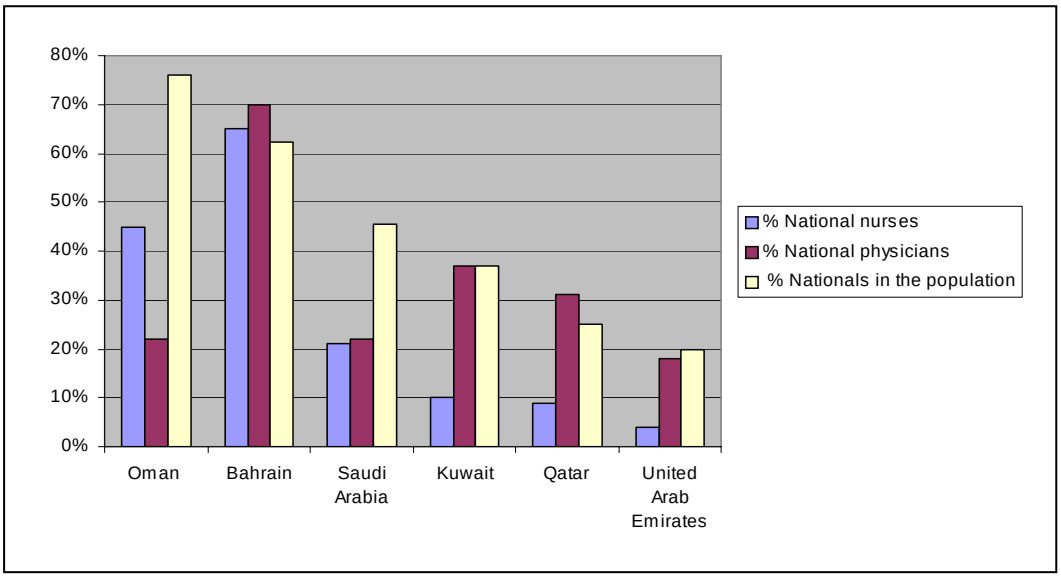
that there is in fact evidence of a shortage of all nurses and qualified nurses in particular in an economic sense. There is excess suppressed demand for nurses in the public sector and a growing demand in the private sector that is translated in growing private sector salaries. The shortage is much severe for university nurses.

5.2 International demand for Egyptian nurses

It is believed that there are large (no data exist on how many) numbers of Egyptian nurses working in hospitals and health centres in the Arabian Gulf (nurses 1,6,18,11). The international demand for Egyptian nurses is concentrated mainly in Gulf countries and it certainly affects the local shortage. The demand is not limited to bachelor level nurses but also present for high school diploma level nurses. There are no quantitative data to analyze the international demand for Egyptian nurses. The only thing we know is that the salary differential between the local market and international market is huge; interviews with nurses showed that a nurse could make 20-30 times what she makes in Egypt in the Gulf and therefore it is the aspiration of many nurses to work in the Gulf. (Nurses 2,6,18,11,12)

The international nurse labor market is getting increasingly competitive because of shortages of national nurses in most developed countries and aging population in these countries. Gulf countries compete with developed countries over nurses and they have to pay increasingly higher prices for their nurses. Even though Gulf countries are pursing aggressive nationailization programs, considering the number of foreign nationals working in these countries presently (see figure 5), it is highly unlikely that they will be able to satisfy their needs of nurses locally in the near future and therefore the Gulf demand for Egyptian nurses will likely remain strong and is expected to even increase in the future.

Figure 5: Percentage of nationals in the health workforce in GCC countries (Source of Data: International Labor Organization ILO and Morshed,2006)



6. Supply of nurses

The supply of nurses depends on how many nurses there are (the stock of nurses) and how many nurses are willing to work at different wage levels. The stock of nurses itself is also a function of nurses' wages among other things (Benham, 1971). I first examine the stock of nurses in Egypt and factors influencing it then I go on to focus on the supply of nurses.

6.1 The stock of nurses

Table 1 shows the current education levels of nurses in Egypt. There are 12 faculties of nursing, 11 high institutes of nursing and 260 nursing high schools in Egypt in 2008. The majority of graduates each year are high school nurses.

Table 1: Nursing education and the distribution of nurses in 2008

Nursing Institution	Duration of study	Qualification Earned	Approx number of graduates each year (% total	No of institutes
University Nursing	4 years	Bachelor Degree	800-1000 6-9%	12
Technical	2 years after high school	Diploma	400-500 2-4%	11
Nursing schools	3 years in lieu of high school	Diploma Nursing school certificate	8,000-10,000 87- 93%	260

Source: Gaumer, G., el Beih, W., Fuoad, S. Health Workforce Rationalization Plan for Egypt, Abt Associates for USAID Cairo, January 2000- updated with 2008 data

The stock of all nurses (high school diploma, technical institute and bachelor levels) is believed to be lower than what is needed. The MOHP estimated that Egypt is 44,000 nurses short of what the country needs in 2008 (MOHP Director of Nursing). However, the high school diploma level nurse shortage is much less evident. The stock of qualified (Bachelor and Technical institute level) nurses on the other hand is decidedly low by any standards. This has led some local and international NGOs to engage in efforts aimed at attracting more people to the nursing profession through image-improvement campaigns and other efforts aimed at the same end. The underlying assumption behind NGOs' efforts is that the problem of the shortage of nurses stock is a problem of demand for nursing education; in other words, they are

assuming that no one wants to become a nurse. However, as my analysis will show, this assumption is –to a large extent- unfounded.

I first examine the problem of the shortage of the stock of bachelor level nurses by analyzing the demand and supply sides of the nursing education market and find that there is some evidence for an increase in demand for nursing education and that nurse education supply is the bottleneck.

The nurse education market (university, technical institute and high school nursing education levels) is almost completely dominated by the public sector. Education is offered almost free for all. The number of new university students in the faculty of nursing (or any other faculty) accepted every year is decided as follows: The High Council for Higher Education (HCHE) communicates with all faculties[2] of nursing in the country to obtain information regarding how many students each faculty can accommodate for the coming year. In June of every year, every high school graduate wishing to continue her education fills out a form listing in order of preference, the faculties to which she would like to apply. The HCHE receives students' requests and uses this information along with data about number of open spots at the faculties to decide the number of accepted students and minimum acceptable GPA for each faculty.

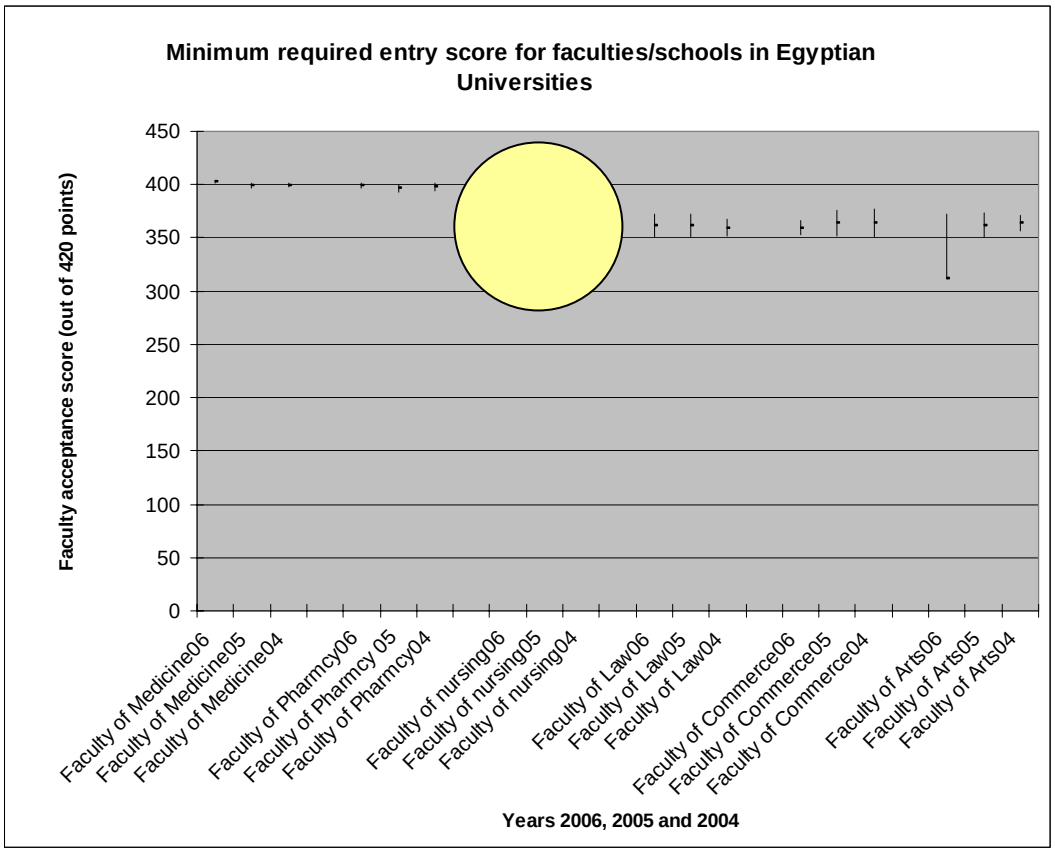
Entry requirement GPA scores for the faculties of nursing and medicine

A student's GPA "Magmooa" for the last 2 years of high school completely determines whether she is able to join her desired faculty or not. The way that the HCHE rations students is that it sets minimum GPA entering scores for each faculty. A rising minimum acceptance score Magmooa means that there is more demand for a faculty than there is supply and vise vera. Even though the minimum required score for each faculty/school is determined centrally, there are regional differences in the minimum acceptance score for each faculty depending on the demand and supply for each faculty in each Governorate. For highly competitive faculties such as the faculty of medicine, the regional differences are very small. For less competitive schools such as the faculty of arts, the regional differences are bigger. The minimum acceptance score is an excellent measure of the demand for education given the level of supply. I analyzed data on minimum acceptance scores for the faculties of Medicine, Nursing, Law, Commerce and Arts in Egypt for the years of 2004, 2005

[2] "Faculties" refers to 4 year or more schools in universities

and 2006. It is clear from figure 6 that entry requirement scores for the faculty of nursing have been rising consistently over the past 3 years compared to other faculties which indicates more demand for nursing education than the available supply.

Figure 6: Minimum entry score for faculties in Egyptian Universities 2004-2006

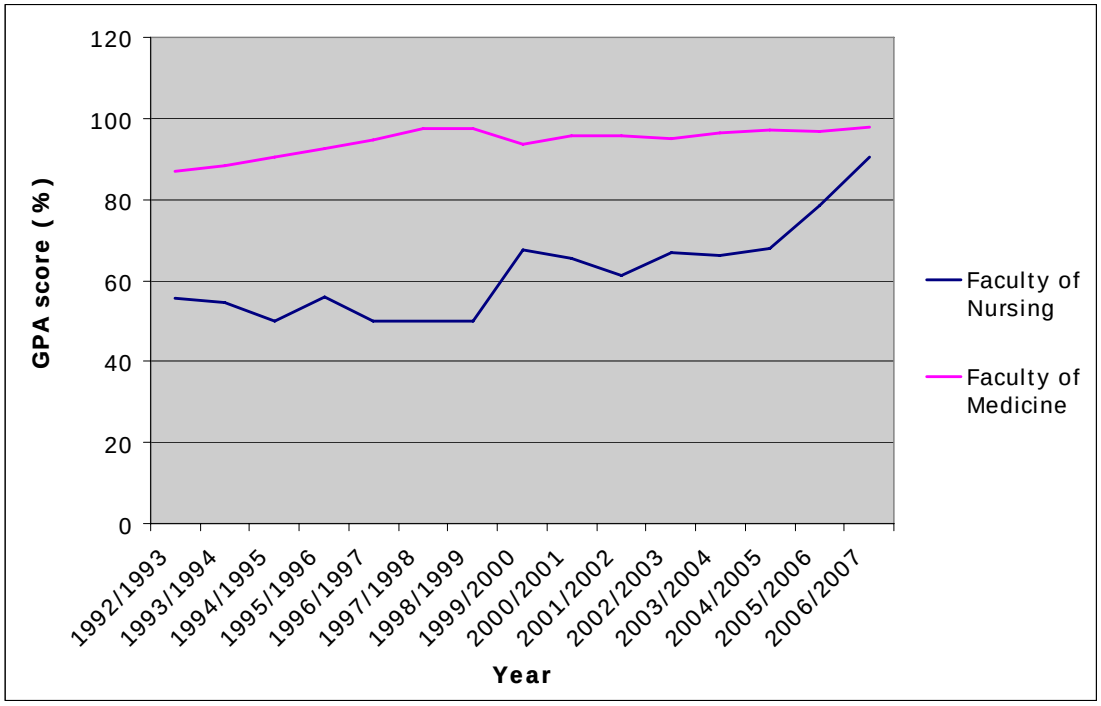


Data Source: High Council for University Education

Figure 6 also indicates that the regional variation across faculties of nursing in the country have decreased during the same period. Figure 7 focuses more specifically on entry requirement scores for the faculties of Nursing and Medicine in the past 15 years. It is evident that while the minimum required GPA score was in the fifties (less than 60%) in 1992, it has now exceeded 90% indicating a growing demand for nursing education met with restricted supply. However, it is difficult to disentangle how much of the rise of the entry requirement scores for nursing schools is caused by the restricted supply and how much is due to real increased demand for nursing education. Nevertheless, if the supply was restricted and there was no interest in education, grades would not have increased that much especially since 2000 where the increase is steeper. Minimum acceptance scores for the faculty of Medicine have

also increased 80%+ to 90%+ as demand for medical education has always been very strong in Egypt.

Figure 7: GPA minimum entry scores for Nursing and Medicine faculties(1992-2007)

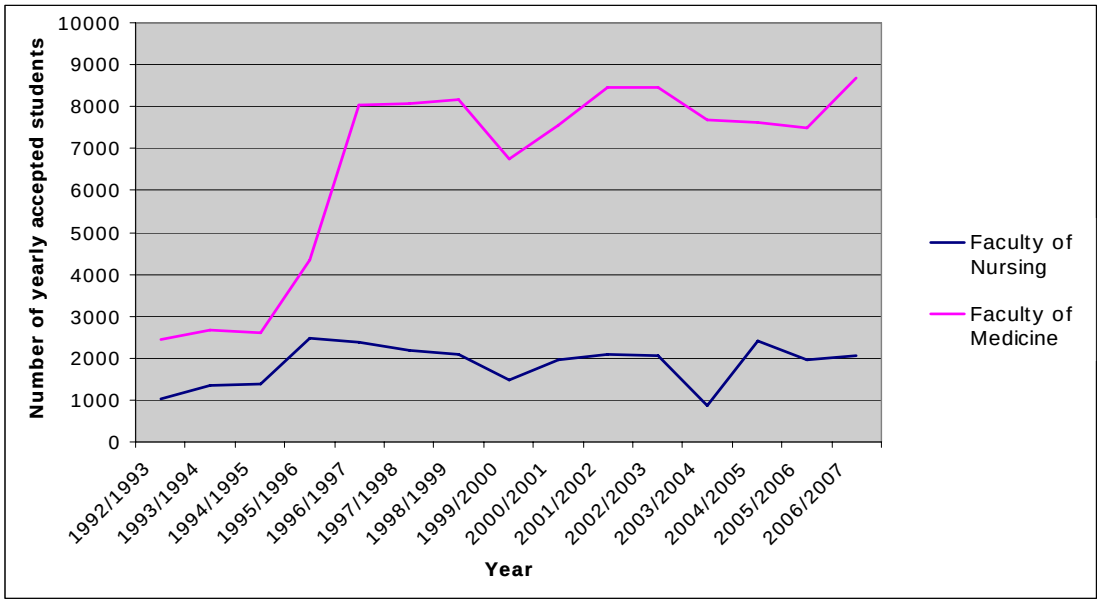


Data Source: High Council for University Education

Number of accepted students in the faculties of nursing and medicine

The number of accepted medical and nursing students have vastly diverged in 1996/1997 with the opening of more regional faculties of medicine in different governorates of the country. More funding and attention went to medical education and more spots were available to students; the same did not happen for nursing education. (see figure 8)

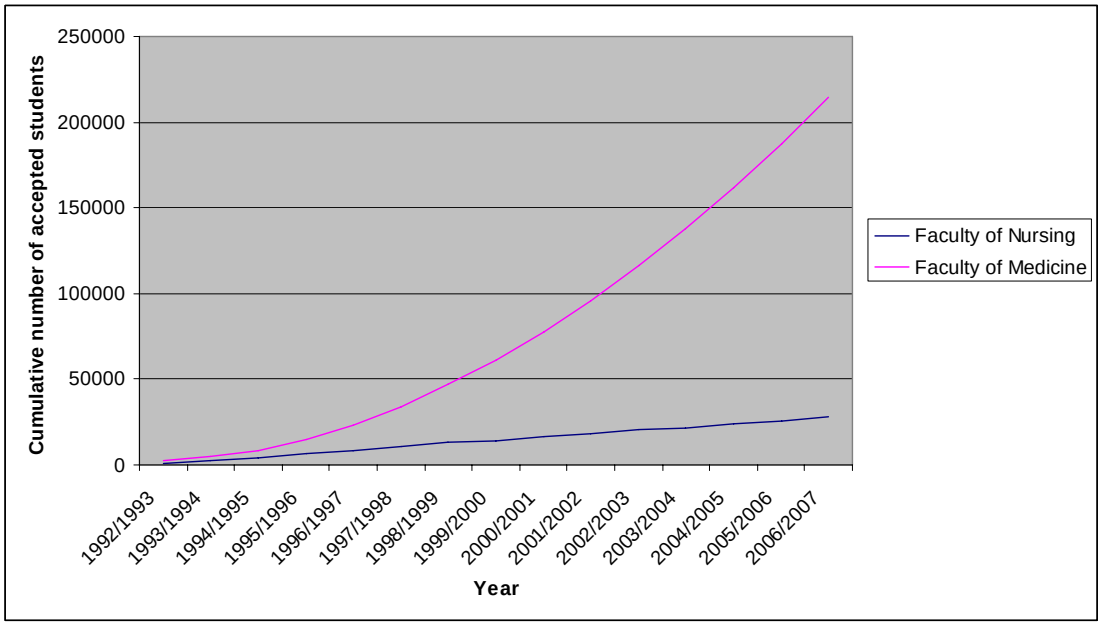
Figure 8: Yearly accepted students in nursing and medicine faculties 1992-2007



Data Source: High Council for University Education

The increase in the number and capacity of the faculties of medicine all over the country and the acceptance of bigger numbers of students every year meant that cumulatively the number of faculty of medicine graduates has increased exponentially while the number of faculty of nursing graduates has experienced only a modest increase as shown in figure 9.

Figure 9: Growth of nursing and medical students/graduates



Data Source: High Council for University Education

The analysis presented above indicates that there is evidence for increased demand for nursing education (especially since 2000) faced with restricted supply of nursing education causing a significant increase in the faculty of nursing entry requirement scores. The restricted supply of nursing education on the one hand and the increase in the supply of medical education translated quite evidently in the shortage of the stock of qualified nurses and the excess of the stock of doctors in the country. The shortage seems to be for the most part a result of education policies and education funding for both nursing and medical education. Further evidence of the growing demand for nursing education is the growing private sector interest in providing nursing education; there are currently four private faculties of nursing preparing to open in Egypt.

Therefore I conclude that while status and image improvement campaigns may be very beneficial in their own right, they will -in fact- do little to ease the nurse shortage problem because the problem is not that "no one wants to become a nurse", rather it is that the government determines the number of accepted nurse students and it has traditionally restricted this number below what is socially desirable. The nursing education sector has suffered from consistent neglect and under-funding which translates into fewer accepted students because there is no funding to expand and accept more students.

Focus group results confirm that the nursing image is no longer a barrier to becoming a nurse: *"Fathers now convince their girls to go to nursing school now….the problem is how some doctors treat nurses"* (Nurse 11). The only exception is upper Egypt- where cultural barriers to becoming a nurse is believed to still exist and where image improvement campaigns may be beneficial in addressing nurse shortages. (Egypt Human Development Report, 2005). An evidence for the limited demand for nursing education in Upper Egypt is that entry requirement scores for the faculties of nursing in Upper Egypt have traditionally been much lower than the rest of the country. However, the gap between entry requirement scores between Upper and Lower Egypt has been closing in the past three years (see figure 6).

Minimum requirement entry scores for high school diploma nurses have also been increasing and currently exceeds the required scores for general high school which clearly indicates growing demand for nursing high school education since the supply of high school nursing education has been growing. The demand for nursing high

school education has been met with an expansion of the supply of nursing high school education, which reached 260 schools and therefore we observe a much less evident shortage of high school nurses.

6.2 The supply of nurses

The nurse stock is the pool of nurses on which health care facilities can draw. However, these nurses have to be willing to work at wage levels offered by employers. MOHP sources believe that 4% of the total nurse stock exits the market every year; it is estimated that 7000 nurses exit the market for various reasons (work abroad, stay home or work in another sector) and that about 10,000 newly graduated nurses of all types enter the market every year. The resultant increase of 3000 nurses every year to the nurse labor force is believed to be lower than what is needed. (MOHP Director of Nursing)

However, the 4% leakage out of the nurse labor market is at best an educated guess by health care policy makers who need this information for planning. There are no labor supply data on which this number is based. This percentage could be considerably higher than 4% or less. The subset of health workers in the only labor market survey dataset in Egypt was too small to allow for any quantitative analysis to be conducted and therefore, we simply do not know.

The total number of nurses in Egypt is estimated to be 202,542 – out of which 164,000 work in the ministry of health- out of which 89,000 are actually working in the MOH. (Director of MOHP nursig). About 6-8% of all nurses are bachelor level nurses. No information is available on the percentage of bachelor nurses of all nurses working in the public sector.

Focus group discussions with nurses indicated that family considerations are the main reasons nurses choose to work in the public sector and remain in the country:

“Nurses prefer the public sector after they get married because of much less work demands, one can fire you, you have health insurance and pension benefits, and better hours” (Nurse 5)

However, discussions with nurses also indicate that the leakage out of the nurse labor market in Egypt may be larger than suspected:

" A nurse here makes as little as LE 180 and in Saudi Arabia can make more than Saudi Riyal 3500-5000…. of course, nurses want to leave either for the private sector or the Gulf….Gulf contracts do not always require experience, they just pay less for nurses with no experience"- (Nurse 15)

"Bachelor nurses always think about working abroad or at least in the private sector- most nurses who graduated my year in the university left" (Head Nurse 1)

"Most of my classmates either left for the private sector or the gulf"
(Nurse 7)

The results of focus group meeting with nurses indicate that there may be more nurses exiting the market to stay at home, work abroad or work in other professions than what is estimated by policy makers. However, the reality of the situation is that we do not know how many and who is leaving the market today. There is a large body of literature about the supply of nurses, which examines factors that influence nurse labor force participation and hours worked, such as nurse own wage, level of education, age, marital status, husband's wage, children and so on. (Sloan et al., 1975), (Altman, 1971), (Link, 1992), (Antonazzo, 2001), (Askildsen, 2002). As a result of these studies, researchers are able to understand what happens when wages increase by x percent or who exits the market when wages drop; are married more likely to leave? are more educated nurses more likely to leave? for example. This understanding of the labor supply of nurses can be used as a basis for policy making. However, no such labor supply data exists in Egypt and therefore, we know very little about the supply of nurses. It is not possible to conduct the research necessary for understanding the labor supply in Egypt without such data. Therefore, we cannot determine how much does the exit of nurses from the market currently contributes to the shortage? we do not know where these nurses who exit the market go? And who are these nurses? Are these mostly single nurses? The fact of the matter is that it is not possible to understand the supply of nurses in the absence of quantitative panel data on the supply.

7. Dynamics of the nurse labor Market

The actual level of nurse employment level in a country and hence the shortage is determined by the interaction of supply and demand. There is evidence of growing local private sector demand for nurses (qualified nurses in particular) and excess suppressed demand in the public sector as there is almost no flexibility in the public sector to increase wages to attract or retain more nurses. The international/Gulf demand for Egyptian nurses seems to be growing at the same time.

The supply of nurses is influenced by the nurse stock shortage, wage levels and other supply side factors. The severe shortage of the supply of qualified nurses seems to be largely a function of the shortage in the stock of qualified nurses which is a direct result of education policies. The perceived shortage of all types of nurses on the other hand seems to be less a function of the shortage of the stock of all nurses. The stock of all-type nurses in Egypt is within the expected for country with Egypt's level of economics development in the region. Therefore, I conclude that it is not simply a nurse stock problem. Many of the nurses that could be working are opting out (either to work abroad, stay home….etc.) possibly because of low wages in the public sector or excessive work demands in the private sector. The public sector seems to be facing a problem retaining nurses because of its inability to adjust wages. In the absence of nurse labor supply data, it is not possible to conclusively diagnose this problem.

The limited supply of nurses (particularly qualified ones) faced with increasing demand for their services have led to higher nurse wages in the private sector and shorter time-to-hire in the public sector. Higher wages in the private sector in Egypt and considerably higher wages in the international/Gulf market and shorter time-to-hire in the public sector have attracted more people to the nursing profession because of the obvious increasing returns to nursing education (bachelor level in particular). There is a large body of literature on estimating returns to different types and levels of education quantitatively which is useful for understanding investment in education choices (Mennemeyer and Gaumer, 1983), (Kane and Rouse C.E., 1995), (Lee H., 1963). However, due to lack of data, it is not possible to conduct such analyses for Egypt. The increased demand for nursing education faced with restricted university education supply significantly pushed entry requirement scores for the faculty of nursing up. Therefore, the shortage of the stock of qualified nurses

seems to be largely the result of education policies and cumulative low funding for nursing education. Medical and Nursing Education policies seem to be divorced from population heath needs.

Therefore, the shortage of qualified nurses observed in the Egyptian market in general seems to be -to a large extent- the cumulative result of education policies- especially poor funding for nursing university education. The much discussed problem of the nurse image as a barrier for women to become nurses in a conservative culture such as Egypt seems to be no longer an issue as more men and women are demanding nursing education today; the only exception to this is in Upper Egypt. The shortage of qualified nurses in Egypt is partly a function of the shortage of the stock of qualified nurses overall. However, the perceived shortage of all nurses (qualified nurses in particular) seems to be the result of supply side factors. Nurses are choosing not work because of low wages offered in the public sector which discourage nurses from staying in the public sector and excessive work demands in the private sector. However, since supply data are not available, it is not possible to say much about the supply of nurses except that since the overall stock of nurses is sufficient, there must be something that is preventing these nurses from entering the market and hence the observed shortage.

8. Discussion and Assessment Policy Options

The ministry of health (MOH) and the health committee in the parliament is in the process of proposing new policy solutions to the shortage of qualified nurse problem. The new direction of the MOHP is to focus on the low end of nursing education and upgrade nursing high school level education which takes place in lieu of regular high school to technical institute level. The policy option currently being discussed is to convert 32 nursing high schools (3 years) into technical institutes (5 years) with the plan to increase the number of technical institutes to 60 schools by 2010 and completely eliminate the 3 year high nursing schools by then. WHO EMRO recommendations is not to extend the nursing high school education to 5 years but rather to open 2-year nursing technical institutes that accept students post high school. There are pros and cons to the MOHP approach which is extend the 3 year nursing high school program to 5 continuous years of nursing education as opposed to WHO approach which is, to expand the number of technical institutes of nursing

that offer 2 years of post high school nursing education and closing high school level nursing education.

WHO's approach stems from a concern that students start nursing high school at ages as young as 13 years of age which is not appropriate in their view and that young students should not be exposed to this kind of education until after high school. MOHP's approach is grounded in the reality of the situation in Egypt today where around 90% of nurses are graduates from such high school nursing programs. The fact that nursing high schools are of the vocational training type which offers some income during training and quick income after training because of ease of finding a job after graduation is a major advantage considering the high unemployment level in Egypt. Therefore, MOHP's policy makers seem justified in their concerns that if they closed off these schools, they might loose these potential nurses to other vocational training type professions. However, if the duration of nursing education was simply extended after students enter schools then it is less likely that potential nurses will convert to other professions.

Therefore, the MOHP current policy approach is to upgrade the quality of nursing education in Egypt which is one of the main problems. Since the shortage of the stock of qualified nurses in Egypt seems to be a function of the restricted supply of university or high institute nursing education, the expansion of improved quality nursing education is a very sensible approach. The focus on upgrading high school nursing education rather than focusing on expanding university education is justified since most nurses in Egypt are high school level nurses. Therefore, the biggest and fastest impact can be created by improving the quality of nursing education of the majority of nurses.

However, this approach does not address supply side reasons for the shortage. The absence of data on the supply of nurses in Egypt and hence the shallow understanding about the supply of nurses makes it difficult to provide an accurate evaluation of policy options. However, the available evidence indicates that the demand for better educated/quality nurses is stronger than the demand for high school level nurses, both domestically and internationally. Therefore, there is a real danger that it is more likely that once nurses graduate from the 5-year program they will exit the local market or at the very least the public sector because the returns to education are much greater in the private sector or abroad. The chances of "leakage"

are higher with better-qualified nurses. From the government's perspective, this could mean that millions of dollars spent on upgrading education could result in more nurses leaving the system.

The lack of quantitative data about the supply of nurses in Egypt makes it impossible to speculate about the extent of leakage that could take place as a result of upgrading nursing education. It is also not possible to identify which category of nurses (who) is more likely to leave. This information would have been very beneficial in designed nurse retention policies, which are needed to accompany this education upgrade. However, in the absence of such information, some nurse retention policies need to be adopted which could include financial incentives or legal requirements to work a certain number of years that must be enforced.

Egyptian nurses' exit out of the local market to work in the Gulf is viewed by heath policy makers in Egypt as a threat because of the local shortage. Relatively high wages offered for nurses in Gulf countries makes working there a very attractive option for many Egyptian nurses. Gulf countries facing an increasingly competitive international nurse labor market makes Egyptian nurses a very sensible short and medium term solution to their shortage problems. Therefore, nurses leaving to work in the Gulf seems inevitable. However, this need not be viewed as a threat. On the contrary, this could be an opportunity. In 2007, Egypt had a general unemployment rate of 11.2%, male unemployment rate of 7.10% and female unemployment rate of 24.3%. Therefore, training nurses for export could be an opportunity because of the benefit to the Egyptian economy from remittances and the such. In addition to remittances, if nurses who leave are required to pay certain taxes to support nurses' education in Egypt and compensate the government for the free education they received, this could also be useful for the health sector. It would also make sense for the government in this case to encourage and regulate private nursing education. The idea is instead of nurses migration to work in the Gulf to work happening by default, to let it happen by design and view it as an opportunity.

9. Conclusions

The shortage of the stock of qualified nurses seems to be largely the result of the restricted supply of public university nursing education. There is evidence for a growing interest in the nursing profession in Egypt and therefore a growing demand for nursing education of all types; the only exception to this is in parts of upper Egypt where conservative cultural norms still present a barrier for women to become nurses. The supply of nurses in Egypt cannot be adequately understood in the absence of quantitative data. However, there is evidence (mostly qualitative) that many nurses are choosing to exit the local market (either to work abroad, stay home, convert to other professions…etc.) contributing to the overall shortage of nurses; the extent of this is not known. Nurses' migration does not necessarily have to be regarded as a threat; it could be an opportunity given the high unemployment levels in Egypt. However, it could be regarded as an opportunity only if polices are enacted to compensate the government for public investments in education and if there are effective retention policies in the country to satisfy the local demand for nurses.

The absence of quantitative – in this case, health labor market databases- results in a situation where policies are made based on educated guesses rather than evidence. It is neither possible to make predictions about the likely effect of policies nor to evaluate the effectiveness/success of policies in the absence of data. A more serious problem created by absence of evidence based on data is the inability to tailor policies to reality of the situation. The example of the policy of expanding nursing education is a clear one. Because we do not understand the supply, a policy of improving the quality of nursing education could result in more nurses leaving the public sector because a better-qualified nurse is more employable in the private sector and abroad. Therefore, this policy should be accompanied by retention strategies that should be tailored to the nature and composition of the supply. It is not possible to generate evidence without data analysis and therefore it is essential to build data infrastructures to support health policy making in Egypt.

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