Dirasat, Administrative Sciences, Volume **33**, No. **2**, 2006

Assessment of Nursing Manpower Situation in Jordan: Current and Future Issues and Needed Strategies

***Farid Nusairat* ***

ABSTRACT

Focusing on nursing manpower situation in Jordan, this study aimed at: (1) Assessing current situation of the nursing sector in terms of numbers and types, ratios, sectoral distribution, shortages and or surpluses, and nursing staff problems. (2) Projecting the future situation of nursing as to supply and demand and probable shortages and /or surpluses.

Data pertaining to nursing sector were directly extracted from official records and documents. Personal interviews and discussions with authorities in the field were carried out and relevant literature was reviewed. Annual patient days and nurse Full Time Equivalent (FTE) were used as bases for assessment of current and future needs with the year 2002 as a base year.

The most important findings of the study were; (1) Currently, the nursing sector faces many chronic problems such as skills shortage; supply shortage; job stress and burnouts; and dissatisfaction of staff; (2) Current numbers of nurses per 10000 population in Jordan are low (MOH, 2002). When compared with other countries, Jordan ratios were higher than that for developing countries. Ratio is expected to reach an unprecedented figure of (22.5) registered nurse per 10000 population in 2008. Projections indicate that by the year 2010, Jordan will have a total of 13495 registered nurses. (3) A serious sectoral maldistribution of nurses is evident with the Ministry of Health and the Royal Medical Services being the most seriously affected. (4) At the beginning of 2008, Jordan and for the first time, will have a surplus of (165) registered nurses. By 2010, there will be a surplus of (473) registered nurses and (9244) practical nurses. The expected future surplus of registered nurses may constitute a real opportunity for Jordan to move from being mainly domestic-oriented to export-oriented country. Yet, it may pose serious problems for the Jordanian health sector if not properly attended to. Policy decisions need to be taken and new strategies need to be put into effect.

KEYWORDS: Nursing Manpower, Assessment, Issues, Shortages, Surpluses, and Strategies.

1-OVERVIEW OF JORDAN HEALTH CARE

The main health care service providers are the public sector, the private sector and the semi-public-private sector. Ministry of Health (MOH), the Royal Medical Services (RMS) are related to the public sector, semi-public-private sector (Jordan University Hospital, (JUH), King Abdullah University Hospital (KAUH). Both the public and the private sectors provide health care services through clinics and hospitals distributed around the country. Although the health services sector has successfully attracted patients from neighboring countries, the sector remains mainly"domestic oriented" rather than "export oriented".

The total number of hospitals in Jordan for the year 2002 reached 95 with 9383 beds. The rate of nurses (RNs and PNs) per 10000 population in the year 2002 was 28.1(MOH, 2002). The total number of nurses employed in the various segments of health care service providers for the year 2002 was 15006. The number of nurses per physician in Jordan is slightly lower than the average in our region. Currently, the demand for quality nurses in Jordan is rising. The ongoing and continuous improvements in Jordan health care, the recent growth of bed capacity and physicians number, the introduction of high-technology medical care in hospitals and the increasing number of competitors locally and regionally

* Health Policy and Management, Department of Business Management, University of Jordan. Received on 28/1/2005 and Accepted for Publication on 24/7/2006.

have created a strong demand for well-qualified nurses in Jordan and the region at large.

2- RESEARCH QUESTIONS

This study aims at assessing current and future situation of nursing manpower in Jordan, therefore it addresses the following specific questions:-

Is there a nursing manpower shortage currently in Jordan? How many nurses are distributed among the different health providing sectors? Is there a sectoral maldistribution? In what sectors and how serious is it? And how far it will prevail in the foreseeable future? How does Jordan compare to other regional countries in terms of the numbers and ratios of nurses? What are the major issues and problems facing the nursing staff?

What would be the future trends of nursing manpower, in terms of probable surpluses or shortages? What strategies are necessary to deal with current and future supply and demand for nursing services?

3-SIGNIFICANCE AND OBJECTIVES OF THE STUDY

Initially, this study came out in response to a request from Jordan High Health Council to assess current and future nursing manpower situation. Then, the researcher thought that this study would be further developed and published. As such, the analysis was focused on identifying major issues and problems facing nursing services, probable shortages and/ or surpluses, and delineating the need for policy actions and strategies to deal with these issues at the national level. With the recent and considerable growth in the number of nursing schools and nursing programs and the expected annual increase in nursing students' numbers in Jordan, excess supply of nurses may occur. Given the fact that the Jordanian market for nurses is so narrow and its ability to absorb new graduates is limited. This will exacerbate current issues facing the nursing sector. To avoid the negative spill over of the probable future surplus of nurses, a sound nursing manpower policy perspective would be required to delineate actions and strategies to deal with the issues of the sector. The main objectives of the study were as follows:

1. To assess the nursing manpower situation in terms of major issues and problems, numbers and types, ratios, and sectoral distribution and how Jordan compares to other regional and middle-income countries.
2. To project future state of nursing manpower in terms of probable shortages or surpluses.
3. To propose some policy actions and strategies for the solution of nursing issues particularly the current shortages and weaknesses and the expected future surpluses.

4-RESEARCH METHODOLOGY

This study was carried out in two stages: The first stage included relevant literature review, delineation of research questions and objectives, and determining the research methodology. The second stage included secondary data collection and extraction from official reports and records and government documents. Personal interviews and group discussions with authorities in the field were also employed in this stage for data collection and validation. Then data were processed, analyzed and projections of future needs and supply of nurses were made. The specific methodology used in projecting future states was as follows: To assess present and future needs for registered nurses, Annual Patient Days, (APD) and nurse Full Time Equivalent (FTE) were used as a basis for projections. Annual patient days refer to the total patient days produced annually by all hospitals in Jordan. Annual patient days were calculated by multiplying total annual hospital admissions by the average length of patient stay (ALPS = 3.3 days). Full Time Equivalent (FTE) refers to the total nursing hours that, on the average, one registered nurse works in a year. Also, the working days lost as annual leave days, public holidays, sick leaves (average per nurse), training days (average per nurse) were considered. The calculated FTE = 2000 nursing hours (nhs). To arrive at the total nursing hours needed per year, the annual total patient days were multiplied by 5.1 nursing hours per patient day (MacEachern, 1969). (1.7 "nursing hours/patient day/ per shift" times 3 "shifts = 5.1 nhrs). This figure (5.1 nhrs) represents an approximate average under normal conditions. The total patient days/year were estimated as patient days/year needed to deal with total admissions in the different sectors considering the average patient stay in hospitals as 3.3 days. The analysis started with the number of 602855 admissions in 2002 and considered the rate of increase of 0.1% annually (MOH, 2002). Extra need for registered nurses to cover emergencies and work

in outpatient clinics and medical centers was considered in the calculations. Based on personal experience and judgment, the researcher estimated that 10 outpatient visits equal a patient day, besides, each 5 emergency visits equal a patient day. The analysis started with (18,220,000) annual outpatient visits and (660773) emergency visits in the year 2002 with an annual increase of 1% (MOH, 2002). To estimate the balance of registered nurses (Available -Estimated need), information about the supply of nurses from nursing schools was used. The average yearly supply was estimated as 1306 new registered nurses (the annual output of nurses from nursing schools) (Table 5). In addition, the turnover rate was calculated. The average turnover rate for registered nurses = 3.3%.

5- HISTORICAL TRENDS IN NURSING MANPOWER DEVELOPMENT

The rate of registered nurses per 10000 population increased from 11 in 1996 to 14.7 in 2002 with an average annual increase of 0.62. The rate of assistant nurses per 10000 population decreased from 12 in 1996 to 10.6 in 1998 and then fluctuated to reach 10.8 in 2002. The rate of midwives per 10000 population increased from 2 in 1996 to 2.6 in 2002 (MOH, 1996; 1998; 2002). (Fig 1).

Turnover and Burnout of Nurses

Table (1) and figure (2) show the number of nurses' losses and burnout in the year 2002. In 2002, 511 registered nurses were offered jobs but 378 (73%) refused the offer. The numbers of burnouts in 2002 were: 43 midwives, 258 registered nurses, 105 assistant nurses (practical), and 14 associate nurses (the total was 420). The turnover rate for nurses (all categories) in that year was 2.8%, the turnover rate for registered nurses was 3.3%. (Figure 2). Table (1) shows the turnover rates for nurses (all categories) and Registered Nurses (RN) by year.

Currently, the majority of practicing nurses are females. However, data show that more males are entering the market that will dilute the percentage of females in the future. Currently, male nurses constitute 25% of the total population of Jordanian nurses (Al-Maaitah, 1999). Currently, Jordan has around 30 PhD holders employed by the private and governmental universities, 11 of which work in Jordan University for Science and Technology (JUST). Around 300 female and male nurses hold master's degrees.

6- DATA PRESENTATION

Table (2) shows the distribution of nurses by nurses' category and health sector; also, it shows ratios of nurses to population. In 2002, there were 28.1 nurses per 10000 population. The rate of registered nurses, assistant nurses (practical and associates), and midwives per 10000 population were 14.7, 10.8, and 2.6, respectively (MOH, 2002).

Table (1): Turnover rates for nurses (all categories) and Registered Nurses (RN).

Year	Total Nurses	No. of RN	Total loss	RN loss	Turnover rate (all categories)	Turnover rate (RN)
2000	13259	6249	195	135	1.5%	2.2%
2001	14219	7290	185	119	1.3%	1.6%
2002	15006	7849	420	258	2.8%	3.3%

Of the total number of 7849 registered nurses, 52.3 % were working in the private sector, 25.7% in (MOH), 14% in (RMS), and 7.5% in the University Hospitals (JUH and KAH). As for medical centers, the real handicapping shortage, however, lies in nursing; it was found that over 91% of the health centers do not have even one registered nurse. Furthermore, 88.4% of centers do not have practical nurses (Mawajdeh, 2002).

Of the total number of 5764 assistant nurses, 34.7% were working in the private sector, 58% in MOH, 4.6% in RMS, and 1.1% in JUH and KAH. Of the total number of 1393 midwives, 9.4% were working in the private sector, 52% in MOH, 30.4% in RMS, and 5.5% in JUH. Health care literature of Jordan indicates that 56% of Jordanian people seek treatment in the Ministry of Health hospitals, 21.6% in the Royal Medical Services hospitals, 20.6% in the private hospitals, and 1.8% in other hospitals. These figures show that registered nurses cluster in the private sector (52.3% of registered nurses are in the private sector), whereas,

only 20.6% of Jordanians seek medical treatment. On the other hand, one fourth of registered nurses work in MOH where 56% of Jordanians seek treatment. This means that high percentage of patients deprived of the high quality nursing services that are supposedly offered by registered nurses.

Table (2): distribution of nurses by nursing category and sector and the rate per 10000 of pop*

Sector	MOH		RMS		KAH		JUH		Private		UNRWA		Total		Rate/ 10000 pop
Nursing category	n	%	n	%	n	%	n	%	n	%	n	%	n	%	
Registered nurse	2016	34.6	1101	37.7	252	76.1	338	57.3	4142	77.5	42	18.8	7849	52.3	14.7
Midwives	806	13.8	64	2.2	15	4.5	0	0.0	508	9.5	24	10.8	1393	9.3	2.6
Assistant nurses	2999	51.5	1753	60.1	64	19.3	252	42.7	696	13.0	157	70.4	5764	38.4	10.8
Total	5821	100	2918	100	331	100	590	100	5346	100	22	100	15006	100	28.10

*MOH; Ministry of Health, RMS; Royal Medical Services, KAH; King Abdullah Hospital, JUH; Jordan University Hospital.
**Percentage within sector total. Assistant nurses include practical and associate nurses

Data show that the private sector and King Abdullah Hospital (KAH) employ a high percentage of registered nurses among their nursing team. This may indicate that better nursing service quality is offered in the private sector and KAH compared with other sectors. The problem of mal-distribution of nurses and the shortage of registered nurses is more severe in MOH. In addition, this problem is aggravated by the reality that 56% of Jordanians seek treatment in MOH.

Of the total number of 5764 nurses (practical and associates), 706 (12.25%) work in comprehensive health centers, 1896 (32.89%) in primary health centers, 373 (6.47%) in village health centers. The rest of the 2789 (48.39 %) work in hospitals of the different sectors with the MOH hospitals having the highest share of them (Mawajdeh, 2002).

The inequitable sectoral distribution of nurses could be attributed to a variety of variables influencing the abilities of the different sectors to recruit attract, and maintain nursing staff. Sectoral differences as to organizational image and job attractiveness are probable important factors influencing the sectoral imbalances issue. The notable variance in the wage structure among the health sectors could be one important factor. The official records of the concerned sectors show that the monthly average salary for registered nurses is 232 JD in the Ministry of Health, 319 JD in the Royal Medical Services, 350 JD in King Abdullah Hospital, and 380 JD in the private sector (Official Records, 2002).

The rate of nurse per 10000 population in Jordan in 2001 was higher than that for some Arab countries such as Syria, Palestine, Morocco, Lebanon and Yemen (MOH, 2001). While it is lower than other countries such as Bahrain, Kuwait, UAE, Sudia Arabia, Oman and Egypt (Fig 4). Compared to the average ratios of nurses to population for middle-income economies 1 nurse to 980 population (WHO standards, the World Development Report), (WHO, 1994), the ratio in Jordan reaches 1 nurse to 679 population (1.44 nurse to 980 population). This means that the ratio of nurses to the population in Jordan is higher than that for middle-income countries. However, the ratio of registered nurses to practical nurses was 1:2 in 2002, which indicates skills shortage. The ratio of nurses per physician was 1.28 (0.67 for registered nurses, 0.12 for midwives, and 0.49 for assistant nurses) (Fig 5). Depending on a country's level of development, desirable national average ratios (Nurse to doctor ratios ranging from 0.3 to 16.4, with a world average of 1.4) (WHO, 1994); there is a need of 2788 more nurses to reach the desirable world average.

The estimated number of midwives, based on the WHO standards (1 midwife for every 200 normal deliveries per year (WHO, 1992)), to meet the need for 154541 (2002) normal deliveries, Jordan needs 773 midwives. Jordan has 1393 midwives (surplus = 1393-773= 660). Depending on the birth rate and the proportion of deliveries normally attended by midwives, the ratio of 1 midwife per 3826 population is higher than the appropriate ratio of one midwife per 4000 population (considering such factors as geography, population

dispersion, transportation routes, the use of midwives for other functions such as family planning, and that some births will be delivered by doctors, a ratio of 1:6000 might be appropriate). Data indicate that the number of midwives in Jordan (2002) was sufficient and higher than the desirable number.

Cautions should be taken in using average ratios both within countries and among countries of different socio-economic status. Ratios should be adapted to the local context in which they are being used. The choices that countries make regarding factors that influence ratios-number and type of health facilities, staffing patterns, skill mix and the health needs of the population- vary tremendously from country to country, and even within the different regions of the same country.

The ratio of nurses (all categories) to physician is the highest in RMS and the lowest in the private sector (Fig.6). On the other hand, the ratio of registered nurse to physician is the highest in MOH and the lowest in the private sector. Opposite to the case in other countries, the number of the Kingdom's nurses was half the number of physicians in medical institutions.

Projections of Nursing Manpower Supply and Demand

Table (3) shows the supply and demand figures of registered nurses in Jordan for the period 2002-2010. In 2002, the estimated number of nurses needed was10056 to cover all outpatient clinics, and emergencies. Whereas the available number of registered nurses in 2002 was 7849. Then, there was an extra need for 2207 more registered nurses (shortage in 2002) Table (3).

The Ministry of Health (MOH) was the sector most severely affected by this shortage, and RMS was the next. On the other hand, there were excess registered nurses in the private sector. If the demand side variables grow naturally-in a sense that no extraordinary changes take place such as a sudden growth in Jordanian population, sharp rise of demand on nurses locally/or regionally, no significant change in medical practice and medical technology and the yearly supply remain the same- the shortage, gradually, will diminish by time until it fades away in the year 2008. And a surplus of nurses is expected to build up starting the year 2008. By the year 2008, it is estimated that Jordan will have, and for the first time, a surplus of (165) Registered Nurses (RNs). This surplus will add up to (473) RNs in year 2010 Table (3).

The available numbers of practical nurses as shown in Table (4) will temporarily compensate the shortage of registered nurses in 2002 to 2007. However, there will be a surplus of registered nurses in 2008. In the meantime, it will be appropriate that practical nurses should have a clear job description to distinguish their roles from that of the registered nurses. After the year 2008, the number of registered nurses will continue to increase and exceed the need. The expected excess in the number of registered nurses will probably have three main advantages:

1. The chronic imbalances and mal-distribution of nurses among sectors and geographical areas will be fixed over time.
2. The issue of wage structure differences as a nurse attraction factor among the sectors will be reduced and then resolved. With the expected oversupply, competitors do not need to compete for quality nurses on wage and salary grounds.
3. The nursing sector will be more money generating source for the Jordanian economy through exporting nurses to work outside the country.

It must be noted that the numbers in table (3) pertaining to projected future need of RNs are, somehow, overestimated. It is expected that with advances in medical technology and the expected shift in medical practice, particularly, from traditional surgery to laser surgery will result in reduced patient's length of stays and hence, less professional nursing hours will be needed. Also, future needs were projected on the bases of 12 annual admissions per 1000 population with an annual increase of 1%. However, one could expect a lower future admission rate. However, 12 admissions per 1000 would be an appropriate utilization rate for a country of young society like Jordan. Moreover, considering the fact that almost 30% - 40% of total annual admissions are maternity cases with a hospital stays less than the assumed average of 3.3 days, one can reasonably expect a higher surplus figure than that shown in table (3). Also, when adding the total number of practical nurses that will be available (table 4), the surplus will rise to a notable figure of 9244 practical nurses (table 4), and at least 473 registered nurses by the year 2010 (table 3).

Table (3): Projections of surplus/shortage for registered nurses in years 2002-10 based on the available data in 2002.			
Year	**Available**	**Estimated need**	**Surplus/Shortage***
2002	7849	10056	-2207
2003	8871	10533	-1662
2004	9865	11036	-1171
2005	10828	11565	-737
2006	11756	12122	-367
2207	12646	12710	-64
2008	13495	13330	165
2009	14313	13983	330
2010	15144	14671	473
*** negative sign denotes shortage (Estimated need)**			

Table (4): Projections of supply of practical nurses from 2002 to 2010 based on the available data in 2002.	
Year	**Available numbers**
2002	5764
2003	6234
2004	6694
2005	7144
2006	7584
2007	8014
2008	8434
2009	8844
2010	9244

Table (5): Nursing schools and average number of nursing graduates per year.				
Institute University [4 years program]	**Location**	**Average per Year**	**Percentage of males**	**Other categories***
Jordan University of Science and Technology	Irbid	278	61.0%	46 Master* 80 midwives
University of Jordan	Amman	206	73.6%	89 Master*
AL-Albyet University	Almafraq	108		
Al-zaytooneh University	Amman	493		
Mu'ata University	Alkarak	90	51.0%	
Hashemite Univesity	Alzarqa	131		
*Annual fig. not available				
Total		**1306**	**61.9% (Average)**	
College [2 years program] Associate nurses				
Princess Muna College	Amman	92		

Nusaibah Almazeniah	Irbid	175	33.0%	108 midwives
Rufaidah College	Alzarqa	171		
Jordan College for Science and Technology	Irbid	60	53.0%	
Allied Medical Professions	Irbid	31	23.0%	
Alzarqa College	Alzarqa	21	62.0%	
Ibn Khaldoon	Irbid	29	55.0%	
Total		**579**	**45.2%**	

Nursing Education

In an attempt to meet the work force needs for nursing personnel in Jordan, various types and levels of nursing education programs were created. The following levels of basic nursing education exist in Jordan as follows:

1. High school certificate-nursing branch: administered by the Ministry of Education during which students attend nursing courses in addition to general high school courses and obtain the secondary school certificate at the end of the programme and they are as a 'Nurse Aid'.
2. Practical nurse programs: two academic years (18 months) of nursing studies in schools for practical nurses. To be eligible for admission to the program, students should complete secondary school education successfully.
3. Associate Degree Programs: Students pursue two academic years of study in one of the available Institutes for Allied Health Professions in Jordan or attend a program run by the Royal Medical Services. Students should complete their secondary education before gaining admission to this nursing program
4. Registered Nurse Diploma Program: Students with a secondary school certificate pursue a program of 39 months of nursing studies. The program is offered at two colleges of nursing affiliated with the Ministry of Health.
5. Registered Nurse Bachelor of Science in Nursing (BSN) programs: students undertake 4 years at university level. Currently, male students are coming close to representing more than 55% of nursing students at some universities and community colleges.

Initially, nursing programs and schools were established as a quick solution for the chronic historical nursing shortage in Jordan. Under the pressures of the supply shortage and the pressing need to fill vacant nursing positions, the essential conditions for the establishment of many of these nursing schools and programs were overlooked. Such practices have resulted in a serious skills shortage and poor nursing care. Good nursing care cannot be learned in an environment of poor nursing care. The diversity of nursing programs and the multiple entry to the nursing profession have also created serious problems to the nursing sector and those who employ them. At present, Jordan nursing sector experiences the ill-effects of a chronic skills shortage, perception of inequity, dissatisfaction as to roles and compensation and conflict among the different types of nursing personnel. Moreover, the absence of a clear distinction among the different types of nurses and the mislabeling of the nursing programs graduate "nurses" has introduced confusion and has negatively affected the overall sector performance and satisfaction. This diversity of educational programs has served its purpose. There is a need to evaluate the capabilities of the existing programs. This evaluation should be a more or less continuous process. Decisions as to the continuation or discontinuation of these programs must be based on the finding of the evaluation. For the development and /or the continuation of a nursing school or program, there are essential conditions which must be met and certain resources are required. Three are basic, and it is in terms of these that the ability to conduct a school of nursing should be carefully assessed. First ample clinical resources. Often the facilities of more than one hospital are required for the wide variety of clinical learning experiences deemed essential for proper preparation of student nurses. Second, adequate financial resources (Faculty salaries, library, classrooms, demonstration rooms…etc.). In addition to possessing and accessing clinical resources, there must be ample financial support. Third a core of good faculty. Even the possessing of the foregoing two requirements for conducting a good school of nursing, it may be difficult to meet the third one. Qualified faculty members in

Jordan are in extremely short supply and may continue to be so for some time to come. Assessing the existing programs in terms of these criteria, one might conclude that many fall short. Most educational activities are taught by unqualified nurses with no advanced educational preparation and the depth and breadth of many courses offered is limited (Nustas, 2001).

The hard realities of existence, especially economic factors, and the inadequacies of many small and poor programs should lead to cooperation between the different health sectors and concerned parties in maintaining and conducting larger, centralized schools as a practical solution. It is far more economical for Jordan to combine resources of the concerned parties and to be served by a few fairly large schools of nursing with better facilities and larger enrollment than it is to scatter its resources for nursing education among a number of small, poorly financed and prepared nursing schools. The experience of larger schools has demonstrated that they can offer a richer program and prepare better nurses than could the schools, which were their predecessors.

Currently, the notable growth of the university based four-year nursing education programs will increase the supply of professional nurses. An increasing number of nurses in Jordan have been able to access continuing clinical education on contemporary issues and high quality baccalaureate education. Nurse educators have been able to increase their academic and clinical teaching through graduate education. The international linkages and conferences have helped provide a global perspective for these educational and clinical linkages and resulted in raising the profile of the nursing profession in Jordan (Al-Ma'aitah, 1999). In addition to the opportunities for nurses to study overseas, the development of two Master's degree programs in Jordan is another example of advancement of the profession. Jordanian nurses have indicated that they have become empowered to act as change agents as a result of their increased knowledge and confidence gained through educational and training opportunities. It is anticipated that these efforts have the potential to improve the health of Jordanians over time (Rajacich et al., 2001; Nustas et al., 2001; Thomas, 2001; Al-Ma'atiah et al., 1999).

Nurse Satisfaction

Ali Al-Gazi investigated the job satisfaction of 214 physicians and 297 nurses in 34 health centers and one major public hospital in the greater Amman area (AL-Gazi, 1997). The analysis indicated that the level of job satisfaction among physicians tended to be somewhat lower than that of nurses and the level of job satisfaction among nurses and physicians in health centers tended to be higher compared to their counterparts in hospitals. For health center nurses, the most important determinant of job satisfaction was working conditions and the second was split equally between policy and the work itself.

Another study by Wafika Suliman (Wafika Suliman et al., 1996) showed that Jordanian nurses were generally dissatisfied with working conditions (transportation, childcare facilities), payment, nursing and hospital administrators' support, and professional growth and development. They found that leavers were more dissatisfied compared with stayers.

A comparative study by Muhsin Al Ajeel (Al-Ajeel, 1998) was conducted to identify the level of job stress among staff nurses at Ministry of Health Hospitals (MOH) and at Private Sector Hospitals (PSH). Findings related to nursing environment indicated that both samples from (MOH) and (PSH) experienced a high level of stress and they differed in their stress levels related to dealing with equipment, as well as dealing with colleagues. The study observed certain weakness in the application of job description for staff nurses that enhance a high level of stress among nurses and disturb their relationship with colleagues. AL-Habahbeh et al. (1998) conducted a study to determine factors responsible for nursing personnel requests for a transfer from a hospital to another. The study revealed that the majority of the sample indicated that monthly variations, recreational services, and incentives are the most affecting factors.

The results of Wafika Abdell-Rahim study (Abdel-Rahim, 1997) showed that nurses comfort in providing the general form of bio-psychosocial and educational care increased significantly when they deal with patients from the same sex as them, and decreased significantly in providing the private form of bio-psychosocial and educational care for patients from the opposite sex.

Rsearch Findings

On the bases of data presented and the review of relevant literature , the following problems and constrains were identified:

A) Nursing Shortage (registered nurses)

Nursing shortage in many sectors; low rates of nurse per 10000 population and low nurses to physician ratio**.** The nurses to physicians and to population always lagged

in Jordan. This shortage probably will continue for at least another four years. Generally, three main reasons can be attributed to this trend: 1) the cultural perception of the nursing profession at the early stages of this sector development was not favorable, 2) the low ceiling career, the limited opportunities for advancement, and the lack of certification and continuous training or education for this type of service, 3) the low wages for these professionals especially when compared to regional wage levels which resulted in a brain drain to other regional and international markets, mainly Saudi Arabia, UAE, Qatar, and Oman. This trend represents a weakness in the present health care service sector, which requires immediate attention by the concerned parties.

Turnover rates are high despite the fact that the number of programs for preparing nurses has increased. Many nurses, especially males, leave Jordan for positions in the Gulf Region countries (AL-Ma'aitah, 1999; Suliman and Gharbieh ,1996).

B) Mal-distribution of Registered Nurses

Mal-distribution of registered nurses over geographical areas, sectors, hospitals and health centers are evident. With registered nurses in short supply, graduates enjoy high mobility across the health providing organizations and can easily choose their preferred employer organization. Also, given the fact that the different health sectors vary in their abilities to attract and maintain nursing staff, and the significant wage differences among them, less attractive organizations will continue to have nursing shortages and sectoral imbalances will persist until nurse supply exceeds demand.

It must be remembered that in times of supply shortage, good wages and benefits are not enough to hire and retain skilled nurses. Health and nursing administrators need sophisticated recruitment and retention strategies and need to understand human behavior. In tight labor markets, managers who do not understand human behavior and fail to treat their staff properly, risk having no one to manage (Decenzo, 2005).

C) Job Dissatisfaction

Nurse job dissatisfaction is common place. It is affected by a variety of factors:

1. Nursing is often viewed as a low-status profession in Jordan, owing to ill-defined roles and the confusion of multiple levels of entry into nursing practice.
2. General lack of institutional support and incentives, and there is continued dominance over issues of health care by the medical profession.
3. Weakness in the application of job descriptions for staff nurses that enhances a high level of stress among nurses, tension and poor relationship with colleagues. Nurses need to be properly matched to their jobs and that they understand the extent of their authority. Also nurses need input in what affects them: involvement and participation have been found to lessen stress and increase job satisfaction (Dessler, 2003).
4. Baccalaureate graduates as a group and male nurses in general express more dissatisfaction across both immediate outcomes and long-term outcomes. Internal conflict may arise when this group of professionals realizes that many of their ideals may not be present in the actual work environment. This apparent dissonance may lead to a sense of frustration with the workplace and of insufficient control over one's work, eroding expectations of career future and thereby decreasing perceived autonomy, satisfaction, and accomplishment. This conflict may be related to lack of administrative support in hospitals and the general lack of planning or future vision for the profession and for nursing care (Suliman and Gharbieh, 1996; AL-Abadi, 1992).
5. Weaknesses in the education and training programs. There is a need for continuing education especially in critical care and intensive care, cardiac resuscitation management, and emergency department nursing (Rajacich, 2001; Al-Maiatah, 1999; AL-Momani, 1995). Most educational activities are taught by unqualified nurses with no advanced educational preparation and the depth and breadth of many courses offered is limited (Nustas, 2001).

Need for Strategies

The situation analyst expresses concern that a human resource crisis in the health systems is evolving rapidly due to previously mentioned problems and constraints, the current shortages in skilled nursing, mal-distribution problems, decreasing workforce participation, and the anticipated future surplus of nurses. Furthermore, nurse migration from Jordan to the Gulf countries is a growing problem that currently compounds the shortage issue and produces a disproportionately adverse impact on the nursing services and the health system as a whole. This also contributes to increasing inequities in health service provision that largely affect the poor especially in less privileged areas and in medical centers

which are deprived from professional nursing care. There is a need to build-up an evidence base on the migration of nurses and which will in turn have an impact on the health system.

Nursing resources planning and management factors relevant for policy consideration based on evidence include the following: national compensation trends (especially salaries), labor/management relations, international migration, and work conditions (including workplace safety and violence).

It is noted that a poor public image of nurses is a fundamental problem adversely affecting a variety of interrelated issues including: career selection, interdisciplinary relations, inadequate pay and compensation, opportunities for advancement, role expectations, and participation in macro-level decision-making (Al-Garibieh, 1992; Al-Ma'aitah et al., 1999). Strategies and actions are needed to handle the problems that face the nursing sector in Jordan. The following strategies are necessary to encounter the impact of current problems and constraints facing this sector and the projected surplus of nurses and the problems associated with it.

Recruitment and Retention Strategy

If nursing students are to complete their preparation and become worthy members of their profession, they must be selected with utmost care. Before they are accepted for enrollment in the school of nursing, effort must be made to determine their moral and ethical qualities and temperament. This requires tact and skill on the part of the committee on admissions and objective and focused personal interviews. Nursing schools today utilize preentrance tests, psychometric tests, and personal interviews as integral parts of the admission procedure. It must be remembered that the number of students in schools of nursing is governed by the number of qualified young people who can be recruited for these schools rather than by the number of schools preparing them. Those who are concerned with increasing the supply of nurses by recruiting more students in nursing need to put strong emphasis on the improvement of existing schools since experience indicates that good schools attract more students in nursing than do poor ones. To recruit more students into nursing, a national recruitment strategy should highlight the following:

1. Increasing nursing seats in Jordanian universities and encouraging other schools to develop new bachelor programs to educate nurses.
2. Ensuring a continuous robust pool of nursing students especially females, children must be reached earlier than high school. In fact, educators say that students often have their minds made up by fifth grade about desirable and undesirable careers. Thus, an early positive image of nursing for students is important.
3. Producing a video, Nursing: The Ultimate Adventure, targeted at junior and senior high school students and develop a media campaign to recruit new nurses and encourage existing ones to remain in the profession.
4. Establish funding for the recruitment of bright, young people into the nursing profession through financial aid, as well as funding to support graduate education for the development of advanced practice nurses and nursing faculty.
5. Offer growth opportunities by developing a clinical career ladder.
6. Improve the ability of the existing nursing programs and schools to attract the best students into nursing. This can be done through a continuous evaluation of the programs, resources and capabilities and strengthening the weaknesses identified during the evaluation.

This strategy will increase the number of nurses that has the advantage of diminishing and resolving the problem of mal-distribution of nurses among sectors and geographical areas as well as the skills shortage (quality nurses).

Satisfaction Strategy

The satisfaction strategy should focus on improving Job Related Factors and Work Environment. One of the most significant factors that contribute to the difficulty in both recruiting and retaining registered nurses is the care environment. While pay rates continue to be a problem, the care environment is a primary motivator for individual registered nurses' making employment choices. Studies have shown that one of the primary factors for the increasing nurse turnover rate is workload/staffing. The “underlying cause of turnover is dissatisfaction with the job, the supervisor, or career prospects.” The next most cited reason for turnover was “workload/staffing and job environment.” These are fundamental problems that stand separate from the issues related to the supply of and demand for nursing services. Unless issues related to the job and care environment are addressed, strategies to increase the overall supply of nurses are unlikely to be successful. Change should start in the work context. The strategy should highlight the following:

1. Provide a safe and happy environment for nurses to work in: Consider the elements of a workplace and a profession that will promote growth by retaining the expert professional and attracting a new cadre of workers such as flexibility in the workplace, a seat at the policy and planning table, opportunities for career progression, appropriate compensation, and recognition for work.
2. Establish training programs for healthcare executives, chief nursing executives, nurse leaders and human resource managers to develop their skills in valuing employees, empowering, and involvement of nursing staff in their organizations. The shape of the winner will be the one who adds value through people (Dessler, 2003).
3. Enhance communication among nursing professionals at all levels through various means, such as panel discussions, debates, and open dialogue about job expectations, the identification of nursing's role in the health care system, nurse autonomy, and administrative support.
4. Administrators and educators must learn what the satisfiers are for staff. When roles are redefined, they must help staff identify new satisfiers. Human resource administrators must be responsive to the individuality of what is important to staff and create flexible and supportive policies and benefits.
5. Hire nurses by prestigious organizations to serve in publicly visible roles indirectly helps to increase the credibility and prestige of the nurses. This is a useful strategy for the very difficult problem of influencing the public image.
6. Administrators must direct interventions not only toward education and in-service programs that typically focus on staff nurses alone, but also toward system-level interventions designed to change the work environment. These interventions will help redefine role expectations and authority among health workers by establishing clinical ladders with incentives. Strong orientation programs are also needed to provide sufficient and accurate information about the hospital functions and staff nurses' role, and the work environment for the employees.
7. Baccalaureate nursing education also bears some responsibility in addressing these problems. Programs should include learning experiences about factors that affect job satisfaction, burnout and turnover. Courses should develop staff empowerment and teach the art of negotiation.

Retention Strategy

Retention of nurses begins with how the organization does or does not value the staff. It is key that executives and nursing leaders reframe how they see staff. Rather than viewing them as an expense, seeing them as an asset on the balance sheet will drive different decisions about the work environment. Probability of nurse retention can be improved through the following:

1. Give nurses reasons to stay. One of the most effective strategies for beating the nursing shortage is maintaining current nurses by keeping them happy. That means giving them as many reasons as possible to stay and as few reasons as possible to leave. The top five reasons nurses stay in their positions are: co-worker communication and support; job satisfaction; schedule and shift satisfaction; opportunities for diverse clinical experiences and challenges; and a good salary. The reasons nurses leave their positions include: low salary; poor benefits; inadequate recognition and respect, and input into practice; schedule and shift dissatisfaction; and other career opportunities.
2. Hospitals need to introduce intensive training programs for nurses in different specialties that meet the critical needs for experienced nurses such as operating room, critical care, and neonatal care areas. This helps to retain nurses who are looking for a transfer opportunity as well as to recruit new staff. It also builds a career development path for staff. These training programs are not inexpensive and nursing leaders must be prepared to justify the required budget.
3. Effective administrative structure, quality patient care, and investment in professional development of nurses are important. Staff must be involved in defining and developing the practice of care in the organization since they are the closest to the patient and in direct contact with him around the clock.
4. Provide opportunities for professional and career development. This can be enhanced through more active participation in scientific conferences; offering relevant and meaningful in-service education; offering incentives for certification and a mentoring program for those who wish to publish, do research, or make a presentation at professional meetings.
5. Adequate orientation, mentoring, and preceptor programs are absolutely essential to attract and retain

new nurses. Many facilities eliminated these programs for reasons associated with cost during reorganization efforts. This has proven to be very shortsighted as facilities are now working to rebuild these programs.

Educational Strategy

Nursing schools need to review and build their structure of nursing education to better fit the nurse for general duty and on which she/he may later build possible specialization. This presupposes: (a) sufficient length of experience; (b) a modern curriculum; (c) a well-prepared and adequate teaching staff; (d) facilities such as adequate library, classrooms and demonstration rooms in sufficient numbers and properly equipped; (e) a large and varied amount of clinical experience in the hospital or secured through affiliation. Also, it would be appropriate for nursing programs to seek foreign accreditation and approval. As such, the educational strategy should highlight the following:

1. Growth in nursing education should be better achieved through a cooperative strategy rather than a competitive one. The concerned parties should combine their resources toward having a fewer number but fairly larger nursing schools. This can be justified on both economic and quality grounds. Larger schools can offer richer programs and prepare better nurses than could smaller ones. Also, a cooperation oriented strategy would better serve the needed differentiation focus of the educational institutions to ensure superior quality of nurses who can successfully compete in the local, regional and international market.
2. Reviewing and revising the educational process in nursing schools in Jordan with more emphasis on clinical practice and applications of nursing knowledge. More clinical training and connection between theory and practice is required for the students. More time need to be allocated to the last clinical course to provide more training opportunities for students.
3. Enhancing the communication skills of the students. ‘Students should be taught how to establish and maintain effective communications with all disciplines, patients, and families.
4. Schools need to enforce compliance with ethical and professional standards as well as organizational policies and regulations.
5. Encouraging research conduct and utilization. The student should be required to do a research project for graduation where he/ she studies a clinical nursing problem or issue and makes conclusions and recommendations on how to deal with it. This will help them to recognize the importance of research in nursing.
6. Modifying the teaching-learning methods to foster creativity and to engage the students more in the learning process. This could be accomplished by developing some self-learning modules, training the students on how to search for information on their own rather than rely heavily on lectures, encouraging their participation in professional activities and helping them to recognize the value of continuing education and life-long learning.
7. Preparing teachers for the various schools of nursing by supporting the master degree in nursing programs and providing educational scholarships and overseas opportunities for doctoral degrees to ensure greater competency of nursing instructors.
8. Considering the expected future surplus of nurses, policy decisions need to be made regarding gradual closure or transformation of the 2 year and the 3 year nursing programs to baccalaureate degree to enhance the quality of graduates. Currently, it would be appropriate to create a distinction between professional nurses with baccalaureate degrees and diploma school graduates and practical nurses.

Surplus Strategy

With the expected future surplus of registered nurses, Jordan has no need of any more graduate nurses with poor training and background. There are altogether too many of them now and more numbers will be pumped into the market each year. There were 6694 practical nurses in 2004, with an annual increase of 579 new graduates; this number will jump to 9244 by 2010. Jordan has a great need for professional nurses with a broader experience and better basic professional background that can fill nursing positions, which are not yet properly filled. Nursing for the future is needed if Jordanian nurses are to compete successfully, on the local, regional, and international level. A surplus strategy with differentiation focus (quality focus) is needed to provide solutions to the nursing surplus issue. In order for Jordan to compete successfully in the regional and international market of nurses, a quality focused nursing education strategy is needed. With the growing complexity of medical care, and the increasingly quality conscious demand for nurses, health care organizations will use more rigorous criteria for recruitment and selection of nurses. If well prepared, Jordanian nurses will have a competitive

advantage over other competitors. They fit well into the health organization's culture in the region's countries. The fact that Jordan market ability for absorption of excess supply is so limited and the prospect for a high regional demand on Jordanian nurses is unlikely, at least, in the foreseeable future, a mandatory high reduction in supply seams inevitable. If Jordan is to avoid the negative spill over of a near future nursing surplus (in terms of unemployment, decline of wages, and job dissatisfaction and burnout's), bold decisions need to be taken. Acceptable policy actions and directions may include the following:

1. Gradual closure of the two-year nursing programs. Provisions need to be made to assist the graduates of diploma schools to supplement their basic preparation so that it will approximate that offered in a good basic collegiate program.
2. Increasing local demand on nurses. This can be done through revising nursing staffing patterns, nursing mix, and nurse/ patient ratios in the health providing organizations. Staffing standards can be imposed to increase local demand and to assure high quality nursing services.
3. Controlling the supply of nurses. Strict regulation and requirements as to licensing and approval of new nursing schools.
4. Increasing regional demand on Jordanian nurses. This can be done through improving the nursing education process to assure high competency and competitiveness of Jordanian nurses both in the regional and international market. Promotional activities and contractual arrangement might be necessary in this regard.
5. Restrict access to nursing profession by a requirement that a baccalaureate degree is required for licensure as a registered nurse. This would assure better quality nursing services, competency, competitiveness, and marketability of Jordanian nurses.

Fig 1. Trends in the number of nurses and rate of nurses per 10000 pop from 1996 to 2002 (by nursing category).

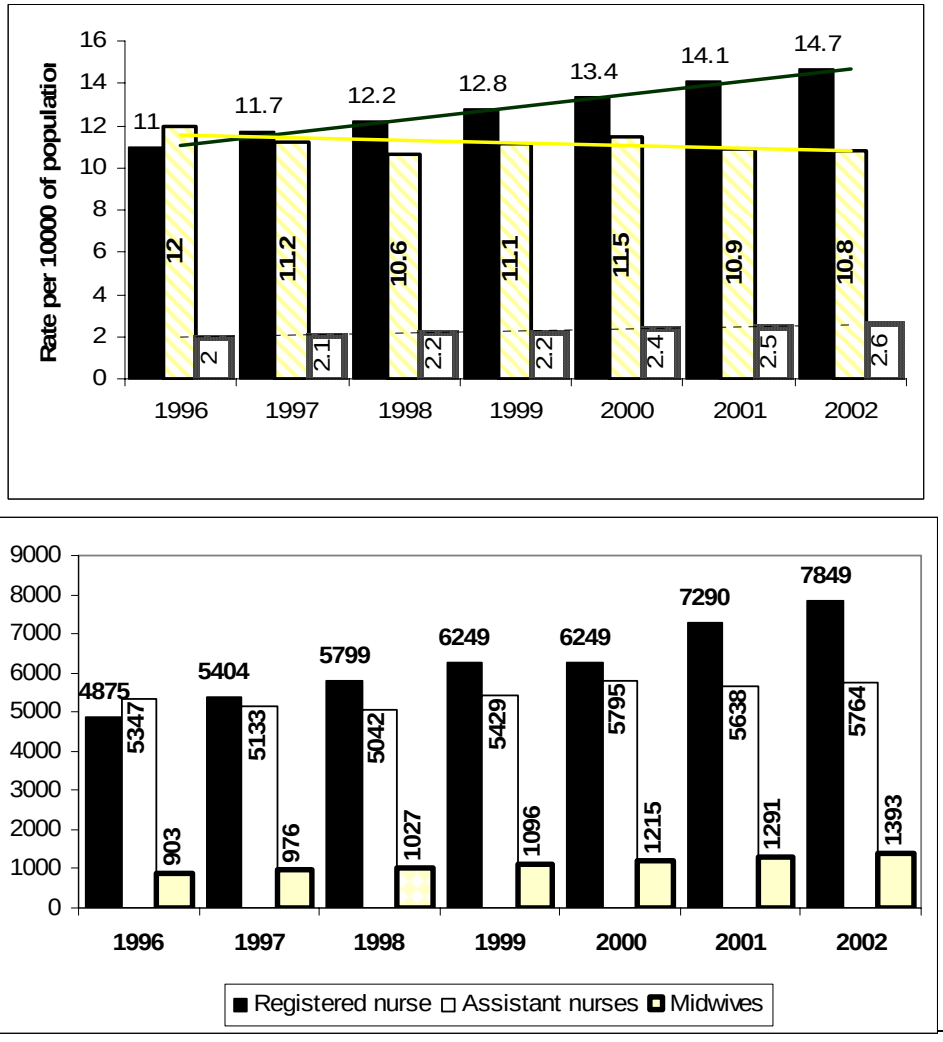


Figure 2. Number of nursing losses by category in 2002.

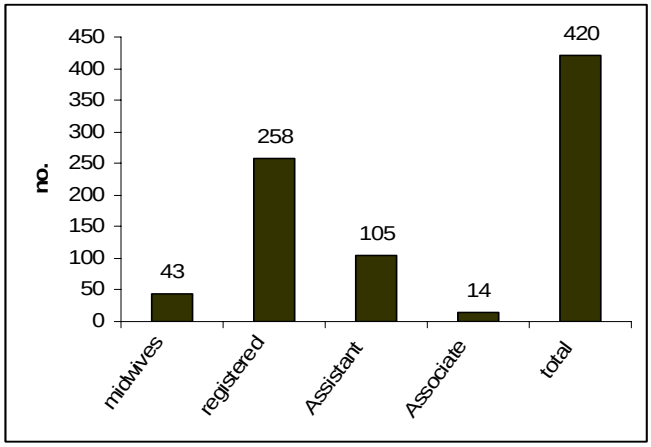


Fig 4. Rate of nurses per 10000 pop in Jordan compared with that for some selected Arab countries.

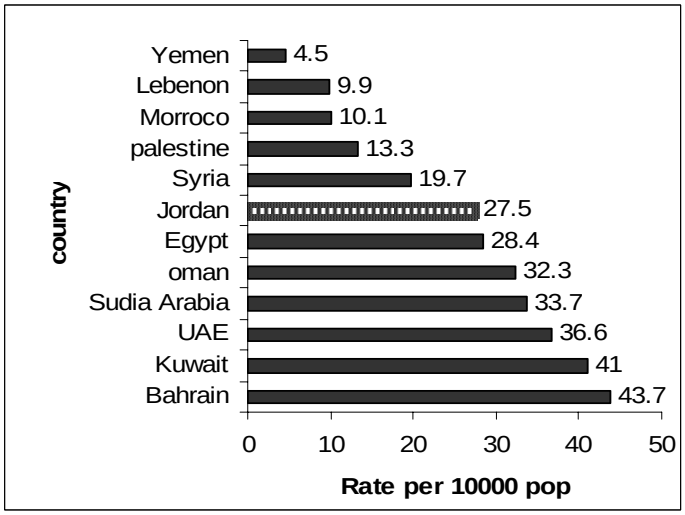


Fig 5. Ratio of nurse to physician and rate of nurses per 10000 pop in Jordan.

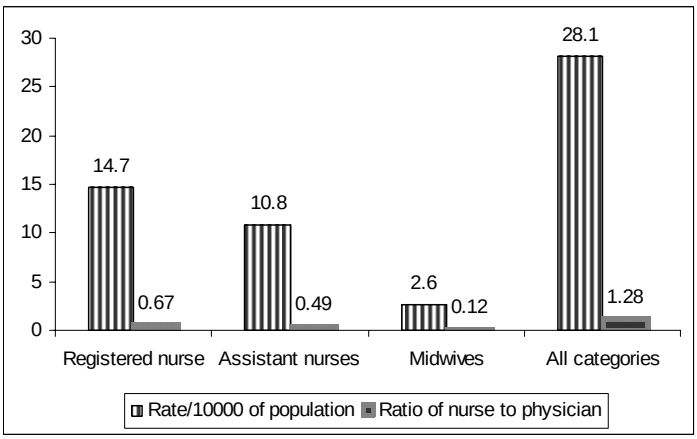
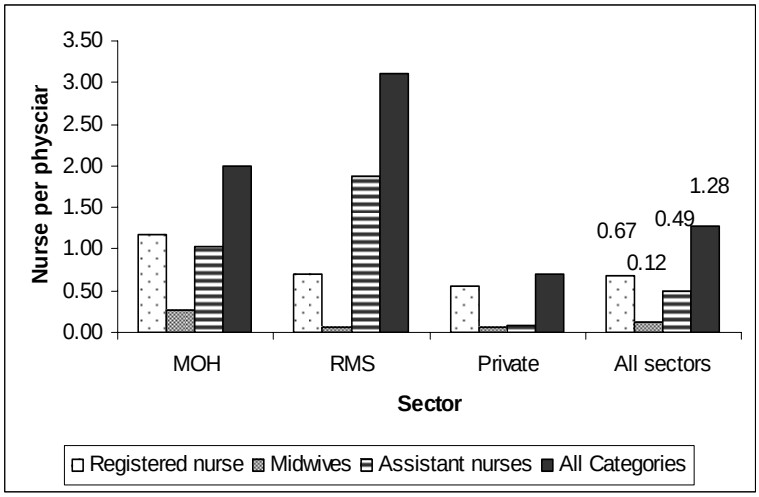


Fig 6. Ratio of nurse to physician in different sectors and



REFERENCES

Al-Ajeel, M.1998. Levels of Job Stress among Staff Nurses: Comparative Study between Ministry of Health Hospitals and Private Hospitals of Jordan.

Abu-Gharbieh, P. and Suliman, W. 1992. Changing the Image of Nursing in Jordan through Effective Role Negotiation, *International Nursing Review*, 39 (5).

Al-Abbadi, I., 1992. *Factors Related to Job Satisfaction Among Nursing Staff in Jordan*, University of Jordan, Theses.

Al-Hassan M. Alkhalil MS. al Ma'aitah R. 1999. Jordanian Nurses' Roles in the Management of Postoperative Pain in the Postanesthesia Care Unit. *Journal of Perianesthesia Nursing*, 14 (6): 384-9.

Al-Ma'aitah R. Cameron S. Armstrong-Stassen M. Horsburgh ME.1996. The Effect of Unit Type and Gender on Jordanian Nurses' Job Satisfaction: A Comparison of Operating Room, Medical-Surgical, and Critical Care Nurses. Seminars in Preoperative Nursing. 5 (4): 222-9.

Al-Ma'aitah R. Cameron S. Horsburgh ME. Armstrong-Stassen M. 1999. Predictors of Job Satisfaction, Turnover, and Burnout in Female and Male Jordanian Nurses. *Canadian Journal of Nursing Research.* 31(3):15-30.

Al-Ma'aitah R. M. Gharaibeh, M. M. 2000. Perception of Jordanian Male Nursing Students about Caring for Children in the Pediatric Units after Graduation. *Journal of Pediatric Nursing*. 15(3):198-203.

Al Ma'aitah, R. Haddad, L. Umlauf, M. G. 1999. Health Promotion Behaviors of Jordanian Women. *Health Care for Women International*, 20(6):533-46.

Al-Ma'aitah, R. Momani, M. 1999. Assessment of Nurses' Continuing Education Needs in Jordan, *Journal of Continuing Education in Nursing*. 30(4):176-81.

AL-Momani, M., 1995. *The Need of Continues Education Programs For Nurses in Irbid District*, Jordan University of Science and Technology, Thesis.

Decenzo, D. and Robbins, S. 2005. *Fundamentals of Human Resource Management*, JonesWiley, 8 (16): 339-341.

Dessler, Gary, *Human Resources Management*. Prentice Hall, 9(9).

Miller, J. E. Petro-Nustas, W. 2002. Context of Care for Jordanian Women. *Journal of Transcultural Nursing*, 13(3): 228-36.

MacEachern, Malcolm. 1969. *Hospital Organization and Management, Physician Record Company*, Berwyn, Illinois, 3(527).

Mawajdeh, S. 2001. Rationalizing Staffing Patterns and Cost Analysis of Primary Health Care Services in Jordan.

MOH. 1996-2002. Annual Statistical Reports, Information Directorates.

MOH, RMS, JUH, KAH, UNRWA. 2002. Doctors Association and Nurses Associations, Official Records and Decouments.

Nahas, V. A. 2000. Transcultural Study of Jordanian Nursing Students' Care Encounters within the Context of Clinical Education, *International Journal of Nursing Studies*, 37(3): 257-66.

Nahas, V. L. Nour, V. al-Nobani, M. 1999. Jordanian

Undergraduate Nursing Students' Perceptions of Effective Clinical Teachers, *Nurse Education Today*, 19(8):639-48.

Nahas, V. 1997. An Innovative Approach to Teaching Maternal/Infant Care in Jordan, *International Nursing Review*, 44(3):85-90.

Nustas, Petro W. 1996. Evaluation of the Process of Introducing a Quality Development Program in a Nursing Department at a Teaching Hospital: The Role of a Change Agent. *International Journal of Nursing Studies*, 33(6): 605-18.

Nustas, Petro W. Mikhail, B. I. Baker, O. G. 2001. Perceptions and Expectations of Baccalaureate-Prepared Nurses in Jordan: Community Survey, *International Journal of Nursing Practice*, 7(5):349-58.

Rajacich, D. Khasawneh, J. Cameron, S. Al-Ma'aitah, R. 2001. Development of Human Resources in Nursing: A Collaborative Initiative in CPR. *Journal of Continuing Education in Nursing*, 32(1):27-30.

Suliman, W. and Ghariebeh, P. 1996. Jordanian Nurses: Job Dissatisfaction and Anticipated Withdrawal from Practice, *Dirasat*, Medical and Biological Sciences, 23 (2).

Thomas, B. Rajacich, D. Al Ma'aitah, R. Cameron, S. J. Malinowski, A. 2000. Advancing the Development of Human Resources in Nursing in Jordan, *Journal of Continuing Education in Nursing*, 31(3): 135-40.

Thomas, B. Rajacich, D. Ma'aitah, R. A. Cameron, S. J. Gharaibeh, M. Delahunt, T. D. 2000. Developing a Program-Review Process for a Baccalaureate Nursing Program in Jordan, *International Nursing Review*, 47(4):243-7.

WHO. 2001. Demographic and Heath Indicators for Countries of the Eastern Mediterranean.

WHO. 1992 and 1994. The World Development Report.

تقييم الوضع التمريضي في الأردن: القضايا الحالية والمستقبلية والاستراتيجيات المطلوبة

فريد نصيرات*

ملخـص

ركزت هذه الدراسة على وضع القوى العاملة في التمريض حيث هدفت إلى: (1) تقييم الوضع الحالي لقطاع التمريض من حيث أعداد وأنواع الممرضات والنسب والتوزيع القطاعي والنقص و/ أو الفائض من الممرضات والمشاكل التي تواجه العاملين في التمريض. (2) التنبؤ بمستقبل الوضع التمريضي من حيث العرض والطلب والنقص أو الفائض المحتمل من الممرضات.

وقد تم جمع البيانات المرتبطة بموضوع الدراسة باستعمال عدة طرق وهي: الاستخراج المباشر من السجلات والوثائق الرسمية والمقابلات الشخصية والمناقشة مع الجهات ذات العلاقة ومراجعة الأدبيات ذات العلاقة. ولتقدير الاحتياجات الحالية والمستقبلية من الممرضات فقد تم استعمال مجموع الأيام المرضية، ومساوي الممرضة ذات التفرغ الكامل للعمل (FTE)، وقد اخذ عام 2002 كسنة أساس للتقديرات. وكانت أهم نتائج الدراسة كما يلي (1) يواجه قطاع التمريض حاليا مشاكل صعبة مثل نقص المهارات والمؤهلات ونقص العرض وضغط العمل وعدم الرضا. (2) تعتبر المعدلات الحالية المتعلقة بنسبة الممرضات لكل عشرة آلاف من السكان في الأردن متدنية إلا أنها أعلى من مثيلاتها في البلدان المتوسطة الدخل. ومن المتوقع أن تصل هذه النسبة إلى رقم غير مسبوق (22,5) ممرضة قانونية عام 2008. وتشير التقديرات بان الأردن عام 2010 سيتوفر لديه 13495 ممرضة قانونية. (3) هنالك اختلال شديد في توزيع الممرضات على القطاعات الصحية المختلفة في الأردن. وتعتبر وزارة الصحة والخدمات الطبية الملكية من اكثر القطاعات تأثراً بهذا الخلل في التوزيع. (4) ابتداء من عام 2008 سيشهد الأردن لأول مرة فائضاً في الممرضات القانونيات يصل إلى 473 ممرضة قانونية و9244 ممرضة مساعدة عام 2010. هذا الفائض المتوقع من الممرضات القانونيات قد يشكل فرصة حقيقية للأردن للانتقال من التوجه الداخلي (إشباع الطلب الداخلي) إلى التوجه التصديري للممرضات. وفي نفس الوقت قد يفرض مشاكل حقيقية للقطاع الصحي الأردني إذا لم يتم التعامل معه بشكل صحيح إذ لا بد من اتخاذ قرارات إدارية تتعلق بالسياسات والإستراتيجيات المطلوبة للتعامل مع المشاكل المستقبلية.

الكلمـات الدالـة: ممرضات، تقييم، قضايا، نقص، فائض، استراتيجيات.

* قسم الصحة العامة، قسم ادارة الأعمال، الجامعة الأردنية. تاريخ استلام البحث 2005/9/25، وتاريخ قبوله 2006/9/5.