Implications of internal and external Health Workforce Mobility on Health System Performance in Sudan

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1- INTRODUCTION:

Health workers mobility is a voluntary movement of workers from one employment station to another in search of different working arrangements within [internal migration] and across national boundaries [external migration] [1,2]. Recently, It's being considered as a great loss for those countries. skilled health workers mobility has adversely affected the quality of care offered in health institutions, because mobility has made it necessary for non-qualified personnel to perform duties that are normally beyond their scope of practice[3].

Generally, health workers mobility impacts on the health systems performance and these impacts are increasing in line with increasing mobility over years. Misdistribution, skill mix imbalance and huge shortage of skilled workers are the results of internal and external mobility[4]. Mobility impacts on the health systems performance by changing the composition of the health workforce. Health professional mobility also affects the skill-mix since skills travel with the mobile health workers. When these skills are rare and essential, outflows of even small numbers of health workers can impact on health system performance[6]. Health professional mobility can also affect the distribution of health workers in a country. A disproportionately high outflow from a region may cause or aggravate mal-distribution, resulting in undersupplied and underserved areas in which the local population is left without sufficient health workers[7]. However, the impacts on health system performance are often indirect and part of a complex chain of causalities.

Therefore Dubois and Wiskow[8] described that health workforce mobility impacts on the composition of the health workforce, also mobility interacts with several aspects that also affect the health system performance. In China[9], a paper analyzed the mobilization of primary health workers; it found that the workers moved to higher-level facilities due to low salaries, limited opportunities for promotion and poor living conditions. In Zambia[6], several factors associated with health workers shortages and imbalances in their distribution. Local and global factors were together constitute a trap that perpetuates the situation.

Strategies to address human resources shortages in most African countries[10] have centered around staff retention, better working conditions, training and retraining, including shifting as many tasks as possible away from doctors, nurses and pharmacists to non-clinical staff, enabling clinical staff to concentrate on the most complex of their specific areas of expertise. These

strategies are in line with the 2010 WHO recommendations on increasing access to health workers in underserved areas.

Scaling-up the production of health workers remains a priority, but it is expensive[11]. The costs of addressing shortages and deficits could reduce if rates of retention, graduation and public sector entry came closer to 100%. Redistributing tasks among health worker teams through broader delegation (task-shifting)[12], can increase technical efficiency, while maintaining quality, and thereby improve access and affordability. The demonstration of regional variations in the distribution of the health workforce is a strong argument in favor of discussing options to improve access to services, including through a strategy of task-shifting and creation of new cadres. Whose tasks will be transferred to or shared with whom has to be negotiated and decided locally, within the context of a policy aimed at improving access to health services and to reducing unmet needs[10-12]

Furthermore, African countries in general are confronted with the growing problem of the mass exodus of health professionals to the more developed countries. The International Organization for Migration (IOM)[4] estimates that approximately 20,000 Africans in various professional occupations leave Africa each year for the western industrialized countries. Economic factors were the most frequently cited, but there are also institutional factors such as declining health services, professional reasons (e.g. upgrading professional qualifications) and political factors. Migration (external mobility) shaped today's political, social and economic world and become a major influence on the community. The brain drain of health care professionals has become a major concern for developing countries they leave the regions in which they were trained in order to seek the resources and lifestyles that more developed nations provide. Although the literature on health worker migration is typically limited to physicians and nurses, other health workers also migrate. It is not a problem faced uniquely by developing countries. However the brain drain has more acute impacts on developing countries which have far less capacity to face that brain drain. In Sudan economic recession has reflected on the lives of the people and their wellbeing adding to that separation of the south. Health workers being part of the community were consequently affected and left the country. Results provided by this study will address the matter in a sound manner by assisting policy makers in their strategic planning decisions and policy options.

2- OBJECTIVES:

2.1 General objective:

The overall aim expected to be achieved from this research to study Sudan health workforce internal and external mobility implications on health system performance

2.2 Specific objectives:

1. Over view and update health workforce mobility data in Sudan (internal and external),
2. Assess the impact of mobility in health system at state and federal level,
3. Outline policy options and strategic directions to address health workforce mobility.

3- DATA & METHODS

3.1 Study design:

It was exploratory, cross sectional study of both qualitative and quantitative design.

3.2 Study setting:

The study investigated the following areas:

1. Records of Federal Ministry of Health in following: Experience certificate office, Health information department, National Health Observatory, Human Resources for Health Observatory, HRH Policy and Planning Department in Human resources Development Directorate)
2. Federal Ministry of Health
3. States Ministries of Health
4. Sudan Medical Council
5. Sudan Medical Specialization Board
6. Universities

3.3 Study population

Study population were:

- Human resources for Health (HRH) records
- key informant who responsible of health workers management and plans during his work life-span in the Federal Ministry of Health, State Ministry of Health in addition to Sudan Medical Council, Sudan Medical Specialization Board and universities

3.4 Sample size

1- Regarding the records, PI was conduct desk review of available documents, no sampling selection method was used, the study was totally covered the data concerned of this issue.

2- Concerning semi-structured interviews, the study was purposively investigate key informant in the following institutes:

- Federal Ministry of Health, interview with undersecretary and main directorates directors were performed,
- Sudan Medical Council
- Sudan Medical Specialization
- About State Ministries of Health, we divided Sudan into five zones (Northern, South, central, East and West Zones). Random selection of one state from each zone to investigate the Ministry of Health Director was taken place.
- As regards Universities: The study was selected randomly one public and one private university deans in Khartoum state

3- Finally focus group discussions was conducted to finalize and prioritize the mobility policy options and strategic directions

3.5 Sampling method/technique

Study methods were described below**:**

Item	**Sampling method**
Records	Totally covered by desk review
Key informant	Purposive sampling
State selection	Stratified random sampling
University selection	Simple random sampling

3.6 Data collection

- Data collection methods were quantitative and qualitative methods.
- Data collection tools were:

✓ Desk review of HRH records (quantitative and qualitative data)

✓ Semi structured interviews for selected key informant at Federal level and state level (qualitative part)

✓ Focus group discussion to finalize the policy options and strategic directions (qualitative part)

3.7 Data management plan

The data collection was completed then; the data was sorted out and matched together followed by data entry and data analysis

3.7.1 Quantitative data:

- Quantitative data was analyzed using excel sheet (descriptive statistics)
- Cleaning the data to examine the collected raw data to detect errors and omissions and to correct these when possible
- Tabulation: making graphics or tables that show relationships

3.7.2 Qualitative data:

Qualitative data was analyzed by thematic analysis involving the

- Familiarization: by reading the transcript and making a brief note in the margin about the nature of the information you noticed.
- Transcription of tape recorded material
- Identifying themes: reading the transcript then listing the items [categorize] excerpted from the text.
- Coding: the process of applying the thematic framework to the data, using numerical or textual codes to identify specific pieces of data which correspond to differing themes
- Charting: using headings from the themes to create charts for the data.
- Mapping and Interpretation

3.8 Monitoring, supervision and quality control

- Close monitoring, supervision and quality control of the data was handled by investigator,
- Full confidentiality; data was kept in a separate place with only access by Study investigator
- All interviews were collected anonymously with codes and were discarded after six month of completion of the study
- Also to enhance credibility triangulation in data collection methods include interviews, observation and records together.

4- RESULTS:

Results were divided into two parts :

part one (Quantitative part):

It was collected from the records and available data in FMoH. Last updated data, showed that Sudan is composed of nearly 70,000 health workers (*Table -1*) consisting of 20 different medical professions or cadres The survey highlighted other HRH problems which are:

1- Skill mix imbalance: Survey data showed the doctor to nurses' ratio is 1.14:1

2- Geographical mal-distribution of health workers: In Sudan about 30% of the health workforce is serving in Khartoum state while other 70% service the other 17 states.

3- Gender inequality: revealed that the percentage of female among the total health workers is 51% not exempting Sudan from the issue

4- Out-Migration phenomena: Sudan is facing a huge out-fluxes among health workers. The estimation of migrated doctors was more than 7,000 doctors and about 2,000 of allied health professionals per year according to experience certificate office (*Figure -1*). The intension to migration among doctors and professional nurses who were working in Khartoum state was about 86.3% in 2013[1].

Other HRH issues:

1- HRH plans: In pervious HRH strategic plan, situation analysis was highlighted the main issues and challenges faced HRH plans and management which summered below:

- Weak HRH planning and links with the health system planning process.
- Mal-distribution of the health workforce at the country level. (in line with our study)
- Poor performance management system at all levels.
- Poor education and training policies and lack of continuous professional training.
- Weak HRH functions at the decentralized levels including leadership, management systems, planning and policy making capacities

All pervious HRH plans (2012-2016) were built on HRH strategic plan, the new HRH strategic plan 2018-2020 under endorsement process put still fill the gaps in above mentioned issues.

2- HRH Initiatives:

2.1- Specialists' retention:

The main objectives of the project included: avail and retain specialists at states, localize the medical services at states and impede seeking treatment abroad, reduce the proportion of medical referral between states and the related cost and enhance health workforce training and professional development. This project depended mainly on the availability of health workers

[1] *Intension and causes behind doctors and professional nurses out migration in Khartoum state , 2013 (un-published)*

supported by provision of attractive incentive package including both financial and non-financial incentives. Total distributed specialists till 2016 were 652 (*figure-2*); from them 47 specialists (7.2%) has left the service.

2.2 nurses and allied health professions data:

As a result of the Sudan Declaration for up-grading the paramedics the Ministry of Health established the Academy of Health Sciences (AHS) in 2005. Last HRH survey 2015 included medical assistants (2668), nurses (8754), midwives (16138) and B.Sc. Nurses (3480), the limitation of this survey the data of other allied health professionals(table -2)

Part two (Qualitative part)

The study was conducted 15 interviews and 2 focus group discussions, the below themes were emerged from qualitative data analysis

Theme one: Health worker internal migration

Qualified and competent health workers have always taken the opportunity to move internally to Khartoum town or other big cities searching for new opportunities, better career prospects and experiences, internal migration was a transient station to across the bounders. Health workers had diploma and vocational education (community health workers, community midwives, medical assistants,.....) usually are retained and sustainable cadres providing services only in rural and remote areas. One respondent said:" *from my experience in the state doctors, dentists and pharmacists are usually moving while other allied health profession aren't* "

Theme two: Health workers migration abroad

Sudan was faced huge numbers of out migration of skilled competent health workers, who has high qualification and years of experiences, they mainly leaved to work in nearby Arab countries pulled by better financial rewards and high living standard. Several factors were contributed together in this phenomena; deterioration of economic status and the recent huge inflation of prices in balancing with their low financial rewards. Low salary was clearly expressed by all respondents, it especially pushed the health workers who worked in governmental institutes. One respondent said: "*The salary of the doctor outside Sudan equals 15-20 times his salary inside Sudan".*

Also in Sudan, we have limit vacancies compared to the graduated students from different health educational institutes .Moreover, the absence of a stimulating working environment act as one of the pushing factors, such as: lack of techniques, supplies, SOPs, supervision and communication

processes. Additionally limit sets and costly postgraduate education. Overseas recruitment agencies played a major role in facilitating the migration procedure. One added that: *"Some health cadres not intend to migrate by nature, recruitment agencies are working to promote them and facilitate the migration process even if they are in different states".* Active networking between migrated and inside Sudan health workers encouraged those indoors to immigrate.

Theme three: HRH mobility effect on health system performance

All respondents illustrated that the negative implications were weighted more than positive ones, The positive implications were that the migrated health professions were had better training chances, professional development, financial status and job satisfaction.

While the negative implication were disrupted health system; when Sudan loss the competent cadres consequently at state and federal level we loss of higher policy, leadership and role model , loss of experienced, trained HRH, even what catastrophic loss of the cadres with rare specialities. These implications were extended and effected the health education, we lose the good instructors and consequently poor quality of future generations. In conclusion, what worse the circumstances, that no clear polices and strategic plans to direct and manage the health workers mobility especially towards out-migration. A respondent illustrated: "*migration had negative effect on health system even when we have the other resources,* " anther respondents mentioned: "*our health indicators will not changed unless we retain the core borne of the health system* "

Theme Four: health workers mobility policy options

Health workers mobility policy options were emerged from HRH Stakeholders interviews, the respondents were considered migration as a natural phenomenon, it linked to human choices even the developed countries had many challenges to control health workers migration, Sudan one of the countries who signed the code of practice, it give the individuals the rights to leave and work anywhere. Internal distribution initiative of qualified doctors was a good one, but Sudan still need other initiates and attractive methods to retain workers especially in other states rather in Khartoum state. Other urgent need they mentioned was to sign MOUs with the recipient countries. Also, improving the working environment and administrative systems that stimulate the stability of health workers, part of key informant supported the need for financial and non-financial retention packages for qualified cadres, moreover they support the private sector to

attract and retain competent workers. One key informant said; *"Migration is managed by treatment of the causes".*

Strengthen medical and health education and establish an effective system to benefit from migrated Sudanese competencies through permanent and temporary return programs; so as to support training and health care services. FMoH through human resources directorate key persons should promote coordination and collaboration with national, regional and international partners to maximize the benefits of out-migration and addressing its negative impacts.

All HRH stakeholders consensus on its highly time to have migration management policy and strategy include all the above options.

5- DISCUSSION

Sudan is an African country with great potentials and many natural resources. However, health system performance and health indicators are regarded to be poor with figures lagging behind the benchmarks of SDGs. HRD directorate conducted HRH census survey 2015, the result showed we have 70,000 health workers putting the country in the WHO critical shortage zone. Because this gives a density significantly lower than the 2.4 health workers density that WHO considers as the minimum required to meet key MDG. Although AHS graduates many workers absorbed by the health system to fill the huge gap. But still there is an imbalance between the different health categories provided services in the community, last data showed the doctor to nurses' ratio is 1.14:1 (one doctor to one nurses). While WHO put the standard of one doctor to 4 nurses. Misdistribution of the health workforce geographically was noticed in HRH data; the data showed a preference to capitals & big cities due to the availability of well established health services and well equipped health facilities. In Sudan about 30% of the health workforce is serving in Khartoum state while other 70% service the other 17 states. Gender imbalance: is one of the major challenges facing the globe where more than 70% of doctors are males 70% of nurses are females according to the WHO 2006 report. There isn't enough data on the gender distribution of the health workforce in 2015 survey, however, the previous HRH survey 2010-2011 revealed that the percentage of female among the total health workers is 51% not exempting Sudan from the issue. This could be a result of the increasing female intake to the health training institutes, especially the medical & nursing schools. Furthermore NHRHO

conducted Mapping of Health Professional Education in Sudan in 2012; the proportion of females' among medical students (upcoming doctors) was 67%.

Sudan faced both internal and out migration of qualified health workers, although some initiative were in place, it didn't attract enough cadres to fill the huge gaps of health systems

As mentioned before Sudan like other African countries, migration had several negative impact on health system and its functions, this was highlighted in The world health report 2006 (9) and debated at the World Health Assembly (10).

Health workers migration is part of the broader dynamic of change and mobility within health care labour markets. In Sudan, HRH plans and policies it wasn't addressed migration phenomena, although all interviewed stakeholders agreed on that Sudan need an urgent migration management policy and strategy.

Sudan circumstances were different from other African countries; the existence of Arab countries nearby, with higher-income, the language factor, customs, traditions, social life there is similar to Sudan lead to be chosen as the first option and the growing of the recruitment agencies were facilitate the Sudanese migration. On other hand, the other factors which push Sudanese health workers to leave the country and work abroad were low financial rewards, additionally a variety of non-financial reasons like feeling de-motivated by poor healthcare infrastructure, working environment and bad health management.

Health system performance is a major concern of policy makers that why Sudan introduced reforms in the health sector with the explicit aim of improving it performance . Health system performance assessed by achieving a broader set of health system outcomes. Man power (health workers) were the core born of health system, they responsible to provide health care and preventive services to the community. Outflow of health workers was distributed the health system in several dimensions. Health indicators is one of the proxy indicators of limited and unavailability of services even with availability of technology and resources.

health workers mobility policy options were emerged from HRH Stakeholders interviews, the respondents were considered migration as a natural phenomenon, it linked to human choices even the developed countries had many challenges to control health workers migration, Sudan one of the countries who signed the code of practice, it give the individuals the rights to leave and work anywhere. Internal distribution initiative of qualified doctors was a good one, Sudan need to initiate other attractive methods to retain workers. One of the urgent need to manage

health workers mobility in institutional manner; this will be by signing MOUs with the recipient countries, improving the working environment and administrative systems that stimulate the stability of health workers, support for financial and non-financial retention packages, support the private sector to attract and retain competent workers. One key informant said; *"Migration is managed by treatment of the causes".*

Based on key informant interviews analysis, the ranking was showing the emergent need to develop migration management policy and strategy. The most important issue to involve all HRH stakeholders and partners, it will must to be a national direction to minimize the harmful effect of migration on the health system.

6- POLICY RECOMMENDATIONS:

1- Develop mobility management strategy internal and external to achieve mutual benefits with receiving countries, secure the rights of our migrants and to support and strengthen the human resources plans. In this regard, the following recommendations should be stated

- Sign bilateral agreements with receiving countries
- Strengthen and support the role of private sector to attract and retain the competent workers (it is a growing sector)
- apparent coordination and collaboration between different sectors concerning of HRH issues
- Review and develop relevant legislation, laws and initiatives to retain competent workers and get the best advantages in the case if they migrate
- Create mechanisms and system of Sudanese Diaspora contribution in the health system strengthen
- Encourage professional exchange in general

2- Consider migration as a natural phenomenon, it linked to human choices and not restricted to the labour market and work. this will be by:

- Approve and endorse regulations and laws to respect the freedom of movement and choice of Sudanese individuals,
- Enhancing the competitiveness among Sudanese health workers through quality standards and preparation programs (take the benefit of other countries experiences)

3- To strengthen the capacity of the national health system by providing sufficient qualified health workers to meet the health needs of citizens and to promote care and comprehensive health coverage. In this area FMoH and other health sectors should:

- Improve the working environment
- Support for financial and non-financial retention packages, particularly those provide rural services staff, rare specialties, and educational staff

4- Strengthening medical and health education and training institutions at the level of basic and specialized education and continuous professional development by providing the potential and building and sustaining quality systems and accreditation

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Annexes:

Table-1: Health workforce distribution per state

The State	Health workforce number
N. Kordofan	3606
White Nile	1699
Gazira	9270
Blue Nile	3993
S. Darfur	4023
N. Darfur	3188
E. Darfur	1362
Northern	1503
River Nile	3038
Gadarief	2317
Red Sea	1268
Kassala	1783
Central Darfur	863
W. Darfur	672
S. Kordofan	2007
Sinnar	3260
Khartoum	24531
Sudan	**68383**

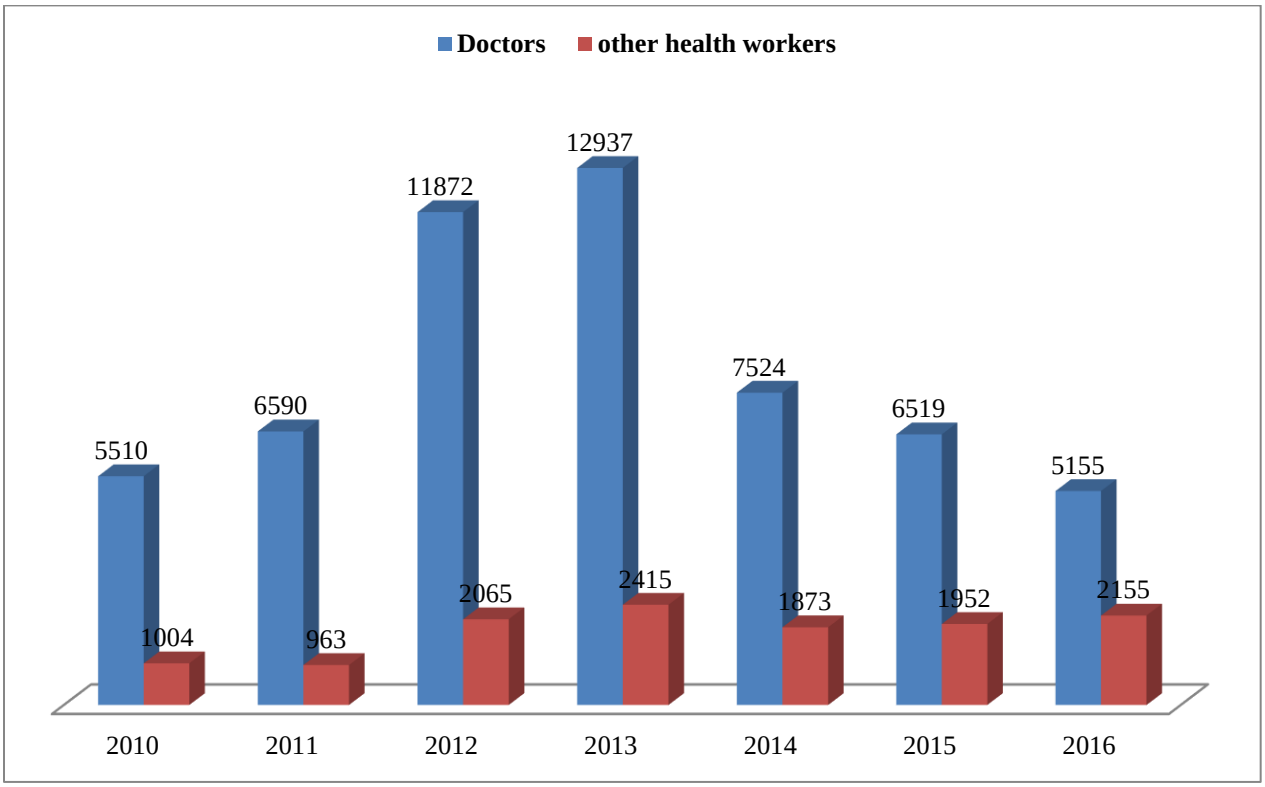

Figure (1): HRH who issued the experiences certificate

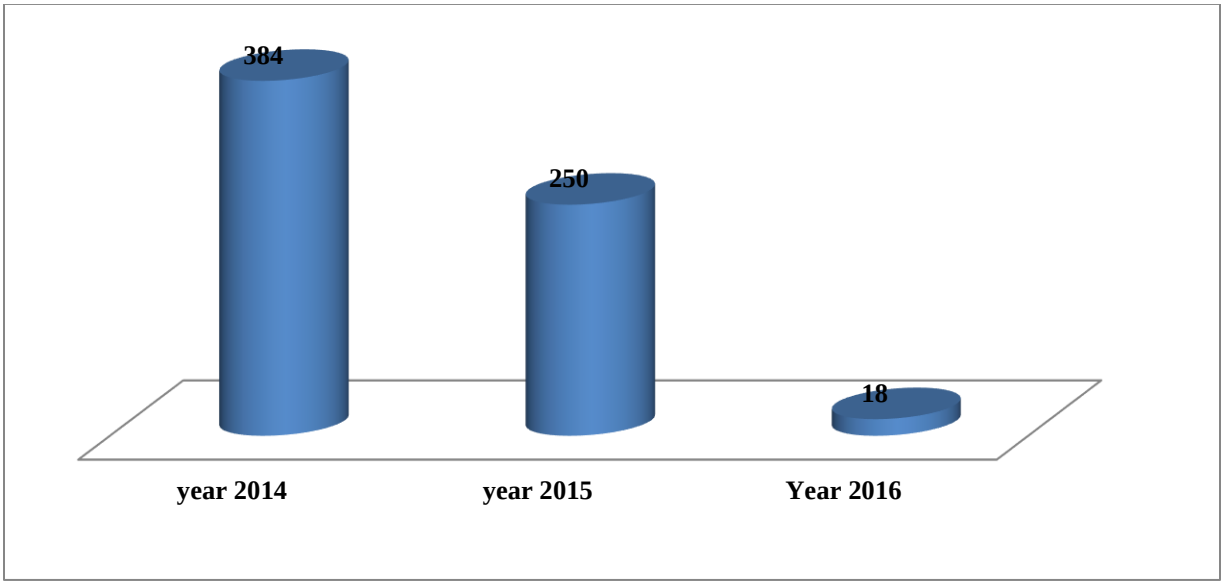

Figure (2): Specialists distribution to the states per year

Table-2: Total health workforce disaggregated per category

The HW Category	The Number
Nurses	8754
B.Sc. Nurses	3480
Midwives	16138
Medical Assistants	2668

Source: NHRHO survey 2015