Physicians' Brain Drain in Egypt: Analytical Study

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Abstract

Although there were fundamental changes in the governance structure of the Ministry of Health in Egypt (MoH) as well as in the national health system that accompanied the launching of the Universal Health Insurance, still the challenges of retaining healthcare professionals are rising. The Egyptian health system lost more than 5% of its workforce of physicians in less than three years (2016-2018), not only from practice in the MoH but also from other attractive positions in academia and the private sector as the immigration rates are striking. This research project aims to examine the driving factors of an important socioeconomic phenomenon, which is the migration of Egyptian physicians "brain-drain" in the healthcare sector in Egypt.

This study investigates the motivations and the factors affecting the immigration decision by the Egyptian healthcare professionals by adopting a qualitative research approach. The results show the various push and pull factors that affect the immigration decision. Some factors are attributed to organizational and cultural conditions. Some are attributed to skills acquired and training opportunities. Other factors are attributed to the financial compensation.

Accordingly, the study concluded with a set of policy measures that could address these various factors. Guided by the interviewees' opinions, the set of policy measures include health policies toward developing the training opportunities, policies toward enhancing the financial incentives and compensations, and policies that target the overall working conditions. In addition, the study recommends the implementation of best practices in implementing the reform programs that translate these policies into actions.

Key Words

Healthcare Professionals, Brain Drain, Immigration, Retention Policy, LMICs, Egypt

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Introduction

There is no doubt that human resources are the fundamental core for providing quality healthcare services. Recently, literature has introduced the term “human capital” to emphasize this role. This importance comes from their potential role to cover and compensate for inefficient healthcare systems to fulfilling the needs, especially in less developed countries, including Egypt, through effective human resource management. In Egypt, there are a lot of constraints within the national healthcare system, alongside the presence of plenty of attractive alternatives for healthcare professionals especially physicians during the last years. Therefore, retaining physicians within the Ministry of Health is an issue.

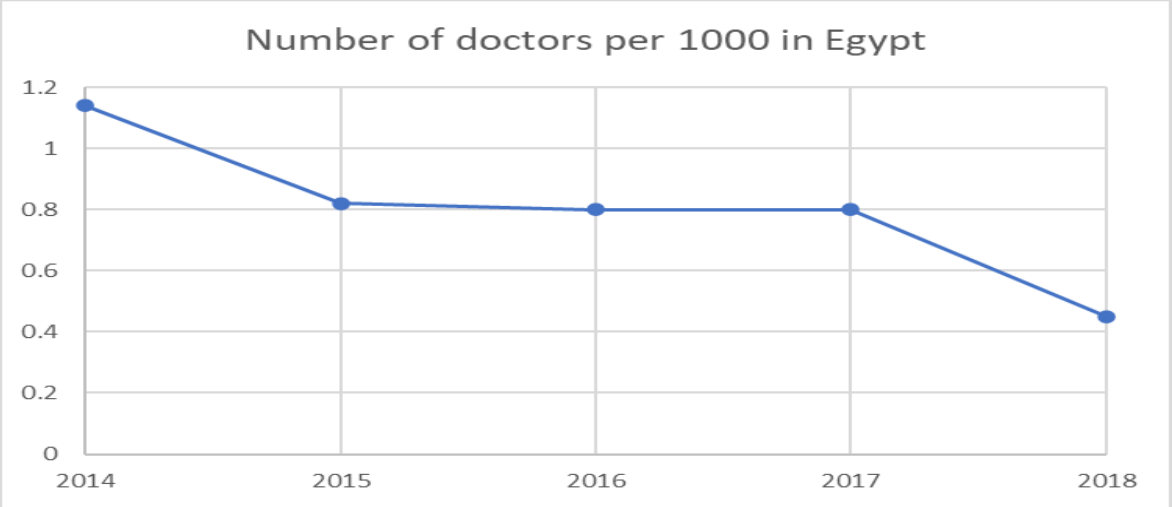
In response to the COVID-19, Egypt has added EGP 350 million to the investment plan of the Ministry of Health and Population’s general office for the fiscal year 2019/2020 to increase hospitals’ capacity to get ready for COVID-19 (EHDR, 2021). This plan is divided into 69.3% for the comprehensive health insurance system and 9.3% for Haya Kareema project and 32.8% for medical programs (COVID-19 implications, FEPS 2020). In 2020, Egypt’s parliament has approved a draft law submitted by the government to amend some provisions of an existing law regulating the affairs of the medical professionals that work in entities affiliated with the Ministry of Health and Population (other than those covered by special laws or regulations) issued by Law No. 14 of 2014, to increase allowances for medical professions, extend services to members of the medical professions, and to establish a compensation fund for medical professionals who face risks.

Egypt’s 2014 Constitution affirms the state’s orientation towards investing in human capital as a driver for comprehensive development in all its dimensions; one constitutional article specifies the minimum of government spending on health 3% to increase gradually until it reached 8% to cope with international standards under the social dimension of the SDGs and investing in human capital as well, the sixth theme was for health.

Among the issues facing the Egyptian Ministry of Health and Population (MoHP), the ministry lost more than 5% of its physicians between the years 2016 and 2018 (The Egyptian Medical Syndicate, 2016). Moreover, figures about the increased migration rates of Egyptian

doctors are warning signals for the various challenges they face within the MoHP. The Egyptian Medical Syndicate estimates that half the country's physicians, or 110,000 out of 220,000 registered physicians, have left the country. The Egyptian medical syndicate announced in September 2020 that there were 229,033 registered physicians in the MoHP however the actual number of working is 108 thousands physicians (Ebaa et al, 2021)

Egypt has traditionally been referred to as a country with an excess number of physicians, especially among Eastern Mediterranean Countries (El-Saharty, 2004, Oxford Business Group, 2016). However, when looking deeper into the data, the data shows that the physician population ratio in Egypt is 0.814 (physician per 1000 of population) in 2018 compared to 10.8 in 1999 while the World Health Organization (WHO) determined a reference of 2.3. and according to the SDGs, average of 4.45 health workers per 1000 population is required (Ebaa et al, 2021)



Source: Future of Health protection, IDSC, 2020

The situation continues to worsen as there is a distribution imbalance of available physicians either within specialties or geographically (WHO, 2006). Adding to this, the challenge of providing training to improve the skills of physicians and the shortage of supplies make the situation even worse.

There were also reported incidents of violence against health teams especially in emergency rooms over the years between 2013 and 2018. The Matareya Teaching Hospital witnessed the death of a resident physician due to inappropriate infrastructure at the doctors'

dormitory (Daily news Egypt, 2018). The Matareya Teaching Hospital is one of the big hospitals in the Egyptian capital that is recognized for providing quality service and physicians consider it a good opportunity to learn and practice. This raises questions about other facilities.

On the policy level, a group of interventions was introduced by the Egyptian government to enhance the salaries of physicians. That includes increasing the monthly payment to reach 2000 EGP (around 108 USD, exchange rate 18.2 in 2022) currently, in addition to increasing the infection control allowance to reach one thousand EGP instead of 19 EGP (around one USD, exchange rate 18.2 in 2022).

These drivers' mix of low pay and poor working conditions highlights the importance of changing the approach of human capital management within the Ministry of Health and Population. The consequences of such issues are many in both medical and non-medical aspects. As mentioned earlier, the WHO determined a ratio of 2.3 physicians to 1000 population. This ratio is not met in Egypt's case which would affect the overall quality of services provided to the entire population such as skilled birth attendance[1].

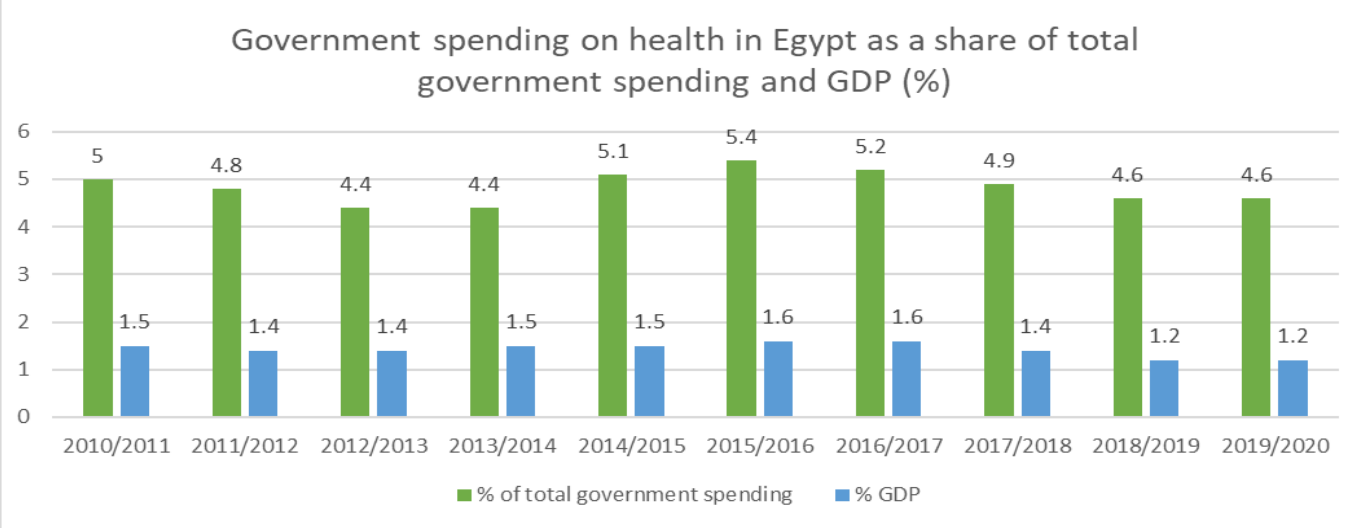
At the global level, the WHO 2016 identified African, South-East Asia and Eastern Mediterranean regions to be the most affected regions with physician shortages in their national healthcare systems for the benefit of the upper-middle-income and high-income countries (WHO, 2017). Moreover, in many cases, this growth outweighs the need (Global Health Workforce Alliance, 2014). Therefore, in 2010 the 63rd World Health Assembly adopted a code of ethical and voluntary practices to discourage the active recruitment of health workforce from developing countries facing critical shortages (WHO, 2017).

Despite this global commitment, the recruitment of the health workforce from developing countries to countries of the Organization for Economic Development (OECD) has increased between 2000 and 2016 by 50%. This continues over time and will lead to a lack of needed

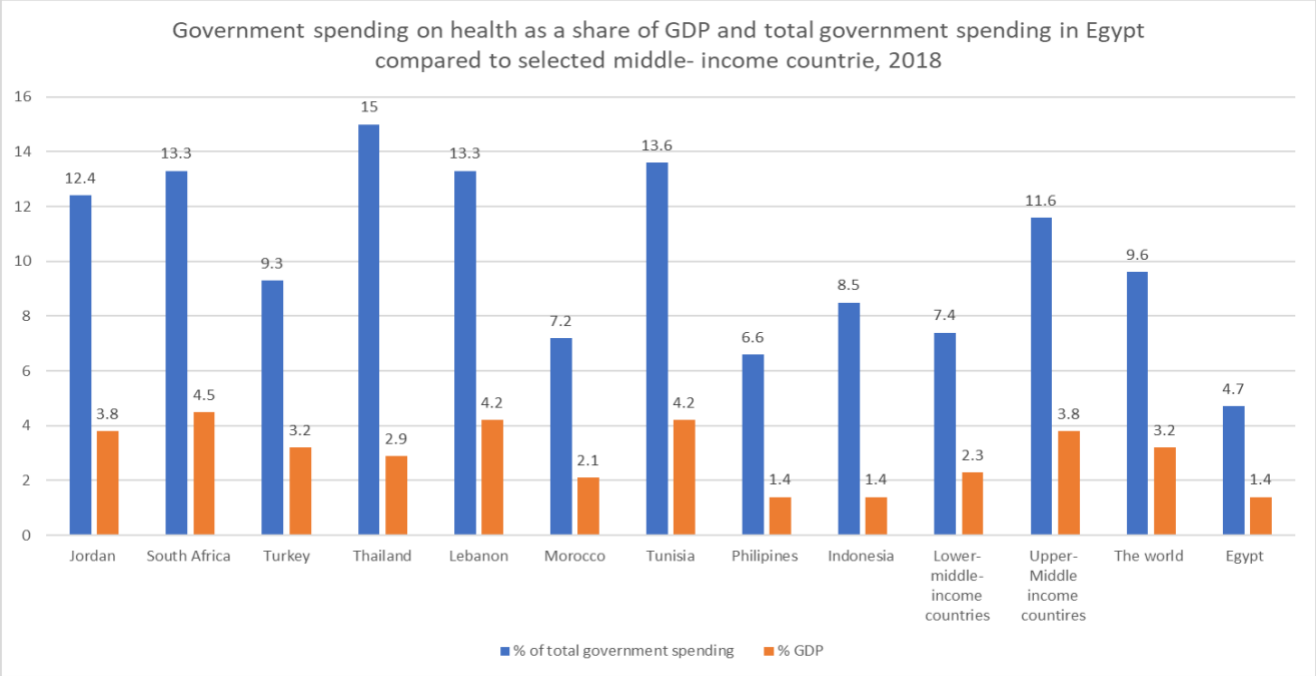
[1] Skilled birth attendant (SBA) as defined by WHO, is an accredited health professional such as a midwife, doctor or nurses who have been educated and trained to proficient in the skills needed to manage women during normal (uncomplicated) childbirth and the immediate postnatal period as well as in the identification, management, or referral of complications in women and newborns (WHO, 2018)

personnel to achieve sustainable development goals and the loss of investment in medical education and training. The phenomenon has multiple consequences; medical, economic, social, and cultural.

On the other hand, European and North American countries have created dedicated immigration fast-tracks for health care workers and have expedited processes to recognize foreign qualifications. The British government introduced a "health and care visa" program in 2020, which targets and fast tracks foreign health care workers to fill staffing vacancies. The program includes benefits such as reduced visa costs and quicker processing. Canada has eased language requirements for residency and has expedited the process of recognizing the qualifications of foreign-trained nurses. Japan is offering a pathway to residency for temporary aged-care workers. Germany is allowing foreign-trained doctors to move directly into assistant physician positions. Similar policies were introduced in various OECD countries after the pandemic.



Source: Egyptian Human Development Report, 2021.

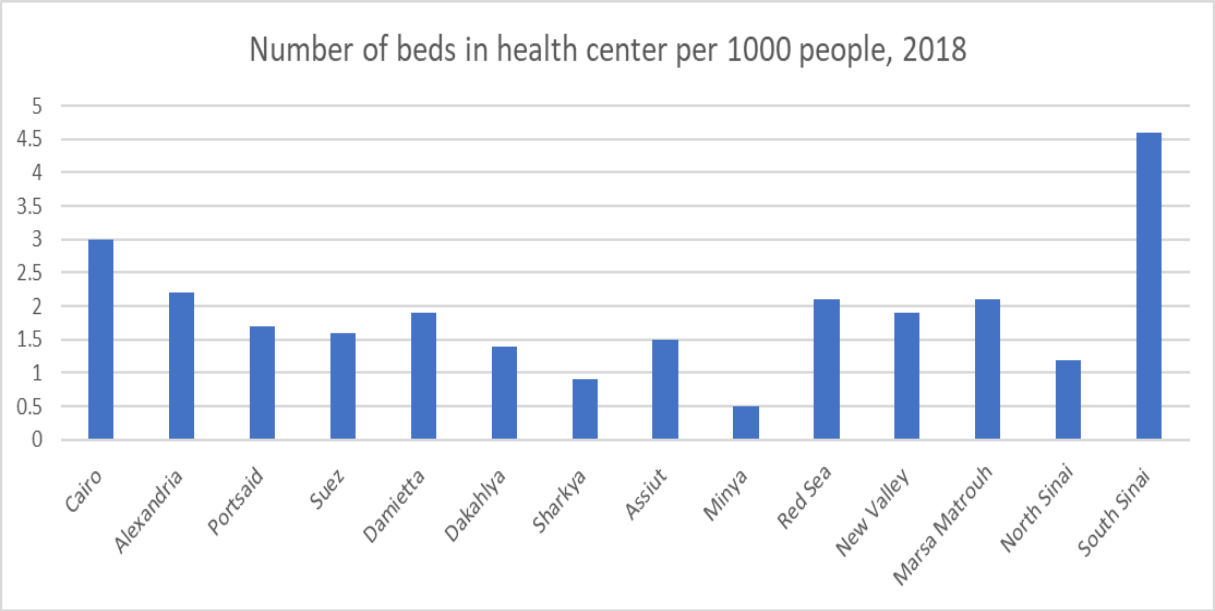


Source: Egyptian Human Development Report, 2021.

Due to the poor situation of the health system in Egypt, the pocket money in this sector in Egypt borne by individuals is one of the highest countries in terms of contribution in 2018 according to the Egyptian Human Development Report, 2021. Health spending comes the third place in families expenditure according to CAPMAS. (CAPMAS, 2018).

Fitch's expectations in 2020 before the COVID-19, mentioned that the percentage of spending on the health sector is expected to decrease by 3.17% in 2021, 3.17% in 2022 and 3.12% in 2023 (IDSC, 2020) and during the pandemic, the spending was increased by 100% in FY 2020/2021.

Lack of access to resources leads to “commercialization of the services. Doctors face assaults from patients or patients' families, all leading to the low quality of the service provided. Even though Egyptian people are -in theory, covered by the free health insurance system, they pay -in real- almost two-thirds of the cost or the poor are obliged to the low quality of services. In addition to the unequal distribution of services between governorates, South Sinai for example has the highest number of beds compared to Cairo, however, there is a debate about the facilities in these hospitals.



Source: COVID-19 implications. FEPS 2020

Lower social spending has reduced social mobility, as the rich move to private providers, while the poor get stuck into receiving lower quality services. (Egypt after the coronavirus, back to square one, 2020)

The decrease in the real wage of doctors, 90% of nursing staff working in the public sector and 76% of doctors, so they have to work in the private sector. Doctors in public hospitals are visited by 1000 compared to 140 in private hospitals which indicates the level of stress they are working under. (COVID-19 implications. FEPS2020)

Moreover, there are financial challenges facing the quality of the services, especially in specialized institutes such as tumours and heart and specialized hospitals like fever and chest because of financial resources and human capacities and the inability to follow up with patients and provide a historical record for their status[2]. The health institutions have to treat and provide the medication (double[3] tasks which lead to direct 30% which is the highest percentage of the budget to buy medications, which presents a pressure on these entities.

[2] The new health insurance system with the cooperation of ministry of IT and Administrative Control Authority, will provide a unified medical record for every citizen, and this project is expected to cover the whole Egypt by 2032

[3] This was also solved in the new health insurance law by establishing three units to finance, manage and monitor the services and will help in governance and rationality in resources

The Ministry of Health vision doesn't include directly improving the situation of doctors in its main pillars (IDSC, 2020) yet, the new health insurance system law indicates that the government is responsible for improving the status of doctors, nurses, and all workers in the medical sector (strategic prospects, 2021) While Egypt -as many other low-middle income countries cannot control the pull factors towards her skilled healthcare workers, Egypt can work in eliminating the push factors towards her side (Alsawahli, 2019)

This situation drew the attention of the research team to analyze what could be the drivers behind the decisions to migrate. These drivers could be attributed to the Egyptian healthcare system or could be attributed to the recipient countries' national healthcare systems.

Theoretical Framework: Pull and Push Theory of Migration

The theoretical framework of Physicians migration was originally developed by Everett Lee in 1966. He investigated the main drivers of a physician's decision to migrate. Lee studied how the personal circumstances, intervening conditions, country of origin and destination can shape the dynamics of Physicians' migration (Lee, 1966).

At the macro level, neoclassical argument characterizes relocation as spatial contrasts in labor demand and supply. Salary dissimilarity causes workers to move from low-wage, labor-surplus places to high-wage, labor-scarce.

The pulls and pushes are often driven by five main factors namely, demographic factors and social infrastructure, economic factors, political factors, ecological factors, migrant flows and migrant stocks.

The push-pull approach is the dominant model in analyzing the dynamics of migration. The following table summarizes the push and pull factors according to Lee's theory:

Push-factors Countries of origin	Migrants	Pull-factors Countries of destination
⇒ Population growth, young age structure ⇒ Inadequate educational institutions, medicare and social security	**Demographic factors and social infrastructure**	⇒ Stable population, population decline, demographic ageing ⇒ Welfare state benefits, educational institutions, medicare, social security
⇒ Unemployment, low wages ⇒ Poverty, low consumption and living standard	**Economic factors**	⇒ Labour demand, high wages ⇒ Welfare, high consumption and living standard
⇒ Dictatorships, shadow democracy, bad governance, political upheaval ⇒ Conflict, (civil) war, terrorism, human rights violation, oppression of minorities	**Political factors**	⇒ Democracy, rule of law, pluralism, political stability ⇒ Peace, security, protection of human and civil rights, protection of minorities
⇒ Ecologic disaster, desertification, lack of natural resources, water shortage, soil erosion, lack of environmental policy	**Ecological factors**	⇒ Better environment, environmental policy, protection of natural resources and environmental protection
⇒ Decisions of the family or the clan ⇒ Information flows, media,	**Migrant flows and migrant stocks**	⇒ Diaspora, ethnic community ⇒ Information flows, media, transferred picture of

Push and Pull-Factors for Immigration, Jaccob, 2013

Research Problem & Research Questions/Objectives

The continuous migration of Egyptian physicians to OECD countries in the last few years, more specifically between 2017 and 2022, constitutes a threat to the national health care system, which this study should address. President Abd El-Fatah El-Sisi mentioned this problem in one of his recent speeches, however, there is a huge debate about the need to re-prioritize our spending to allocate more resources in this sector in addition to providing safety measurements and respect for physicians.

The study aims at understanding the pattern of this phenomenon, whether it's a permanent or temporary migration, what could attract physicians to stay in Egypt and how to pull expat physicians to return to their home country.

The main research questions are

1. What are the drivers of migration from Egypt?
2. What are the major factors attracting Egyptian physicians to OECD labour markets?

Methodology

The methodology employs a qualitative study on Egyptian physicians who migrated to Germany and the US aiming to study the dynamics of medical migration in Egypt. The research aims to investigate the possible determinants and motives that potentially could affect the physicians' decision to continue practice in the MoHP. This helped in developing recommendations and suggested policy measures that target physicians' retention in Egypt while providing benefits to physicians, to help protect the healthcare system in Egypt and to devise an effective plan for physicians' retention.

We used the theoretical framework of Lee's push-pull theory of migration following the social constructivism epistemology approach and the aspirations-capabilities framework to shed light on the drivers of migration of both experienced physicians with a decent level of income and migration intentions of fresh graduates and medical students.

The research team interviewed Egyptian physicians from various specializations, age groups, and backgrounds. As part of our mission to collaborate with the major stakeholders, we met officials and activists from the Egyptian Medical Syndicate. We met Professor Islam Anan, Professor of epidemiology and public health.

In addition, the research team conducted an interview Dr. Ashraf Hatem, the previous minister of health and the Chairman of the Health Committee of the National Health Council to explore his views on the subject and to discuss the role of the Egyptian parliament in developing new laws to protect Egyptian physicians and motivate Egyptian expats to return to Egypt.

Research Hypotheses:

1. Health policies play an effective role in healthcare professionals' decisions to migrate.
2. The unsatisfactory terms and conditions of employment of physicians in Egypt affect the decision to migrate to one of the OECD countries. This includes wages, hours of work, weekly rest, annual leave, work environment and social protection.
3. The policies of OECD countries, faced with population ageing and shortages of physicians, affect the decision to migrate to one of the OECD countries.

Data Collection: through in-depth semi-structured interviews/ focus group discussions (FGDs) designed to capture information related to the different boundaries of the individual decision to migrate and the participants' views about retention policies.

***Recruitment*:** Purposive sampling of migrated healthcare professionals, healthcare professionals who prepare to migrate, and policymakers involved in the issue from the Ministry of Health/ The Medical Syndicate/ Parliament/ etc. They were reached through a snowballing method and all the interviews were conducted online.

Main Variables: Our main independent variables are the pull and push factors. Our main dependent variable is the decision to migrate.

Limitations

Due to the short time for collecting data and conducting interviews in addition to interviewees' preferences to have interviews instead of taking part in FGDs, the researchers changed their methodology to semi-structured interviews to respect interviewees' privacy.

Analysis

We interviewed 13 Egyptian physicians from different medical backgrounds. All of them migrated to OECD countries. Interestingly, 62% of our sample are female physicians, while 38% are male physicians. This finding is interesting here in a country like Egypt where females could face many social obstacles to decide to migrate. Most of them are from rural areas and this result is consistent with the pull hypothesis of Lee's theory and Todaro's idea of demographic reallocation of the labour force from rural to urban areas inside or outside the country (Todaro, 1969).

Our analysis of the age categories of our sample shows that 31% of the sample are between 20 to 30 years old, while 61% are from 30 to 40 years old and 8 % are above 40 years old. This signals a major human capital flight in the health sector in Egypt. This server brain drain will have negative consequences on the Egyptian economy in the long run (Pantenburg, Kitze, Luppa, König & Riedel-Heller, 2018).

The analysis of their social status shows that 61% are married and 31% are single, while 8% are separated. Since the majority of our sample are married females, this result suggested that the social system especially in Germany might encourage married couples and women to migrate together with their families to benefit from the social incentives provided by the government.

The majority of our sample mentioned that they don't have any travel experience. 12 out of 13 said that it is their first time travelling out of Egypt, while only 1 out of 13 had a travel experience. Most of them have clinical experience (12 out of 13), They have 5 years' work experience on average. While only one physician migrated right after his graduation without any clinical practical experience and continued his education in Germany. 54% of them work on a part-time basis and 46% of them are full-timers.

The specialization of the targeted medical doctors can be clustered into nine categories: Dermatologist, Pediatric, Internal, Optician, Proctologist, Gynecology, Intensive Care, Pathology and Orthopedic Surgery.

Source: Authors' analysis

The analysis shows that 55% of our sample see Germany as the best country of destination for medical doctors because of its strong social system and the ease of integration and the acceptance of the German culture of foreigners compared to other western countries, while 23% believe that the USA is a great opportunity, and they would go there to learn more to achieve academic and professional excellence. Notably, 15% believe that Gulf countries are the best destination region because of their high salaries in parallel with cultural and language similarity. Finally, 8% believe that the educational system and the systematic equivalence system in Ireland and the UK would make their life easier especially after taking "The Professional and Linguistic Assessments Board test" (PLAB).

What countries of destination do you prefer?

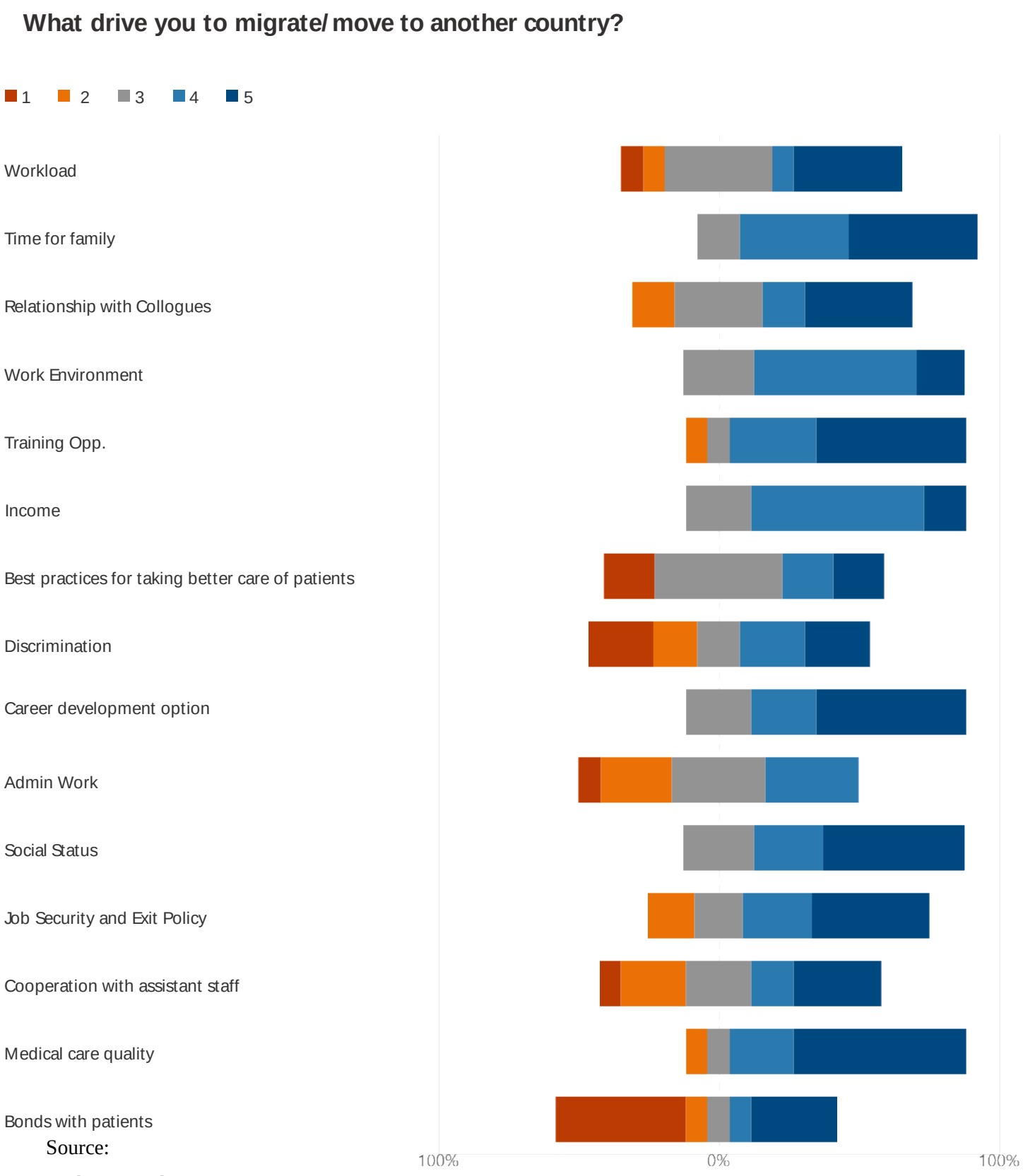
USA\ Canada	3
UK\Ireland	1
GCC	2
Germany	7
Other	0

Source: Authors' analysis

We developed a sentiment analysis to study the motivating and demotivating factors of migration namely, income, workload, time for family & friends, leisure activities, relationship with superiors, work atmosphere & enjoyment, training opportunities, possibility to treat patients as you deem optimal, career opportunities, discrimination, time for administrative tasks, social status, job security & exit policy, relationship with non-medical staff, quality of the medical care they provide, relationship with patients.

Our analysis shows that the most important factors for our sample are income, time for family, social status, workload, and future career opportunities, respectively. It also shows that some factors don't have a greater impact on their decision to migrate compared to the first preferred group which bonds with patients, discrimination, admin work and relationship with non-medical staff.

Our results show that social incentives are much more important to most of the physicians in our sample than financial incentives. Choosing Germany rather than gulf countries gives some insights into the migration motivation. Their answers showed that their migration wasn't only a flight from hopelessness or devastating economic conditions but also a journey to find a decent life for their kids and families.



Source:

Authors' Analysis

We employed different measures to study the dynamics of the migration movement in Egypt through analyzing different factors related to the nature of mindsets namely, *consideration, willingness, necessity, planning, expectation, likelihood, experience, spatiality, duration, and purpose.*

The first group of questions tested the consideration in terms of the act of reflecting on the feasibility or desirability of migration. 93% of our sample declared that they seriously considered for a long time to move abroad for an extended period.

Consideration: Have you, in recent times, seriously considered moving abroad for an extended period or forever?

Source: Authors' analysis

We also assessed this level of seriousness and willingness in terms of the preparedness to migrate despite assumed disadvantage or hardship. We asked them if they are willing to overcome the language barrier if they want to migrate to non-English or non-Arabic speaking countries. 84% said they are willing to learn any language to migrate and they were open to overcoming any other obstacles, while 16% believe they won't try to migrate to a non-English speaking country, therefore, they focused on migrating to the US and the UK.

Willingness: How willing would you be to live in another country where the language is different from your mother tongue? & Why didn't you consider an English speaking or Arabic speaking country?

Source: Authors' analysis

Moreover, our research questioned the necessity of migration. 46% feel that it is necessary to migrate in order to find a job to support their families, however, 23% believe that migrating to a western country wasn't a necessity and their level of income in Egypt was enough to secure their basic needs and strong family connections and social networks in Egypt offset the financial incentives gained from migration, while, 31% found it necessary to migrate for non-economic reasons like finding stronger social, educational and educational systems for their families.

- *Necessity*

Yes	6
No	3
Other	4

Source: Authors' analysis

Planning to migrate is one of the pillars we investigated in our research. We investigated the preparation of a course of action for the migration of our target group. 61% said it took a very long time for them to plan for their migration starting from taking the equivalence exam to learn the language and applying for hospitals in the country of destination.

Planning: How long were you/are you planning to travel? And how did you plan for it?

Yes	8
No	1
Other	4

Source: Authors' analysis

One of the fundamental research questions in our study is the expectations of physicians to return to Egypt after a certain period of time or after gaining a certain level of education or experience,

our results show that 46% are planning to stay abroad forever, while 30% are certain about returning to Egypt for social reasons related to their kids or for other reasons like joining an international hospital with their international experience. The last group represent 24% and they are not sure yet about their plans.

Are you planning to stay abroad forever?

Yes	6
No	4
Other	3

Source: Authors' analysis

The analysis of the likelihood of our sample moving out from the present community in the next three years shows that 46% are thinking of changing their current country of destination either to wealthier countries especially GCC countries or countries with better taxation systems like Eastern European countries, insurance, and social systems like Scandinavian countries. 31% are likely to stay in their current country of destination for a longer period due to the stability they developed after many years on a social or professional level. 23% are not sure about their decision.

Likelihood to change your destination in the next three year

Yes	6
No	4
Other	3

Source: Authors' analysis

According to our results, 69% of our sample are currently working abroad while 31% are currently studying either language or medical diplomas to be qualified to work in their preferred country. All of them agreed on taking their families with them. None of them wants to leave their family at home. All of them believe that migration will make their life much better.

Research Findings

The US, UK and the Gulf were among the most preferred destinations because of the language barrier, however, they require more tests and expensive costs for the equation certificate and at the same time, it is harder for a certain age to study, so they prefer going to Germany because the road is clearer and less demanding. It was longer yet affordable. Despite the fact that the majority of respondents have no prior language knowledge, they have no problem learning the language.
For their plans, they think about going to the Gulf again (not Egypt) either after the nationality of retirement.

The majority of doctors refuse to apply for the nationality as they think they may come back again one day (even if they mentioned that they don't want to come back). Others think about the US/UK to save the high taxes payments while others fear that they may be treated as "second-degree citizens". UK training is very difficult and demanding especially for the specialization
The decision to migrate requires more thinking and preparation and the background makes a difference, for example, if the doctor is more open to other cultures and spends an exchange year or gap year, they think more about travelling abroad. Mothers need more years of preparation and take longer to find a suitable opportunity, so most of them prefer to work part-time "family doctors" to have more time for their families.

This kind of flexibility is needed for women to empower them and provide them with opportunities. a student in private universities mentioned that although the curriculum was almost the same as public schools, because of the bad reputation of private universities he decided to travel at the beginning of his educational journey.

Preparation took 1.5 years to 4 years and the more organized and assistance they have the fewer years of preparation they spent and a clearer path to go, however, almost all of them indicates that they are not happy with their decision to stay away from their families, yet it was the best choice for a better future to their small families and themselves. Previous experience and community "after they travel to the gulf they decide to travel to Germany or any EU country" if there were any assistance provided by DAAD to physicians the same as they provide to non-medical

specialities it would have saved more time. Most of them depend on other friends/ relatives to advise on the paperwork and requirements so they (migration communities) and some of their family members migrated before or they spent years of their childhood abroad, so this makes it easier and facilitates the required time. It consumes more time.

The smoothness of the system and having a clear “framework” is the most missed part in Egypt. They can have a break to study for exams since there are clear schedules in advance so they can plan accordingly. The career path is clearer and because of the cost spent doctors need to take higher fees and the social system for family (quality of school and pension schemes) (quality of life). respect and clear hierarchy with seniors and supervisors through discussion and being professional.

Attached to Egypt ``prefer Germany since it is closer to Egypt if they want to travel back to visit family or any urgent circumstances' '. Most of the answers mentioned that they prefer to live in communities that are similar to Egypt or Arabs. in addition to homesickness and missing their families, filling administrative tasks is very challenging in Germany compared to Egypt and some incidents of discrimination “especially for veiled Muslim women” however they respect doctors “The second one to respect after God and if he doesn’t believe in God, he will be the first to worship” this respect.

The priority of policy interventions is to provide protection in health centers and hospitals. Capabilities and hygiene even in private hospitals. More respect for doctors is required since there is always an expected level of complications and threats, however, people and the media are exaggerating against doctors. If there is a solid health insurance system, this trust will increase as the doctor doesn’t have any financial benefits or requirements from the patients, he only prescribes the required medicines and labs compared to the situation in Egypt, especially the private clinic, there is a lack of trust. Non-medical reasons and more important than medical reasons and financial ones.

Finance is very important since studying medicine is costly and doctors spend more time in clinics and public hospitals to secure the minimum standard of living. This was a huge challenge in managing their time to study so migration was a way to a better level of status as he exerts more effort.

The political belief is that there is a problem to solve from the beginning and dedicate resources to solve it. provide a legislative framework from PM and unions to respect and protect doctors from assaults and at the same time provide legal responsibility, especially in private hospitals, then Financial resources through training opportunities and salaries and equipment in addition to providing "specialized nursing" as the graduate from university are very low while the rest are practitioners -Egyptian rate in (2010-2018) is 14/10000 people according to EHDR, 2021-, the long shift hours and the less time with patients "globally it should be 15 minutes while in our context it is 1 minute) with access to digital and electronic resources, this will be easier and less time-consuming. There is a need to have regulation over their shifts and promotions, application of the "research plan" and test model to obtain the degree instead of leaving it based on the supervisor's preferences.

Even if there was a decision to "force" doctors to stay and refuse their migration, this will be temporary since they may serve in the private sector or stay in the public sector without doing their job since the working environment at the public hospitals are hard and we need doctors to work with passion/humanity "he does all the work with very limited access to resources and we really are having a highly talented doctor" not by forcing them to stay. This was the same opinion of Dr. Ashraf Hatem since everyone is free to migrate, why should we force doctors to stay, unless we provide a temporary obligation for them to serve for a couple of years before they migrate.

Their responses about the US match with the only interview we managed to have as he mentioned because of the academic excellence and residency in addition to the good training opportunity he managed to travel with his family, and it took him around nine years to wait for the right opportunity and also, he travelled during the tough period of COVID-19 and his specialization was "Internal medicine". He doesn't want to travel back to Egypt, and he thinks he will not travel to any other country. However, he mentioned that he had to take more tests and study, had a very

hard time studying and paperwork was a huge barrier and consumed most of the time for preparation.

Learning opportunities in the US are better than in Germany as in Germany you are dependent on your head of department, however, services in the social system and integration with more stable systems pay back in the end so it is better.

We had two interviews with students, and one of them only had the idea to migrate however she didn't want to migrate, she finds the situation is better here and that "financial reasons" are the only reason behind travel, however as a stable life for a woman to marry "and even a man needs money for marriage costs so they think as only an idea about "temporary migration to one of the gulf countries" as they find it hard to study a new language and link the travel to financial needs.

Conclusion and Policy Recommendations

As illustrated in the above section "Discussion" of the data collected from both migrated physicians and policymakers, the phenomenon of brain drain of the health professionals in Egypt could represent an imminent threat to an already exhausted health system. The market dynamics of demand and supply should have a government action to impose healthcare professionals' retention.
As a part of the government's efforts in this regard were the financial incentives given recently by law and the launching of the Egyptian Health Council. However, according to the interviewees, it is not enough.

Through the conducted interviews there were main concerns to be addressed in order as a comprehensive reform to increase the retention probabilities of the healthcare professionals. First, designing health policies addressing the skills of the physicians themselves both at the undergraduate level and the ongoing professional training opportunities. Second, designing health policies addressing the financial compensation, the working environment, and the overall working conditions. Finally, addressing the management system of the implementation of the first two policy measures.

1. Health policies addressing the skills of the physicians

The recent launch of the Egyptian Health Council was very appreciated by all the interviewees, and they consider it a revolutionary reform. For healthcare professionals, it is crucial to have postgraduate training opportunities for their future specialty through postgraduate professional training or studies. In addition, the undergraduate studies should be more relevant to community needs and the common practices they will encounter rather than the traditional outdated complex procedures that they learn in the medical schools. Finally, providing financial support to physicians to invest in these training opportunities and allow the physicians to advance their career is necessary. At the same time, there should be more flexibility in designing these training programs in order to overcome the challenges of availability and the capacities of the medical schools and research/ training institutes.

2. Health policies addressing the overall working conditions

Some innovative approaches in this regard are the introduction of physician assistant programs that provide core training with a specific focus on medical specialities. This practice is widely accepted in both developing and developed countries, especially in countries with limited resources. This cadre can help with the basic tasks of screening, counselling, preventive care, logistic support, recording, refilling prescriptions, and other related tasks. This will leave more time for the physicians to practice and be trained. At the same time, it is necessary to sensitize the community about the role of these mid-level practitioners and to educate them about when to see a physician assistant and their qualifications.

Another policy measure that would enhance the overall working condition is to effectively manage the government expenditure on health. Human resources for health should be granted salaries that secure their commitments towards decent living expenses and career advancement. This will in turn benefit the community as physicians will dedicate their effort and time to their work without the need to double or triple practice and will help increase the retention probabilities.

Changes in legislation are needed to draft and enforce the practices of the law of medical responsibility, code of conduct and patients' rights as well as producing guidelines for conditions

of employment, professional standards, amendments to the current licensing system and accreditation. in addition, there should be a deterrent law that protects the physicians from any assaults by the patients or patients' families.

Designing and utilization of a Health Information System (HIS) that generate reliable data about the figures and distribution of health workforce, medical conditions, and health economics should support planning, management, and policymaking in all the fields of work in the MOHP, especially in human resources related policies.

3. Effective designing of health programs

In order to see real change and to affect the immigration decision, the above-listed policy measures should be translated into action plans. These action plans may have been implemented partially through the increased financial incentives and the launching of the Egyptian Health Council. However, these action plans should be designed in the light of several determinants: sustainability of the program, monitoring of the performance, evaluation of the results, and being data-driven. These determinants of the drafted action plans will mediate the success of such policy interventions and hence will positively affect the retention rates.

Policy Recommendations

We can't go further with the new laws and reforms in the health sector without engaging and solving the problems of our human capital who are the main pillars of the system. There have been many conferences "Egypt can" to keep a connection with doctors abroad and to organize medical conferences and operations by Egyptian doctors abroad yet there is a needed effort to attract doctors to stay

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Appendices

Appendix I: Semi-structured interview guide: Survey to Study Human Capital Flight in the healthcare sector in Egypt

First: Personal Informatio

Variable	Answer
Gender	
Age	
In a relationship	
Having children	
Former stay abroad	
Clinical work experience	
Specialist qualification	
Would become a physician again	
Works full-time	
Urban setting	

Which Country Do you find more attractive? Choose 2 countries and explain Why?

1. US/Canada: Academic Excellency+ Residency
2. UK/ Ireland: Fellowship
3. GCC
4. Germany: Social System
5. Scandinavian country
6. African Countries
7. Latin America

Second: Sentiment Analysis (Pull and Push Factors)

What drives your wish to migrate? (Push and Pull Analysis)

Choose an answer from 1 to 5.

5 means strongly agree & 1 means disagree

Variable	**Answer (1-5)**
Workload	
Time for family, friends, leisure activities	
Relationship with superiors	
Work atmosphere & enjoyment	
Training opportunities	
Income	
Possibility to treat patients as you deem optimal	
Career opportunities	
Discrimination	
Time for administrative tasks	
Social status	
Job security & Exit Policy	
Relationship with non-medical staff	
Quality of the medical care you provide	
Relationship with patients	

Third: Measures & Scores:

A) Specifications of the nature of the mindset

Nature of the mindset	Description	Question	Answer
Consideration	The act of reflecting on the feasibility or desirability of migration	Have you, in recent times, seriously considered moving abroad for a certain period or forever?	
Willingness	The preparedness to migrate despite assumed disadvantage or hardship	How willing would you be to live in another country wherethe language is different from your mother tongue? Why didn't you consider an English speaking or Arabic speaking country?	
Necessity	The assessment that migration is the only option	I feel that I'm going to have to migrate to [main destination country] in order to find a job to support myself or my family. **Comment on the above statement**	
Planning	The preparation of a course of action towards migration	How long were you/are you planning to travel? And how did you plan for it?	
Expectation		Do you think you will ever move back to your country of origin, or that of yourparents, to live there permanently?	
Likelihood		How likely is it that you might move out of the present community in the nextthree years?	

Experience	Have you and your family seriously considered (given concrete thought to) living in another country?	
Spatiality	What type of community will you most likely live in in the future?	
Duration	How long are you intending to stay here (destination country) for?	
Action	Do you plan to work or to study abroad in the (destination country)?	

B) Specifications of the timeframe of the action

Timeframe of the Action	Question	Answer
Implicit future	Would you accept a job offer that required a change of residence?	
Expansive future	Where would you like to live for the majority of your adult life	
Relative future	Have you ever thought about leaving here to go and live somewhere else?	

C) Specifications of conditionality

Explicit	If somebody gave you the necessary papers for going to live or work in [main destination world region], would you go?	

D) Supplementary questions

Aspect	Question
Preferred destination	If you were to move, where would you be most likely to move to?
Timing and duration	What is the desired length of the intended stay abroad?
Preparatory steps	Have you already taken any preparative measures in order to work abroad?
Perceptions	Do you think that you will be better or worse off when you return than now?
Other aspects	Do you plan to take the entire family with you?

Closing remarks: A brief summary of the interview.

That's all the questions I have. Thank you for participating.

Appendix II: semi-structured interview guide for policymakers

1. A brief introduction of the interviewer, purpose, structure and duration of the discussion.
2. Obtain informed consent for participation and recording the interview.
3. Address the confidentiality issue (country names will be collected, but individual names will be coded).
4. Inviting interviewees to introduce themselves.

1. Introduction

This interview will ask about your understanding of the issue in terms of:

Motives that trigger the decision to migrate by Egyptian healthcare professionals
Challenges faced in Egypt
Motives for the recipient countries to recruit Egyptian healthcare professionals
Recommendations for retention policies
Opinions regarding the recent policy measures of financial incentives and the Egyptian Health Council

- Please tell me:

1. Factors affecting the decision of migration

Follow up questions tip: (For Western countries (low no. in these countries so they provided pull factors in the last 2-3 years the UK after Brexit - the European dreams and scientific reasons and good system start over) or Gulf countries (after specialization for economic reasons)).

2. **What works best as retention policies?**

Follow up questions tip: Training and development and opportunities for education continuous professional development

Availability of speciality that they want regardless of their rank and score.

No forcing policy: the same as engineers but they should serve for xx years.

Takleef law: in UK mozawlet mehna then neyaba 3-5 years (matching=training then specialization)

3. **The impact of the introduced measures such as increasing the incentive for infections**

Follow up questions tip: Port Said implementation of the UHI experience in this regard

4. **The impact of the new Egyptian Health Council**

Follow up questions tip: The certificate now is acknowledged by law, not a decree. Now for all specialists working

5. **Closing remarks:**

A summary of the interview.

"That's all the questions I have. Thank you for participating".