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DISSERTATION

# Physicians' migration from the Middle East to Europe; a qualitative study on the driving factors in a group of Egyptian physicians migrating to Germany

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## Deutscher Abstrakt

### Hintergrund

Ärztemigration ist ein zunehmender Trend, der die Gesundheitssysteme sowohl in den Quellen- als auch in den Zielländern weltweit prägt. Studien zeigten die vielfältige und dynamische Natur der treibenden Kräfte für die Ärztemigration. Diese Studie zielt darauf ab, die Motivationen und Vorbereitungen für die Migration in einer Gruppe ägyptischer Ärzte und Medizinstudenten im letzten Studienjahr zu untersuchen.

### Methoden

Gestützt auf der Theorie des sozialen Konstruktivismus diese qualitative Studie umfasste fünf Fokusgruppen mit ägyptischen Ärzten und Medizinstudenten im letzten Studienjahr (n = 18, gezielt befragt) aus sieben verschiedenen Standorten in Ägypten. Die Audioaufnahmen wurden transkribiert, ins Englische übersetzt und die Transkripte wurden mithilfe von ATLAS-ti (einem computergestützten Indexssystem) deduktiv analysiert. Die Codierung basierte auf dem in der Literatur angegebenen Rahmen von Push / Pull-Faktoren und Migrationshürden / migrationsbegünstigenden Faktoren.

### Ergebnisse

Die Analyse zeigte eine unterschiedliche Wichtigung von Push- und Pull-Faktoren, wobei die Abstoßungskraft der Push-Faktoren einen stärkeren Einfluss als die Anziehungskraft der Pull-Faktoren hatte. Professionelle Faktoren erhielten die höchste Priorität, sowie die geringen Registrierungs- und Lizenzanforderungen. Deutschland wurde manchmal als "die Tür nach Europa" angesehen; eher ein "Transitland" als ein permanentes Migrationsziel. Das Entstehen einer Migrationskultur und die Entwicklung von Online- und persönlichen sozialen Unterstützungssystemen fördern die Planung und Vorbereitung der Migration durch Informationsaustausch und Identitätsbildung.

### Schlussfolgerungen

Diese Studie zeigt die unterschiedlichen Wichtungen von Push- und Pull-Faktoren, die die Migration einer Gruppe ägyptischer Ärzte und Medizinstudenten im letzten Studienjahr nach Deutschland vorantreiben, sowie Migrationshürden und migrationsbegünstigende Faktoren, die ihren Migrationsweg bestimmen. Im Gegensatz zu anderen Studien, wo die Vermögenskluft entscheidend war, waren die Registrierungs- und Lizenzanforderungen für ausländische Ärzte der wichtigste treibende Faktor unter den Teilnehmern dieser Studie. Die Mitgliedschaft in sozialen Netzwerken oder einer Migrationsgemeinschaft sowie die Kultur der Migration erleichtern die Planungs- und Vorbereitungsschritte.

## English Abstract

### Background

The increasing trend of physicians' migration has been shaping the healthcare delivery systems in source as well as in destination countries across the globe. Several studies showed the multifaceted and dynamic nature of the driving forces behind physician's migration. This study aims at exploring the motivations and preparations for migration in a group of Egyptian physicians and final-years medical students.

### Methods

Underpinned by social constructivism epistemology this qualitative study included five focus groups with Egyptian residents and final-year medical students (n=18, purposively sampled) from 7 different training and workplace locations in Egypt. The audio recordings were transcribed, translated into English and transcripts were analyzed deductively using Atlas.ti software. Coding was based on the framework of push/pull factors and barriers/facilitators for migration reported in the literature.

### Results

Analysis showed different priority ranking of push and pull factors for migration among study participants who were driven by the repelling power of push factors rather than the attracting power of pull factors. Professional factors received the highest priority and the low hurdle registration and licensing requirements were the most influential facilitator for migration to Germany which was sometimes regarded as "the door to Europe"; a "transit country" rather than a permanent migration destination. The emergence of a migration culture and the development of online and face-to-face social support systems considerably promote the planning and preparation of migration through information exchange and identify formation.

### Conclusions

This study highlights the different priorities of push and pull factors driving the migration of a group of Egyptian physicians and final-year medical students to Germany as well as the facilitators and barriers that shape the route of their migration. Unlike other studies which showed that the wealth gap was the determining factor for migration, licensing and registration requirements for foreign physicians were the most significant driving factor among participants in this study. Being a member of social networks or a community of migration as well as the culture of migration are strong facilitators for the planning and preparation steps.

# 1 Introduction

## 1.1 Magnitude and trends of physicians' migration

In recent decades, the migration of both health care professionals in general and physicians in particular has become a worldwide phenomenon. The magnitude and impact of this process are illustrated through its description as “mass migration” that has created a “critical global health workforce crisis” (Ahmad, 2005; Dywili et al, 2012). The direction of this migration generally occurs along the wealth gap, i.e., from less-developed to more-developed countries and from higher-income countries to lower-income countries (Dussault et al, 2009). Globally, the main source countries of physicians were South Africa, Ghana, Pakistan, Colombia, Nigeria, India and the Philippines while the main destination countries included the UK, the USA, Canada, Australia and Germany (Pang et al., 2002; Labonté et al, 2006; Kopetsch, 2009 and Costigliola, 2011). However both categories often overlap as physicians migrate in two opposite directions from and to the same country: South Africa for example can be considered a source country for physicians migrating to New Zealand while it is a destination country for physicians migrating from Cuba (Bundred & Levitt, 2000). In fact, physicians are continuously moving from one country to another that has a perceived higher living standard in what is described as the "medical carousel phenomenon” (Ncayiyana, 1999).

The migration of physicians shows some variation in temporal patterns and specific routes in certain regions of the world, e.g., short-term temporary exchange flows versus permanent migration from the Global South to the Global North (Bach, 2003). Canada, the USA, the UK and Australia represent traditional destination countries with substantial proportions of foreign-trained physicians in their workforces, reaching 23% in the USA, for example (Hagopian et al,2005). Costigliola (2011) classified effects of migration according to the duration and impact into short term positive migration and long-term negative migration:

While short term migration allows new experiences and training opportunities of physicians positively impacting patients 'care in their home countries upon return, long term migration has negative effects on two levels. On the level of the source country (the macro- level) there is financial loss of the education costs of the migrating graduate and challenges on the national health system to cope with the shortage of physicians. On the level of the patients (the micro-level) migration may negatively affect quality and safety of the health care provided (Table 1).

| | Source country | Destination country |
|---|---|---|
| Positive effects | - Reduction in staff surpluses<br>- Access to new knowledge and skills, in case the emigration is temporary<br>- Collaborative training programs, research projects or teaching activities which are initiated by emigrant doctors with their home country | - Migrant physicians may accept lower salaries than native ones<br>- Accept working in geographic areas avoided by national workers<br>- Available positions are filled without any cost of educating the doctors |
| Negative effects | - Major shortage of health professionals (loss of training capacity, heavier workloads, or disruption of services<br>- Loss of the investment in the education of health professionals | - Cultural differences may hinder communication<br>- Lack of familiarity with advanced equipment may lead to higher error rates<br>- For temporary migrants, investment in workplace induction can be relatively high compared to the time of service provided by the migrant physicians |

Table 1. Effect of physicans' migration on the source and destination countries (adapted from Costigliola, 2011*)*

### 1.2 Push and pull factors of migration

International migration was explored through several theories, e.g. the institutional theory, the chain migration theory and the network theory (Massey et al, 1993). Regarding the migration of physicians in particular, the framework of pull and push factors was developed to explore and study the underlying driving forces in different contexts and around the world (Oberoi and Lin, 2006; Pang et al, 2002). Push factors are defined as "factors in a health system or country that repel or facilitate the movement of health workers away from that system or country" (Sheikh et al, 2012, p.45) while pull factors are defined as "factors in a health system or country that attract or facilitate the movement of health workers towards that system or country" (Sheikh et al, 2012, p.45).

The main push factors can be classified into financial, professional and general reasons. The most important financial reasons included poor salary structure and poor facilities; the key professional reasons included bad working conditions, poor quality of training, limited career structures, and poor intellectual stimulation and the general reasons included an oppressive political climate, and the rate of crime and violence in the country (Pang et al., 2002; Syed et al, 2008; Bezuidenhout et al., 2009; Oman et al, 2009 and Oberoi et al., 2006). On the other hand key pull factors included better postgraduate training opportunities, enhanced technology, general security and stability, improved prospects for one's children in the destination countries and better conditions of service (Astor et al, 2005; Dovlo and Nyonator, 1999 and Hagopian et al, 2005). Key push and pull factors are illustrated in Table 2.

| | Push factors | Pull factors |
|---|---|---|
| Financial | Poor salary structure, poor facilities | Better salaries |
| Professional | Bad working conditions, lack of job satisfaction, poor quality of training, limited career structures, and poor intellectual stimulation | Better postgraduate training opportunities, enhanced technology |
| General | Oppressive political climate, and the rate of crime and violence in the country, HIV/AIDS | General security and stability, improved prospects for one's children in the destination countries |

Table 2. Summary of the most important push and pull factors for physicians' migration

### 1.3 Facilitators and barriers to mobility

Physicians' migration is also shaped by general facilitators and barriers to mobility which include health policies, visa procedures, the formation of social networks as well as licensing and registration procedures for working as a physician in the destination country (Costigliola, 2011; Sheikh et al, 2012 and Kovacs et al, 2014).

#### 1.3.1 Social networks

While visa procedures and licensing and registration requirements are considered as the most common barriers to mobility, the formation of social networks is considered as a facilitator that is far less investigated (Hagopian et al, 2005). Social networks whether face to face or online provide various forms of support and allow exchange of critical information through different channels, among peers preparing for migration and between physicians already working abroad. Positive role-modelling was also evident among those who plan to follow. Members of social networks develop their own identity and establish their shared beliefs and practices leading to the formation of a community and culture around the theme migration (Hagopian et al, 2005).

#### 1.3.2 Medical licensing requirements for migrating physicians

International medical licensing bodies have set entry requirements for migrating physicians (Gillis, et al., 2016). A remarkable heterogony of assessment methods in the different countries was identified; some countries merely review credentials and conduct language exams while others have implemented written, oral and OSCE exams or even 3-12 months long mentored practice to evaluate the readiness of for practice in the destination country (Gillis, et al., 2016). Absence of internationally standardized assessment criteria of licensing bodies in different countries and sometimes within the same country doesn't always guarantee the fitness to practice of immigrating physicians. The European Commission's service has established offices and national contact points (ministries of education, research or science or other national institutions) in every EU country to assist health care professionals working across borders with their professional mobility and recognition of profession qualifications.

National contact points are responsible for guiding applicants about the national law and procedures for recognition of professional qualifications, but the decision about whether or not to recognize the professional qualifications is made by the national competent authorities based on European and national legislations (Costigliola, 2011). Although legal frameworks control the mobility and recognition of health care professionals across Europe, migration of

non-European physicians is still not controlled; mobility beyond Europe's borders still lacks legal frameworks and is mainly dependent on individual agreements between countries. Lack of recognition of professional credentials of international medical graduates may act as discriminatory obstacle against practicing medicine in developed countries (Zubaran, 2012).

### 1.4 Migration of physicians in the Middle East and Egypt

The Middle Eastern region covers southwest Asia and northeastern Africa, extending from Libya on the west to Afghanistan on the east (Webster, 1983). The region is characterized by constantly changing political environments, low incomes in many countries and substantial emigration of physicians (Al-Shorbaji, 2008). Egypt is considered a lower-middle income country in the Middle East with an unstable socio-political situation as a result of a wave of political instabilities related to the Arab Spring uprising since 2011. The Egyptian population is growing quickly; approximately half of the 81 million Egyptians are between the ages of 15 and 29. The unemployment rate is currently 9.7% (World Development Report 2014; LaGraffe, 2012).

Although an average of 10,000 medical students graduates annually from 24 public and 3 private medical schools Egypt suffers from a shortage of physicians which is attributed mainly to the emigration of both qualified trainers and graduates due to low job satisfaction, and a search for better training opportunities (Abdel-Rahman et al, 2008). In 2016, the density of physicians was estimated to be 1 physician per 12,285 inhabitants (Global Health Observatory data repository, 2018). The emigration of physicians abroad contributes substantially to the physician shortage in Egypt, a loss that cannot be replaced by recruitment of health care personal from Sudan und Rwanda (Syiam and Roberto Dal Poz, 2014). Common destination choices for Egyptian physicians include Gulf countries, Australia and the European Union (EU), including Germany (Migration policy centre, 2013; Martineau et al, 2002; Syiam and Roberto Dal Poz, 2014).

### 1.5 Migration of physicians in Germany

In Germany, the uptake of foreign-trained physicians is a relatively new phenomenon, as it is for several other countries in Europe (Ognyanova et al, 2014). With regard to the wealth gap and physicians' migration, Germany is a high-income, industrialized country whose population is constantly aging (Zavlin et al, 2017). The country has a relatively high density of physicians (1 per 214 inhabitants), but there is an overall substantial shortage of physicians, especially in rural regions (Castagnone and Salis, 2015). The percentage of migrating physicians increased

from 5% in 2006 to 11% in 2016, according to a recent OECD report (Ncayiyana, 1999; Kopetsch, 2009; Herfs, 2014; OECD, 2015; Skjeggestad et al, 2017; German Medical Council, 2018). This represents one of the sharpest increases worldwide.

The German health care system relies on foreign-trained physicians, and this reliance is likely to intensify in the future. The most common source countries are other European countries, e.g., Romania and Greece, followed by the Middle Eastern countries (German Medical Council, 2018). Germany is a member state of the European Union (EU), in which a legal framework regulates mutual recognition of professional qualification and the free mobility of physicians within the EU member states. However, there is no clear regulation for the licensing and registration for non-EU physicians (Costigliola, 2011; Herfs, et al, 2007).

In the current situation, getting the recognition of professional qualification in one EU country would automatically make them eligible for recognition in any other EU country. This may pose problems because the standards for licensing and registration of non-EU physicians differ across the EU member states (Herfs, et al, 2007), a feature which may likely influence the migration routes of non-EU physicians. For countries such as Germany, the integration of physicians from the Middle East can be perceived as a particular challenge, as the linguistic, cultural and religious differences are substantially larger than those faced in the integration of physicians from other European countries.

### 1.6 Aim of the study

The aims of this study are:

- To explore the driving forces for migration of physicians in a cohort of Egyptian physicians and final-year medical students preparing to move to Germany.
- To identify the expectations of Egyptian physicians and final year medical students planning to work in Germany.
- To document the preparation activities carried and the challenges they are facing to work in Germany.

# 2 Methods

## 2.1 Justification of the study design

### 2.1.1 Qualitative research

Although originally developed within the field of social sciences, qualitative research has been used as a common approach in medical education research to “make sense” of the meanings of key phenomena (Sawatsky et al, 2019). Rather than making claims to generalizability, qualitative research values contextualized understanding of individualized and subjective experiences anchored in space and time with the ultimate aim of representing complexity, and offering a richly textured picture of social phenomena (Ng et al, 2014). That is why it has been considered as one of the most suitable tools for studying "social, relational and experiential phenomena in their natural settings" as well as answering questions about "group interactions, social processes or human experience" (Ng et al, 2014, p. 371). Although being criticized to be a mere assembly of anecdotes and personal impressions that can neither be generalized nor reproduced, qualitative research allows in-depth exploration of the individual experiences and perspectives of participants who construct a diverse and rich reflection of their perceived realities producing data exploring real-life behaviours which is based on the assumption that there is no single but rather multiple realities experienced by different people based on individual and social contexts (Lingard and Kennedy, 2014).

Unlike quantitative research that begins with a predetermined hypothesis, qualitative research provides exploratory information to generate hypotheses (Hanson et al, 2011). However, instead of contrasting both research methods in an unhelpful dichotomy, it is better to focus on employing rigorous methods of sampling, data collection, analysis, and interpretation to ensure the integrity and the quality of the research findings (Hanson et al, 2011). Comparable to quality criteria in quantitative research (internal and external validity, reliability and objectivity), the trustworthiness of qualitative research is ensured through four criteria, namely credibility (parallel to internal validity), dependability of the findings (parallel to reliability), confirmability of the data and analysis (parallel to objectivity) and transferability of the work to other settings, which is somewhat comparable to external validity and generalizability of quantitative research (Hanson et al, 2011). Almost all criteria have been met in this study and included in the discussion section to ensure the trustworthiness and integrity of data.

### 2.1.2 Philosophical assumptions

Constructivism is a "philosophical perspective interested in the ways in which human beings individually and collectively interpret or construct the social and psychological world in specific linguistic, social and historical contexts"(Schwandt, 1997, p.19). Unlike radical constructivism that concentrates on "the individual knower and acts of cognition", social constructivism focuses more on interaction of social processes; meaning is constructed by human beings and knowledge of the world “is not a simple reflection of what there is, but a set of social artefacts; a reflection of what we make of what is there” (Schwandt, 1997, p.20).

This qualitative study is based on social constructivism epistemology where meaning is considered as “being constructed through social interaction” and therefore understanding the cognitive and social constructions held by the study participants is a way to explore their experience (Mattick et al., 2014, p. 2275). In this study Egyptian physicians planning to work in Germany can be considered as active participants jointly constructing experiences and meaning while the different motivations and preparations for migration can be seen as multiple coexisting constructions of equal weight depending on the social and political interpretations (Illing, 2014, Riessman, 2008).

## 2.2 Focus groups

Being aligned with a constructivist paradigm and best used for exploratory data collection, focus groups are the data collection method of choice for this study to allow delving into the feelings and attitudes of participants towards their motivations and preparation for migration; a topic that would benefit from exploration through the synergistic and dynamic focus group format (Stalmeijer et al, 2014; Greenbaum, 2000; Ng et al, 2014). Focus groups are defined as "sessions involving 4–12 participants and a moderator or facilitator who guides the group discussion of a topic relevant to the research question" (Ng et al, 2014, p.376). First used in the 1940s, and further developed within sociology, marketing and organizational development research, focus groups finally came into the education realm in the 1970s as an efficient tool to access multiple stories and diverse experiences (Stalmeijer et al, 2014). Unlike personal interviews, focus group discussions have the advantage of providing a dynamic and interactive exchange to explore contrary opinions and values among study participants and generate richness of data (Greenbaum, 2000). Another benefit is the socially oriented environment of focus group discussions which creates a sense of belonging and cohesiveness among study participants who feel encouraged to share their ideas and experiences. Focus groups are also an efficient data collection tool used to obtain data from multiple participants in a fast and economic way (Onwuegbuzie et al, 2009). However, focus groups have the limitation of being

dependent on the skills of the facilitator to elicit useful information and monitor subgroups (Fusch and Ness, 2015) To prevent distortion of information focus group members should be interviewed in their native language (Pawi et al, 2010).

Focus groups are either homogenous where members have shared experience and similar attitudes, or heterogeneous with members coming from diverse socio-cultural, educational and occupational backgrounds (Pawi et al, 2010). The current study used the homogeneous format where all participants shared the same educational and socio-cultural background which made them feel more secure to share their experiences (Barbour, 2005). However, “mini-focus groups” of 5 or less participants were designed for this research to make a compromise between the width and the breadth of data and take into consideration the busy life style of the clinical work. A total number of five focus groups took place as shown in table 3. There were mixed focus groups consisting of both residents and final year medical students in addition to focus groups containing only residents.

| | Number of participants | |
|---|---|---|
| | Final year medical students | Residents |
| 1st focus group | 3 | 1 |
| 2nd focus group | 1 | 1 |
| 3rd focus group | | 4 |
| 4th focus group | 2 | 1 |
| 5th focus group | | 5 |

Table 3. Number of participants in focus groups

### 2.3 Setting

As a requirement for the recognition procedures for foreign physicians in Germany, the German medical language exams were introduced into the healthcare legislation in 2002 in addition to the general language requirements of B2 level of the Common European Framework of Reference for Languages (Englmann, 2009). In response to the new legislation, several language institutions have started to offer special German medical terminology courses for physicians inside and outside Germany. Since 2011 the Goethe Institute in Alexandria has been offering the "German for doctors" course to prepare Egyptian physicians for practicing medicine in Germany in addition to the general German language courses. Over a period of three months participants were taught how to communicate with German patients and colleagues and how to document patients' data in a written form. The course takes place

once a year with an average participant number of 18 physicians/ course. A similar course has been offered by Alexandria Medical Syndicate, a branch of the Egyptian Medical Syndicate, in 2017.

Purposeful maximum variation sampling was designed for this research (Dicicco-Bloom and Crabtree, 2006). For practicality reasons this study included Egyptian physicians only; it was very difficult to reach other nationalities of Middle Eastern physicians while they were still in their home countries. Different participants (final year medical students and junior residents of different specialties (radiology, cardiology, neurology, orthopedic surgery, gastroenterology, anesthesia and pediatrics) in various Egyptian cities (Alexandria and Tanta) and working locations (university, ministry of health, private and military hospitals) were chosen to allow the study of a broad range of experiences and maximize opportunities to elicit data (Marshall, 1996; Coyne, 1997). With the aim of creating a compromise between the depth of the preparation experiences versus the breadth/ the variation of the different study participants and locations an estimated sample size of 20 participants was decided for this research (Hanson et al, 2011).

### 2.4 Study concept

The explorative focus group study was conducted in 2017 in the Goethe Institute and the medical Syndicate in Alexandria, Egypt. It had been approved by the data protection office at the Charité – Universitätsmedizin Berlin (0298/17/ST3) and the ethics committee at the Charité – Universitätsmedizin Berlin (EA1/169/17). The data of the study participants is stored in accordance with the Berlin Data Protection Act. There was no disadvantage for physicians who refused to participate in the study. Anonymity was assured and a written informed consent form was signed by participants who also provided basic demographic data. Inclusion criteria for participation in the research were the German language proficiency level; at least the B2 level of the Common European Framework of Reference for Languages, attendance of the German medical language course and initial application steps to work as a physician in Germany. Recruitment was mainly done by announcements in the Goethe Institute Alexandria and the medical syndicate as well as online announcements on the corresponding social media groups for physicians planning to work in Germany. There was no pressure or coercion and participants could withdraw at any time during the discussion or refuse to answer any questions. Volunteering participants were contacted and focus groups were organized. Participants were given incentives in the form of soft drinks.

## 2.5 Data collection

The individual data collection, transcription, translation and analysis steps were conducted by the doctoral student. The legitimacy of focus groups as defined by Greenbaum (2000) was ensured by conducting them within a reasonable time frame and a quiet environment allowing full attention of participants during the session. Focus groups were conducted in the classrooms of the Goethe Institute Alexandria and the Medical Syndicate after the sessions of the "German for doctors" course. A pilot interview was carried out with a resident to practice and evaluate the interviewing skills of the researcher and the quality and comprehensibility of the questions (Dilley**,** 2000). A discussion guide was used to cover all intended discussion topics (Greenbaum, 2000). Discussions were conducted all in Arabic and began with the orienting question about the motivation to work as a physician in Germany followed by an interviewing approach to explore the expectations and the perceived challenges of migration. At the end of the discussion participants were asked about their concrete steps for preparation and the access to jobs in Germany (Appendix 1). An iterative data analysis approach was conducted where data collection occurred concurrently with data analysis (Dicicco-Bloom and Crabtree, 2006).

## 2.6 Data management

### 2.6.1 Transcription and translation

Transcribing and translation of audio data into written form is an interpretive process and therefore considered as the first step of data analysis (Bailey, 2008). It is recommended that the researcher should also be the focus group moderator and the transcriber to avoid pitfalls of transcribing, which is the case in the current study (Easton et al, 2000). Data was transcribed verbatim according to the transcription model of Stuckey (2014) starting with the first step of de-identifying participants' data to ensure anonymity and confidentiality. Step 2 of the model was omitted as there was no external transcriber. The third step was transmission of meaning to the text through elimination of fillers. Data was translated into English by the doctoral student using the literal translation strategy including pauses, emotional expressions, and annotations (Duranti, 1997; Honig, 1997). Anonymized transcripts were checked by a native Egyptian professional Arabic/English translator. Translation of qualitative data is not a purely technical or neutral job but has an epistemological significance; translators are considered as part of the process of meaning construction (Temple and Young, 2004). The effect of translation on data analysis will be addressed in the discussion section.

### 2.6.2 Data Analysis

Analysis of focus group transcripts is either transcript-based, where audiotapes are transcribed word by word, preferably by the researcher him/herself, or tape-based, where an abridged transcript is created based only on listening to the audiotapes (Onwuegbuzie et al, 2009). Although the transcript-based approach is more time-intensive and results in "50 to 70 pages of text per focus group meeting" compared to much shorter transcripts of the tape-based approach, it is considered as the "most rigorous way" of focus group data analysis (Onwuegbuzie et al, 2009). The least rigorous approaches are note-based analysis, where only the notes are analyzed and not the audiotapes and memory-based analysis where the moderator only recalls the events of the focus group discussion (Onwuegbuzie et al, 2009). For the current study we applied the transcript-based approach to increase the quality and rigor.

Approaches to qualitative data analysis methods can be classified into three categories: the socio-linguistic methods, the theory developing methods and the descriptive and interpretation methods (Smith and Firth, 2011). Details are illustrated in table 4.

| Name of the approach | Aim of the approach | Examples |
|---|---|---|
| The socio-linguistic approach | To explore the use and meaning of language | Discourse and conversation analysis methods |
| The theory developing approach | To generate a theory | The grounded theory method |
| The descriptive and interpretation approach | To describe and interpret the views of study participants | Content analysis, and thematic analysis methods |

Table 4. Approaches to qualitative data analysis methods adapted from Smith and Firth, 2011

The framework analysis is defined as "a matrix-based method involving the construction of thematic categories into which data can be coded" (Dixon-Woods, 2011). It is not aligned with a particular theoretical approach, but is rather considered as "a flexible tool that can be adapted for use with many qualitative approaches that aim to generate themes" (Gale et al, 2013). Developed originally in the 1980's by social policy researchers, framework analysis has been gaining increased popularity in medical education research (Gale et al, 2013). Despite its similarities to thematic analysis, e.g. beginning with identification of recurring and significant

themes, the framework approach has the advantage of a transparent data analysis process illustrating the link between the analysis stages. The latter has the benefit of making the process and the interpretations derived from it accessible to people other than the primary analyst giving the chance to teamwork and allowing within-case and between-case analysis and comparisons (Srivastava and Thomson, 2009; Smith and Firth, 2011). Framework analysis is characterized by being dynamic as it allows changing or adding codes throughout the analysis process, systematic as it allows "methodical treatment of the data" and comprehensive (Srivastava and Thomson, 2009). Another advantage is the flexibility; framework approach allows analysis based on a priori themes as well as de novo themes or concepts that emerge during the management of data (Dixon-Woods, 2011). Flexibility is also achieved through simultaneous or consecutive data collection and analysis processes following a five step process of familiarization, identification of the thematic framework, indexing, charting and mapping and interpretation (Ritchie & Spencer, 2002). Details of the five steps process are illustrated in table 5.

| Steps | Description |
|---|---|
| Familiarization | Immersion in the transcripts and gaining an overview of all of the collected data. |
| Identification of the thematic framework | Recognition of themes in the data set either deductively (based on a priori themes) or inductively (emerging themes). |
| Indexing | Identification of sections of the textual data corresponding to the particular themes using qualitative data analysis tools. |
| Charting | Arrangement of the indexed pieces of data in charts corresponding to the headings and subheadings of the thematic framework. The data should still be clearly identified to the case it came from even after it was lifted from its original textual context. |
| Mapping and interpretation | Analysis of the key characteristics and providing a schematic diagram of the phenomenon that guides the interpretation of the data set. |

Table 5. Steps of framework analysis adapted from Srivastava and Thomson, 2009 and Ritchie & Spencer, 2002

Framework analysis was chosen for the current study as it enhances the rigor of the analytical processes and the credibility of the findings as well as allowing in depth exploration of data (Smith and Firth, 2011). Familiarization occurred already during the data collection process as the doctoral student conducted the focus group discussions, the transcription and translation herself. This was followed by identifying a thematic framework to be used to filter to classify the data, which in our study was based on a priori items of pull/push factors as well as facilitators/barriers from the literature (Ritchie and Spencer, 2002). The complete and final coding tree was composed of six main themes and sixteen subthemes as seen in appendix 2. Indexing was conducted through identification of the textual focus group data corresponding to the themes using the qualitative data analysis tool ATLAS-ti (a computerized indexing system). Data saturation was reached after indexing three focus group transcripts, both supervisors revised the coding after which a consensus process followed. Charting was carried out by arranging the indexed data in charts corresponding to the thematic framework. Lastly, mapping and interpretation were conducted through analysis of the key characteristics of data (Ritchie and Spencer, 2002).

# 3 Results

This study was published under the title" Doctors on the move: a qualitative study on the driving factors in a group of Egyptian physicians migrating to Germany" in the journal Globalization and Health (Schumann et al, 2019). The main results of the publication are summarized in chapter 3.1 and the corresponding quotes can be found in the attached copy of the original publication (page 37-46). In addition to that further results are illustrated in chapter 3.2.

## 3.1 Results from the publication

### 3.1.1 Push and pull factors

This theme contains participants' comments about their motivation to migrate from Egypt in general (push factors) and their motivation to work in Germany in particular (pull factors). Analysis showed that push factors had a much stronger repelling power than the attraction power of pull factors; there was a good consensus among participants that they decided to migrate from Egypt regardless of the destination country. Quotes related to the theme push and pull factors were coded under the categories of financial, professional and socio-political push and pull factors. There was a contrast of the weight of different push and pull factors in shaping the migration intentions of Egyptian physicians in our study sample. While professional factors had the highest impact, financial factors played only a minor role. This theme was linked to the temporal pattern of migration (theme III in the coding tree, appendix 2); some participants

made the decision of permanent migration, which was mainly related to the socio-political push and pull factors, while others regarded migration as a temporary decision to pursue postgraduate education in Germany and therefore related to the professional push and pull factors.

### 3.1.2 Facilitators and barriers of mobility

This theme contains the participants' comments about the factors that promote or hinder their migration. Five subthemes were identified: the accessibility of the German labour market, the licensing and registration procedures for foreign physicians, being a member of a social network, making use of social support resources, and sign of a culture of migration.

The most influential facilitator to the migration of our study participants to Germany is the shortage of physicians and the resulting abundance of job opportunities which increased the attractiveness and easy accessibility of the German labour market for immigrating physicians. The accessibility was further increased by the relatively easy licensing and re-accreditation requirements for foreign physicians in Germany; a mere review of credentials and German medical language exam are the licensing requirements in most of the federal states. Based on that participants had different federal state preferences which influenced their destination choices, e.g. Saxony was considered a favourite German federal state in our sample.

Analysis showed a relation between this theme and the temporal patterns of migration (theme III in the coding tree, appendix 2); some participants considered Germany as a "transit country" and a "door to Europe" rather than a permanent destination country. There is also a link with the theme "Preferred destination of migration" (theme V in the coding tree, appendix 2). Most study participants would have preferred the USA or the UK as destination countries, however they were hindered by the time-consuming and expensive licensing exams and the visa barriers.

Other facilitators to mobility were the face-to face and online social networks which were considered as important and reliable sources of information and advice for our study participants. In addition to the informational social support function of the social networks, there were also instrumental, and emotional support functions, e.g. aiding with job application procedures and care and motivation respectively. It was also obvious that all study participants shared positive attitudes, beliefs and thoughts about migration which was an indicator of a culture of migration that facilitates and encourages further migration.

## 3.2 Further results

### 3.2.1 The route of migration

This theme contains the preferred destination countries among Egyptian physicians in our study sample. Analysis showed two main routes for migration; either to the East, e.g. Gulf countries or to the West, e.g. Europe and the USA. This theme is closely linked to the push and pull factors; the route to the East was mainly driven by the financial push and pull factors while that to the West was chiefly determined by the professional motivations. The migration route to the West was further shaped by the facilitators and barriers to mobility; mainly by easy accessibility to the labour market licensing and re-accreditation procedures.

*"Working as a medical doctor in the USA or the UK is not only difficult, it's almost impossible. I know people who spent 3 years in the USA on their own expenses trying to work there but they failed and they returned back to Egypt."(Male resident, location 3).*

*"And then I found out that the road to Germany was a lot easier than all the other roads because there is increased demand of doctors. Other countries don't need doctors but in Germany they do. I already have many colleagues who are working as doctors in Germany." (Male resident, location 2).*

*"For me as a specialist I can earn much more money if I worked in the Golf countries for example, I will earn much more than I would earn in Germany but still I will take the risk because of the benefit."(Male resident, location 6).*

### 3.2.2 Preparations for migration

This theme contains the participants' quotes about their preparations for migration; subthemes included type, timing and sources of information for preparation. Four types of preparations for migration were identified among our study participants; language, professional, document and cultural preparations. Most of the study participants invested all their time, money and effort for language preparations considering it as the most significant step for migration which can be explained by the fact that the German medical language examination is the only unified licensing requirement in all German federal states. Almost all participants even started to learn German during their undergraduate medical education.

*"I already invested so much effort to learn the German language here in Egypt, I did everything I could to study that language" (Male house officer, location 1).*

*"So I started to study the German language at the Goethe institute when I was in the 4th year of medical school." (Male resident, location 3).*

Professional preparations, however, received less attention and value among our participants and the least attention was given to the cultural preparations.

*"I will start from scratch anyway so I don't invest much effort to prepare myself scientifically or clinically; I am focusing on language and financial preparations." (Male resident, location 2).*

*"Regarding the cultural preparations I have to read a lot online and make connections with Germans to break the ice and cross the cultural gap. I read about the life style and the history because this matters for them whether a person is already aware of their culture or someone who is still having a cultural shock. It makes a big difference." (Male resident, location 2).*

There was a consensus among study participants about relying on informal information sources for preparation of documents, rather than official websites. The main source for information for most of the study participants was the online social networks which makes a link between this theme and theme II.4.2 of the coding tree (Appendix 2).

*"Most of my knowledge I get through Facebook groups." (Male student, location 1)*.

# 4 Discussion

## 4.1 Discussion of the methods

The medical education literature has focused on examining the driving forces behind physicians' migration after they have migrated to the destination country; little is known about the pre-migration phase. The importance of this study lies in exploring the preparations and driving forces of physicians while they are still in their home country; in the natural setting minimally disrupting the participants' daily routine. Several methods have been used to assure a good quality of the current research: reflexivity, transferability, credibility and dependability (Hanson et al, 2011).

Reflexivity was achieved through conducting a research diary containing remarks and comments about the relation and interaction between the researcher and the participants (Kuper et al, 2008). In this case the researcher can be considered as an insider; an instructor at the faculty of medicine who has been teaching some of the participants and accompanying

them through medical school and the preparations for migration. In addition, the researcher was at the same time the instructor for the "German for doctors" course at the Goethe Institute and the medical syndicate. This has on the one hand created a deeper understanding of the context, on the other hand however it may also have some drawbacks such as the personal experience of the researcher influencing the data coding and analysis (Schwandt, 1997). This was avoided by revising the coding by both supervisors to reach consensus.

In order to make the study comparable to other settings, sample setting and results were described in detail to ensure transferability (external validity). Credibility (internal validity) of the current research was assured through triangulation, detailed evidence gathering, prolonged observation of the participants on multiple occasions over the whole duration of the course, and skilful interview technique using a discussion guide (Hanson et al, 2011). Triangulation was achieved through involving more than one stakeholder group, namely residents from different specialties working in different locations as well as final year medical students to ensure comprehensiveness of data (Schwandt, 1997; Mays & Pope, 2000; Hanson et al, 2011). Validity was also achieved through the constructive alignment between the research questions (why, when and where do Egyptian physicians prepare to migrate to Germany), social constructivism epistemology (where participants are considered as actively and jointly constructing experiences and meaning) and focus group method (which allows more interaction and generates richness of data) (Riessman, 2008, Mattick et al., 2014).

Dependability (reliability) of the current research was maximized by applying rigorous and systematic procedures of sampling, data collection and analysis, using supervisors' debriefing and discussions about insights emerging during data collection and analysis (Hanson et al, 2011). Reliability of the translation was ensured by using only one translator for all focus group discussions and one professional translator to revise the transcripts (Twinn, 1997). Since an adequate level of English language proficiency could not be assured with all study participants, focus groups had to be conducted in participants' native language, namely Arabic. Translation of qualitative data has been discussed in several studies and it was proven that translation of the transcripts is not a pure technical job because meaning is constructed rather than expressed by language Riessman, (2008). Choosing the word that best suits the meaning is a result of the interaction between the languages, the researcher, in this case also the translator, and the people they represent. Although double checked by a professional translator, translation compromises a full discourse analysis, because participants use certain Arabic expressions or proverbs to express their emotions that are difficult to understand when translated to English. Listening to audiotape while reading transcripts was not possible either, a step that would have ensured more accuracy of interpretation (Dicicco-Bloom and Crabtree, 2006).

Another potential limitation is the relatively small sample size of only 18 participants. This compromised breadth is for the sake of more depth to the study which was mainly designed to explore the participants' motives of migration as well as their perceptions rather than to obtain generalizable data. This sample size in common for qualitative research studies which focus on exploring a specific phenomenon in depth rather than creating a breadth of data.

Selection bias may also have influenced our research. We invited only physicians and final-year medical students who are attending the preparatory course for the medical language examination in Germany. The findings of this study therefore represent the experiences and views of Egyptian physicians and final year medical students. That should not be generalized to physicians migrating in from other countries.

Males are overrepresented in our sample; however, this represents the male-to-female ratio of the "German for doctors" course participants. This may be a source of bias but it still reflects the conservative Egyptian culture where most families don't allow their daughters to travel long distances even within Egypt, let alone migrate to Europe (UNFPA, 2016).

### 4.2 Discussion of the results

Ongoing changes in societies and healthcare systems across the world result in a growing and a constantly evolving global phenomenon of physicians' migration. The current study conducted among a group of Egyptian physicians and final-year medical students during their preparation to work in Germany identifies the push and pull factors driving their migration intent. In contrast to other migration countries where the wealth gap is the most significant driving factor behind migration, this particular route of migration is chiefly determined by the relatively easy licensing and registration requirements for foreign physicians in Germany compared to other destination countries, e.g. USA and the UK. Professional pull factors took the upper hand for the migration direction to the West, i.e. Europe and the USA while the financial pull factors played the most significant role in directing migration to the East, i.e. Gulf countries. Barriers and facilitators of mobility further specified the subsequent choice of the destination country. In our study, Germany was apparently not perceived as a destination country of choice itself but also primarily as a country of entry into the EU labour market or even a transition country.

This study is based on the concept of push and pull factors that offers a useful framework to identify and categorize main factors influencing the decision to migrate to Germany. Overall, the repelling power of push factors to leave Egypt appeared stronger than the attractive power

of pull factors in Germany which is comparable to a study of South African physicians practising in Australia (Oberoi, and Lin, 2006). Most participants even made the decision to leave Egypt regardless of the choice of the destination country.

Key factors driving the intent to migrate in our study cohort are poor health care facilities, bad working conditions and poor quality of training in the source country and the hope for better training opportunities in the destination country. This concords with previous studies from South Africa, Cameroon and Pakistan (Benatar 2007; Imran et al, 2011; Syed et al, 2008). However these findings contrast to studies from Iraq and Romania (Burnham et al, 2009; Suciu et al, 2017), where the most important push/pull factors were related to salary structure and violence/terrorism.In contrast to some destination countries such as Canada and the USA where foreign-trained physicians can face longer periods of unemployment due to difficult relicensing procedures Germany offers an attractive labor market with abundant job opportunities for migrating physicians (Bourgeault et al, 2010; Bourgeault et al, 2013; Louis et al, 2010). It is worth mentioning that active recruitment activities played no obvious role in our study cohort.

### 4.3 Implications of the study

This study highlights the role of medical licensing requirements for migrating physicians on mobility trends from Egypt to the EU. The easy relicensing procedure can be considered an advantage of Germany as a destination country attracting migrating physicians. In the turn, the low-hurdle relicensing procedure may in the future lead to concerns regarding its effects on the quality of the German health care system.In some federal states of Germany, a mere review of the applying foreign physician's credentials and a test of the German language are all what is needed to be a licensed physician. And being licensed to practice medicine in one German federal state automatically gives permission to work as a physician anywhere else in Germany. While some of the participating Egyptian physicians and final-year medical students in our study sample would have actually preferred the USA or the UK as an ultimate destination country, they were discouraged by the barrier of licensing and registration procedures in those countries with too high requirements to pass clinical and practical medical exams (i.e. USMLE in the USA or MRCP in the UK).

As a key facilitating factor in the decision to leave Egypt and migrate to Germany, there emerges the formation of a local community of migrating Egyptian physicians. German courses in general and medical German courses in particular provide a formal social network platform linked to informal social networks, such as family members, colleagues and Egyptian

physicians already working abroad. Face-to-face social networks are further extended by online social media network sites for migrating physicians, e.g. Facebook which is regarded as a highly helpful online resource in our study cohort and actually considered to be more useful than physician's migration-related websites which have been reported previously in the literature (Sheikh et al, 2012).

Social networks provide important sources of information transfer, identity formation and social support, e.g. for instrumental, informational and emotional assistance. Physicians and medical students planning to leave Egypt are connected with those who have already migrated and are working successfully abroad, including those involved in a positive role modelling. Thereby, new migration is encouraged in the sense of "once migration pathways are established, they will stimulate further migration" (Bach, 2003). Our analysis indicates that a community has developed around the theme "migration of Egyptian physicians to Germany" with its own culture, where the community members offer shared understandings and beliefs of their current situation, including a positive attitude towards migration. The community transfers the knowledge needed between their members, including the transfer from generations of physicians – who have already successfully migrated – to the future generations of physicians still intending to migrate.

Beyond the study itself, our findings may yield a few general implications and perspectives. Being a source and a destination country at the same time, Germany is part of the international carousel for migrating physicians. Leading destination countries are Switzerland, Austria, United Kingdom and the USA (Kopetsch, 2009). Overall, it seems true that Germany loses more doctors to emigration than it gains by immigration and this results in a shortage of physicians (Kopetsch, 2009). Secondly, the EU may consider establishing a general framework for the licensing and registration requirement for non-EU physicians entering, similar to the framework already undertaken to manage the migration of physicians within the EU. Low hurdle procedures in one or more EU countries may potentially impair the quality of the healthcare system and patients' safety in those countries, but due to the free mobility of physicians within the EU, it could still affect the patients' care in the other EU countries.

### 4.4 Suggestions for further research

Exploring the motivations and driving forces behind Egyptian physicians' migration during their preparation time can be considered the first step for a prospective comparative study where participants are followed up after they have already migrated to document their experience in

the destination country and explore their integration experience. Future research could be directed to exploring the social and professional integration of Middle East physicians following their migration to Germany. In addition, the role and nature of information communicated via of social media sources for migrating physicians could be investigated in more depth.

## 5 Conclusions

Migration of Egyptian physicians and final-year medical students to Germany is mainly driven by push factors in the home country rather than pull factors in the destination country. Professional factors are the main determinant of the migration decision in addition to the low hurdle licensing and registration requirements in the destination country which shape the route of migration. The emergence of a migration culture and the development of online and face-to-face social support systems considerably promote the planning and preparation of migration through information exchange and identify formation.

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## Appendix 1: Discussion guide

Motivation to work in Germany

- When did you take the decision to work as a medical doctor in Germany?
- Why do you want to work specifically in Germany?
- Why don't you want to work as a medical doctor in Egypt?

Expectations

- How do you imagine the every- day life in Germany to be?
- How do imagine the German healthcare system to be?
- What is your image based on?
- What is in your opinion the biggest advantage to work as a medical doctor in Germany?
- What is your opinion the biggest challenge to work as a medical doctor in Germany?
- What is your biggest fear?

Professional preparations

- How do you prepare yourself to work as a medical doctor in Germany?
- Who do you ask for advice or help to prepare yourself? (Friends, social media, official websites,..)
- Do you intend to do job shadowing before applying for a job?

Access to jobs:

- Do you have any idea about "preferred" German states for foreign doctors?

## Appendix 2: Coding tree

Name

- I. Push and pull factors
- I.1 Financial push and pull factors
- I.1.1 Salary structure
- I.1.2 Healthcare system facilities/resources
- I.2 Professional push and pull factors
- I.2.1 Working conditions
- I.2.2 Job satisfaction
- I.2.3 Postgraduate training opportunities
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Datum Unterschrift

## Anteilserklärung an den erfolgten Publikationen

Marwa Schumann ist alleinige Erstautorin der Publikation. Frau Schumann hatte folgenden Anteil an der Publikation:

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- Literaturrecherche
- Entwicklung der Fragestellung
- Entwicklung des Studiendesigns
- Vorstellung des Studiendesigns und der Arbeitsschritte in dem Dieter Scheffner Fachzentrum- Ausbildungsforschungskolloquium
- Schreiben des Datenschutz- und Ethikantrages für die Studie
- Organisation und Planung der Durchführung der Studie
- Pilotierung des Gesprächsleitfadens in einem semi-strukturierten persönlichen Interview mit einem potentiellen Studienteilnehmer
- Datenerhebung: Durchführung von Fokusgruppendiskussionen
- Transkription und Übersetzung des Datenmaterials
- Entwicklung des der Kategorien bzw. des Kategorienbaumes für die Auswertung des Datenmaterials
- Codieren des Gesamtmaterials
- Auswertung des Datenmaterials
- Hauptverantwortlich für die Konzeption der Publikation
- Hauptverantwortlich für das Verfassen der Publikation
- Erstellen aller Tabellen sowie Anhängen der Publikation
- Präsentation der Studienergebnisse in der AMEE Konferenz (Association of Medical Education in Europe), August 2018 in Basel (Publikationsliste)

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Unterschrift, Datum und Stempel des betreuenden Hochschullehrers

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Unterschrift der Doktorandin

## Auszug aus der Journal Summary List

Journal Data Filtered By: **Selected JCR Year: 2017** Selected Editions: SCIE
Selected Categories: **"Public, Environmental and Occupational Health"**
Selected Category Scheme: WoS

**Gesamtanzahl: 180 Journale**

| Rank | Full Journal Title | Total Cites | Journal Impact Factor | Eigenfactor Score |
|---|---|---|---|---|
| 1 | Lancet Global Health | 4,455 | 18.705 | 0.024320 |
| 2 | MMWR-MORBIDITY AND MORTALITY WEEKLY REPORT | 24,208 | 12.888 | 0.091830 |
| 3 | Annual Review of Public Health | 5,847 | 9.491 | 0.009010 |
| 4 | INTERNATIONAL JOURNAL OF EPIDEMIOLOGY | 21,401 | 8.360 | 0.046420 |
| 5 | ENVIRONMENTAL HEALTH PERSPECTIVES | 39,741 | 8.309 | 0.043990 |
| 6 | EPIDEMIOLOGIC REVIEWS | 3,422 | 7.583 | 0.003580 |
| 7 | EUROPEAN JOURNAL OF EPIDEMIOLOGY | 7,281 | 7.023 | 0.016240 |
| 8 | BULLETIN OF THE WORLD HEALTH ORGANIZATION | 15,375 | 6.361 | 0.018360 |
| 9 | JOURNAL OF TOXICOLOGY AND ENVIRONMENTAL HEALTH-PART B-CRITICAL REVIEWS | 1,665 | 6.333 | 0.001750 |
| 10 | EPIDEMIOLOGY | 12,660 | 4.991 | 0.020120 |
| 11 | INTERNATIONAL JOURNAL OF HYGIENE AND ENVIRONMENTAL HEALTH | 4,282 | 4.848 | 0.006360 |
| 12 | ENVIRONMENTAL RESEARCH | 13,420 | 4.732 | 0.021790 |
| 13 | CANCER EPIDEMIOLOGY BIOMARKERS & PREVENTION | 19,976 | 4.554 | 0.029440 |
| 14 | Travel Medicine and Infectious Disease | 1,230 | 4.450 | 0.003610 |
| 15 | INDOOR AIR | 4,382 | 4.396 | 0.004930 |
| 16 | AMERICAN JOURNAL OF PUBLIC HEALTH | 37,368 | 4.380 | 0.066190 |
| 17 | Environmental Health | 4,486 | 4.376 | 0.010680 |
| 18 | AMERICAN JOURNAL OF EPIDEMIOLOGY | 37,181 | 4.322 | 0.042230 |
| 19 | NICOTINE & TOBACCO RESEARCH | 8,476 | 4.291 | 0.022120 |
| 20 | JOURNAL OF CLINICAL EPIDEMIOLOGY | 24,063 | 4.245 | 0.027230 |
| 21 | Journal of Global Health | 754 | 4.195 | 0.003280 |
| 22 | TOBACCO CONTROL | 6,643 | 4.151 | 0.015560 |
| 23 | AMERICAN JOURNAL OF PREVENTIVE MEDICINE | 20,455 | 4.127 | 0.039330 |
| 24 | JOURNAL OF ADOLESCENT HEALTH | 14,174 | 4.098 | 0.026400 |

| Rank | Full Journal Title | Total Cites | Journal Impact Factor | Eigenfactor Score |
|---|---|---|---|---|
| 25 | JOURNAL OF EPIDEMIOLOGY AND COMMUNITY HEALTH | 13,779 | 3.973 | 0.018340 |
| 26 | OCCUPATIONAL AND ENVIRONMENTAL MEDICINE | 8,486 | 3.965 | 0.010280 |
| 27 | Clinical Epidemiology | 2,200 | 3.799 | 0.009690 |
| 28 | PALLIATIVE MEDICINE | 4,636 | 3.780 | 0.008580 |
| 29 | NEUROEPIDEMIOLOGY | 3,261 | 3.697 | 0.005640 |
| 30 | DRUG SAFETY | 4,856 | 3.585 | 0.006600 |
| 31 | Antimicrobial Resistance and Infection Control | 820 | 3.568 | 0.003260 |
| 32 | PREVENTIVE MEDICINE | 14,479 | 3.483 | 0.027380 |
| 33 | JOURNAL OF HOSPITAL INFECTION | 7,523 | 3.354 | 0.010450 |
| 34 | MEDICAL CARE | 18,853 | 3.338 | 0.022590 |
| 35 | Conflict and Health | 543 | 3.305 | 0.002010 |
| 36 | INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGY | 10,374 | 3.084 | 0.019450 |
| 37 | Journal of Exposure Science and Environmental Epidemiology | 3,391 | 3.083 | 0.004840 |
| 38 | Globalization and Health | 1,516 | 3.031 | 0.004670 |
| 39 | SOCIAL SCIENCE & MEDICINE | 40,645 | 3.007 | 0.051980 |
| 40 | HEALTH & PLACE | 5,894 | 3.000 | 0.011380 |
| 41 | ENVIRONMENTAL GEOCHEMISTRY AND HEALTH | 2,841 | 2.994 | 0.003110 |
| 42 | Cancer Epidemiology | 2,796 | 2.888 | 0.009460 |
| 43 | TRANSACTIONS OF THE ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE | 8,744 | 2.820 | 0.006100 |
| 44 | ANNALS OF EPIDEMIOLOGY | 6,531 | 2.804 | 0.010340 |
| 45 | SCANDINAVIAN JOURNAL OF WORK ENVIRONMENT & HEALTH | 4,874 | 2.792 | 0.004830 |
| 46 | PATIENT EDUCATION AND COUNSELING | 11,985 | 2.785 | 0.016290 |
| 47 | EUROPEAN JOURNAL OF PUBLIC HEALTH | 5,511 | 2.782 | 0.013330 |
| 48 | CANCER CAUSES & CONTROL | 7,748 | 2.728 | 0.013250 |
| 49 | JOURNAL OF TOXICOLOGY AND ENVIRONMENTAL HEALTH-PART A-CURRENT ISSUES | 4,136 | 2.706 | 0.003640 |
| 50 | JOURNAL OF MEDICAL SCREENING | 1,263 | 2.689 | 0.002710 |
| 51 | Economics & Human Biology | 1,625 | 2.675 | 0.003780 |



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Globalization and Health

RESEARCH Open Access

# Doctors on the move: a qualitative study on the driving factors in a group of Egyptian physicians migrating to Germany

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## Abstract

**Background:** Migration of physicians has become a global phenomenon with significant implications for the healthcare delivery systems worldwide. The motivations and factors driving physician's migration are complex and continuously evolving. Purpose of this study is to explore the driving forces in a group of Egyptian physicians and final-years medical students preparing to migrate to Germany.

**Methods:** A qualitative study was conducted based on social constructivism epistemology. In five focus group discussions, there participated a total 12 residents and 6 final-year medical students from 7 different training and workplace locations in Egypt. The participants provided information about their motivation and planning for migration. We applied a coding framework based on the concept of push/pull factors and barriers/facilitators for migration, and used Atlas.ti software for analysis.

**Results:** The thematic analysis indicated that the migration within the study's participants results from a specific weighting of push and pull factors. Push factors are considered to be more important than pull factors. Factors related to professional development play a leading role. The route of migration towards Germany is mainly determined by the low hurdle registration and licensing requirements in this destination country compared to other countries. In some cases, Germany is regarded as a "transit country", a step on the road to other European countries. The intent, planning and preparation of migration is assisted considerably by the local formation of a community and culture of migration with multiple ways for information exchange, identity building and social support through face-to-face and online channels.

**Conclusions:** This study specifies – in a group of Egyptian physicians and final-year medical students – the perceived push and pull factors which influenced their intent to migrate to Germany. In addition to the general wealth gap, their particular route of migration is mainly determined by the requirements in licensing and registration procedures for foreign physicians in the potential destination country. The planning and preparation of a move is substantially facilitated by their joining a social network and a community of migrating physicians.

**Keywords:** Medical migration, Egyptian physicians, Germany, Driving forces, Push and pull factors, Facilitators and barriers, Licensing and registration of foreign physicians, Qualitative study, Social networks

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## Background

Migration of skilled heath care professionals in general, and physicians in particular, has become a global movement phenomenon [1–3]. Migration takes place along the wealth gap, commonly from less-developed to more-developed countries and regions around the world [1, 2, 4–6]. This phenomenon has a significant impact on the quality of healthcare systems in the source countries, the "home countries of the professionals who travel to work abroad" as well as destination countries "that recruit or accept health professionals" [7, 8]. The driving forces behind the how and why migration occurs are complex in nature and continuously evolving. While the physicians' migration phenomena have several features in common, new facets still continue to emerge and become unrevealed [9, 10]. In this qualitative study, we explore the driving forces in a group of Egyptian physicians who are planning to migrate to Germany.

The routes of migrating physicians can show specific patterns and directions. For instance, physicians from Pakistan move to the UK, UK physicians move to Canada, and Canadians move to the USA [11], thereby building a chain where physicians are continuously moving from one country to another which has a perceived higher living or health care standard. This migration pattern has been named in the literature the "medical carousel phenomenon", a term which evokes the impression that all stops are equal, which is actually not the case [11, 12]. The World Health Organisation (WHO) issued a Global Code of Practice in 2010 to mitigate the impact of health profession migration on health care delivery; however this has had little effect on migration practices [13].

Several theories have evolved about international migration in general, e.g. the chain migration theory, the network theory, or the institutional theory [14]. With regard to the migration of physicians in particular, the concept of pull and push factors has emerged as a practical framework to explore and study the underlying driving forces in different contexts and around the world [4, 5, 15, 16]. Push factors represent "factors in a health system or country that repel or facilitate the movement of health workers away from that system or country" ([17], p. 45). Pull factors embody "factors in a health system or country that attract or facilitate the movement of health workers towards that system or country" ([17], p. 45). The commonly found pull und push factors have been classified into a) financial factors related to salary structure and healthcare facilities, b) professional factors related to the quality of medical training and working conditions, and c) general sociopolitical factors related to the political climate and general security [4, 5, 17–24].

In addition to push and pull factors, physicians' migration is shaped by facilitators and barriers to mobility, for instance, visa procedures, regulation and legislation for working as a physician, active recruitment as well as human resource and health policies [15, 17, 25]. The most commonly described "barriers to mobility" are visa procedures and licensing and registration requirement for migrating physicians [10, 26]. In turn – although it is far less investigated – mobility is facilitated through the formation of social networks of migrated physicians and those with the intention to migrate. These networks can provide various forms of support and allow exchange of critical information through various channels, among peers preparing for migration and between physicians already working abroad, as well as those who plan to follow, including positive role-modelling. These social networks allow members to develop their own identity and the establishment of their shared beliefs and practices, reflecting the formation of a community and culture around the theme migration [10, 27].

Egypt represents a lower-middle income country in the Middle East. Since 2011, the Egyptian sociopolitical situation has been shaped by a wave of political instabilities related to the Arab Spring uprising. The population is growing quickly. Approximately half of the 81 million Egyptians are between the ages of 15 and 29 years. The unemployment rate is currently 9.7% [28, 29]. Egypt suffers from a shortage of physicians although an average of 10,000 medical students graduates annually from 24 public and 3 private medical schools. The shortage is attributed mainly to the emigration of both qualified trainers and graduates due to low job satisfaction, and a search for better training opportunities [30, 31]. In 2016, the density of physicians was estimated to be 1 physician per 12,285 inhabitants [32]. The emigration of physicians abroad contributes substantially to the physician shortage in Egypt, a loss that cannot be replaced by recruitment of health care personal from Sudan und Rwanda [3, 33]. Common destination choices for Egyptian physicians include Gulf countries, Australia and the European Union (EU), including Germany [3, 12, 34].

Germany is a high-income industrialized European country with a constantly aging population [35]. While the density of physicians in the country is high (1 per 214 inhabitants), there is at the same time a relative shortage of physicians, especially in rural regions. Over the last decade, Germany has experienced a sharp increase in foreign-trained physicians which makes the migration process worth exploring [2, 36, 37]. Currently, 11% of practicing physicians in Germany are foreign born or trained [38]. Germany is a member state of the EU, in which a legal framework regulates mutual recognition of professional qualification and the free mobility of physicians within the EU member states. However, there is no clear regulation for the licensing and registration for non-EU physicians [15, 39]. In the current situation, getting the recognition of professional qualification in one EU country would automatically make them eligible for recognition in any other EU country. This may pose

problems because the standards for licensing and registration of non-EU physicians differ across the EU member states [39, 40], a feature which may likely influence the migration routes of non-EU physicians.

In this qualitative study, we explored the driving forces for migration of physicians in a cohort of Egyptian physicians and final-year medical students preparing to move to Germany. A series on focus groups was conducted in Alexandria, Egypt. The data are analysed using a framework based on push and pull factors as well as on mobility barriers and facilitators.

## Methods

### Study design and setting

Social constructivism epistemology is the underpinning theory for this qualitative study. We explored factors driving immigration of Egyptian physicians to Germany as "being constructed through social interaction" [41].

The study was conducted from February through May 2017 in Alexandria, Egypt. The sampling frame was Egyptian physicians and final-year medical students attending the "German for doctors" course; a 3-week preparatory course for the medical language examination in Germany that takes place in the Goethe Institute and the Medical Syndicate.

With the aim of stimulating interaction among group members, focus groups were heterogeneous as to the status of participants [42]. Unlike the usual number for focus groups (7–10 people), "mini-focus groups" of 5 or less participants were designed for this research to make a compromise between the width and the breadth of data and take into consideration the busy life style of clinical work [43–45]. We employed a maximum variation sampling strategy: different participants (medical students and residents of different specialties) in various sites (university, ministry of health, private and military hospitals) were chosen to allow the study of a broad range of experiences and maximize opportunities to elicit data [41, 46].

Residents were individuals who had already completed their house officer training and who were carrying out their residency within various specialty fields (e.g. radiology, cardiology, ophthalmology, orthopaedic surgery, gastroenterology and endoscopy, anaesthesia, intensive care and urology) and from different locations (main university hospitals, ministry of health hospitals, health insurance hospitals and police hospitals). Final-year medical students were individuals who were within the last 2 years of their undergraduate medical education. That corresponds to the 6th year of study and ends with the bachelor's exam in medicine and surgery, and to the 7th year during which they do their house officer training/internship while rotating in different departments.

### Qualitative data analysis

An iterative data analysis approach was conducted where data analysis took place concurrently with data collection [42]. The focus group discussions were audio-recorded. The data was transcribed and translated into English by the principle researcher (MS). Translated transcripts were analysed using "framework analysis involving familiarization, identifying a thematic framework, indexing, charting, mapping and interpretation" ([42], p., 178). The ATLAS.ti (a computerized indexing system, GmbH, Berlin, Germany) was employed for transcript analysis.

For construction of the coding framework, we drew upon a priori items of the push/pull factors and facilitators/barriers mentioned in the literature [17, 42]. The principle researcher (MS) identified themes and created the initial coding based on three focus group transcripts, after which data saturation was reached. AM and HP revised the coding, and a consensus process followed with work by the other researcher (MS): Finally, coding was continued with the remaining transcripts in the same manner by MS and AM. Overall, the coding was revised iteratively to reflect the data [41].

## Results

### Participants

Five focus group discussions were conducted among a total number of 18 Egyptian participants. They represent 75% of those invited. The focus group consisted of 12 residents stemming from various hospitals in different geographic locations, and 6 undergraduate medical students (2 in the sixth year and 4 in the seventh year as house officers). The focus discussions each lasted between 25 and 63 min. Demographic information of study participants is summarized in Table 1.

### Coding framework

The coding framework was composed of two major themes and is shown in Table 2. All issues brought up by the study participants in relation to migration could be categorized within the push/pull factors and facilitator/barrier frameworks.

#### *Financial push and pull factors*

This theme explores the financial factors driving the migration of the participating Egyptian physicians and final-year medical students. Two subthemes were identified: salary structure and the healthcare system facilities/resources. While the salary structure was perceived to be a push factor from Egypt (Table 3, Quote 1) and a pull factor for Germany (Table 3, Quote 2), financial factors were not seen as a main concern in shaping the decision for migration (Table 3, Quote 3). In comparison with other destination countries; e.g. the Gulf countries, Germany apparently has a less attractive financial power among study participants (Table 3, Quotes 4 and 5).

**Table 1** Demographic data of study participants

| Category | Residents | Students |
|---|---|---|
| Number | *N* = 12 | *N* = 6 |
| Gender | Male/Female = 12/0 | Male/Female = 4/2 |
| Hospital type | Primary care centres: 7<br>Secondary and tertiary care hospitals: 5 | Tertiary care hospital: 6 |
| Geographical location | Alexandria: 11<br>Tanta: 1 | Alexandria: 6 |
| Specialty | Radiology: 2<br>Ophthalmology: 1<br>Anaesthesia: 1<br>Orthopaedic surgery: 2<br>Cardiology: 3<br>Intensive care medicine: 1<br>Gastroenterology and endoscopy: 1<br>Urology: 1 | – |
| Age range | 26–34 years | 23–26 years |

Facilities and resources in the healthcare system were perceived as a push factor rather than a pull factor for immigration (Table 3, Quotes 6 and 7).

### *Professional push and pull factors*

This theme explores the professional factors driving the migration of our study participants. Analysis of the data showed that it was perceived as one of the key factors which had a strong impact on the migration decision. However, it was more relevant for residents and house officers than it was for undergraduate students. Two subthemes were identified:

The availability of quality postgraduate training and learning opportunities in Germany was perceived as a strong attraction, and their absence created a push factor from Egypt (Table 4, Quotes 1 and 2). Physicians and students used emotional language to indicate their frustration with the lack of these opportunities in their home country; frustration and helplessness were reflected on the use of language; see the repetition 3 times of "no more" (Table 4, Quote 3).

Technology and quality of the healthcare system were mentioned as a pull factor for Germany rather than a push factor from Egypt (Table 4, Quote 4).

**Table 2** The four themes of the coding framework

| Theme | Theme title |
|---|---|
| 1 | Financial push and pull factors |
| 2 | Professional push and pull factors |
| 3 | Sociopolitical push and pull factors |
| 4 | Facilitators and barriers of mobility |

**Table 3** Financial push and pull factors

| | Quote | Participant |
|---|---|---|
| 1 | "Because the financial situation in Egypt is very difficult" | Male resident, location 2 |
| 2 | "And I think that another benefit would be the good income which is definitely better than my income in Egypt." | Male resident, location 7 |
| 3 | "Our problem is not about finances, we don't have any financial problems and this is not our motivation for migration" | Female house officer, location 3 |
| 4 | "For me as a specialist, I can earn much more money if I worked in the Gulf countries for example; I will earn much more than I would earn in Germany but still I will take the risk because of the benefit." | Male resident, location 6 |
| 5 | "Because financial issues are not our target. If finance was my main goal, I would have travelled to Arab countries instead of Germany, but my target is to have a good life style" | Male resident, location 4 |
| 6 | "There are no services available and there is a very poor infrastructure" | Male resident, location 3 |
| 7 | "Lack of resources, everything… doctors, resources" | Male resident, location 5 |

### *Sociopolitical push and pull factors*

This theme explores the general political and sociological factors influencing the participants' migration to Germany. Subthemes included political climate (Table 5, Quote 1), the rate of crime and violence (Table 5, Quotes 2 and 3) and improved prospects for one's children (Table 5, Quote 4).

It is worth mentioning that the repelling power of push factors seems to have a bigger impact than the attracting power of pull factors; almost all study participants made the decision to migrate away from Egypt regardless of the choice of destination country (Table 5, Quote 5). Participants expressed mixed views regarding the migration decision; some regarded migration as a temporary decision

**Table 4** Professional push and pull factors

| | Quote | Participant |
|---|---|---|
| 1 | "There is no clear system for the training even for the junior residents. They are just immersed into the new working place and expected to swim, expected to learn by doing without even respecting the guidelines." | Male resident, location 2 |
| 2 | "In Germany I will get a better training." | Male house officer, location 1 |
| 3 | "University hospitals were supposed to be the best place for the training of junior doctors; this is no longer the case. There is no more training, no more learning, no more system, everything is chaotic and disorganized." | Male house officer, location 1 |
| 4 | "Why specifically Germany? Because it has very advanced health care system and medical care; they have very advanced medical technology" | Male resident, location 1 |

**Table 5** Sociopolitical push and pull factors

| | Quote | Participant |
|---|---|---|
| 1 | "I decided to leave Egypt due to all of the disappointments after the Egyptian revolution. I took the decision in 2011." | Male resident, location 3 |
| 2 | "I come from a financially stable family but I don't like the general atmosphere or the safety level." | Female resident, location 3 |
| 3 | "I chose Germany because it is a relatively stable country, and there is freedom; this is very clear. Everyone knows that freedom is their right, unlike here." | Male resident, location 3 |
| 4 | "I am married and I have 2 daughters, I want them to live in a clean place". | Male resident, location 5 |
| 5 | I wanted to leave Egypt and work abroad and the country didn't actually matter. | Male resident, location 2 |
| 6 | "Working abroad is only a temporary, not a final situation; I plan to return back to Egypt" | Male resident, location 1 |
| 7 | "Those who want to work in Germany should stay there forever and never come back. But working there and coming back after a while is useless I think" | Female resident, location 1 |

while others made the decision to migrate permanently (Table 5, Quotes 6 and 7).

### *Facilitators and barriers of mobility*

This theme explores the factors that promote or hinder the migration of participating Egyptian study participants. Five subthemes were identified: the accessibility of the German labour market, the licensing and registration procedures for foreign physicians, being a member of a social network, making use of social support resources, and signs of a culture of migration.

#### German labour market

The situation in the German labour market was considered as a facilitator for migration; almost all study participants agreed on its attractiveness and easy accessibility for foreign physicians; this was mainly attributed to the shortage of physicians in Germany and the abundance of job opportunities (Table 6, Quotes 1 and 2).

#### Licensing and registration procedures

National licensing and registration procedures were considered to be both a facilitator and a barrier, depending on the destination country for migration. Most study participants would prefer to migrate to the USA and the UK; however they are hindered by the laborious licensing exams there, e.g. the United States Medical Licensing Examination (USMLE) or membership of the Royal College of Physicians (MRCP), respectively (Table 6, Quotes 3 and 4). Some participants had even started preparations to migrate to the USA, but were repelled by the time-consuming and expensive USMLE (Table 6, Quote 5) or the visa barrier of the USA (Table 6, Quote 6).

On the contrary, licensing and registration requirements were considered as a facilitator of migration to Germany; in many of the German federal states, a review of credentials and testing in language exams are the only assessments for an immigrating physician (Table 6, Quote 7). Germany was even described as "the easiest way out" (Table 6, Quotes 8 and 9). Within Germany, Saxony was considered one of the most preferred German federal states, in addition to its relatively easy licensing and registration requirements (Table 6, Quotes 10 and 11).

In some cases, Germany was even considered as a transit country and the "entry into Europe" rather than being the long-term destination for migration (Table 6, Quote 12).

#### Social network

Analysis indicated a significant role of face-to-face social networks as well as online social network sites in facilitating migration of study participants. Both were considered to be important and reliable sources of information. In regard to inquiries about the preparation for migration, it was found useful to take advantage of connections with family, friends and colleagues who were either planning to migrate or who had already migrated. A prominent role played online interactions through Facebook groups (Table 6, Quotes 13 and 14).

#### Social support

Both face-to-face social networks and online social network sites were perceived by the study participants to have a supporting function. Types of support could be classified into instrumental social support; i.e. aiding with job application procedures (Table 6, Quotes 15 and 16), informational social support, i.e. advice and exchange of important information (Table 6, Quotes 17 and 18) and emotional support in the form of care and motivation (Table 6, Quote 19).

#### Culture of medical migration

Study participants expressed shared positive attitudes, beliefs and thoughts about migration. This is indicative of forming a migration culture among their relatives, colleagues and friends, and all of that facilitates and encourages further migration (Table 6, Quotes 20 and 21).

## Discussion

Migration of physicians represents a growing global phenomenon and is constantly evolving in response to the ongoing changes in the societies and heath care systems around the world. The present study – investigating a group of Egyptian physicians and final-year medical students – specifies the push and pull factors which drive their intent to migrate to Germany. Beyond the wealth gap, their particular route of migration seems

**Table 6** Facilitators and barriers to migration

| | Quote | Participant |
|---|---|---|
| 1 | "I choose Germany because it is still an open labour market offering many job opportunities for doctors." | Male resident, location 5 |
| 2 | "Why specifically Germany? Because it was the only open opportunity. They need doctors." | Male resident, location 2 |
| 3 | "I think the UK is better…. The problem is the MRCP exam. I thought that the MRCP would be too difficult, it costs too much and there are so many exams to take so I chose Germany because it was easier." | Male resident, location 5 |
| 4 | "I know that the UK is much better than Germany and I knew that from the start but learning the German language was easier for me." | Male resident, location 1 |
| 5 | "I first made a trial with USLME but it was very difficult and the road was too long. So my second option was the German language." | Male resident, location 1 |
| 6 | Moderator: "You already told me that you have the first two parts of the USMLE so why didn't you go" Participant: "Because it's difficult to get the visa. I already applied and I booked an appointment for the clinical skills examination. But my visa was rejected twice. I applied twice but I was rejected." | Male resident, location 5 |
| 7 | "I don't need any further exams to work as a medical doctor in Germany, there is nothing in Germany equivalent to the USMLE or MRCP. I don't need to attend any courses for preparation. Preparation courses for USMLE or MRCP are really very difficult and time-consuming. I love the German language and it's much easier to work in Germany than in the USA or the UK." | Male resident, location 4 |
| 8 | "Because it (Germany) is the easiest way. As a doctor all you need to learn is the German language and then you could work as a medical doctor in Germany. Other countries require accreditation of certificates and they are highly competitive." | Male resident, location 3 |
| 9 | "Why specifically Germany? It's not specifically Germany, It's only the fact that Germany is the easiest way out." | Male resident, location 5 |
| 10 | "Saxony is the easiest, as people say. There, there are more opportunities." | Male resident, location 3 |
| 11 | "Sure, I will start in Saxony because it is easier to get the medical license there, but I am not planning to leave as soon as I get the license. I don't want to work in Saxony." | Male house officer, location 1 |
| 12 | "Why specifically Germany and not any other European country? Because after you have spent some time working as a medical doctor in Germany you could simply move to another European country, even to the UK. The rules have changed last year and a doctor who has been working in Germany can move to work in the UK under certain conditions. You could also migrate to Australia. So Germany gives you flexibility of moving into other countries." | Male resident, location 5 |
| 13 | "I know so many people from my study year who are already working there and I know older colleagues also." | Male resident, location 3 |
| 14 | "I depend mainly on Facebook groups as the main source for information. Doctors who are already living in Germany or who are planning to migrate create groups on Facebook to exchange knowledge and information." | Male resident, location 2 |
| 15 | "I also made some friends when I was in Germany and they helped me to find suitable accommodation and finish all the paper work needed." | Male final year medical student, location 1 |
| 16 | "I have so many friends that I helped with the application." | Male house officer, location 1 |
| 17 | "I have to read the Facebook posts about the tips and tricks regarding the required documents. The website (of the German Embassy) is so vague and unclear." | Male resident, location 3 |
| 18 | "The best thing is the experience of our colleagues. There are so many Egyptian doctors who are already working in Germany since a long time ago. So there is a big pool of experience that we can learn from." | Male resident, location 4 |
| 19 | "My uncle is a German citizen and he was always motivating me to work as a urologist just like he is. And I always wanted to be a urologist." | Male resident, location 6 |
| 20 | "People think that Germany is a paradise, and that being in Germany will automatically solve all their problems" | Female house officer, location 1 |
| 21 | "I took the decision to work abroad when I was an undergraduate medical student. I talked with my colleagues, especially the older ones who have more experience…. My older colleagues … advised me to start preparing myself to work abroad.... The most important thing is to start as early as possible with the preparations for travelling. They advised us to seek any chance to leave Egypt." | Male house officer, location 1 |

chiefly determined by the requirements in licensing and registration procedures for foreign physicians in the potential destination countries. The planning and preparation for going abroad is substantially facilitated by joining a social network and community of migrating physicians with shared beliefs and practices and providing them with key information and social support. In the following we will elaborate and discuss the findings of our study.

The concept of push and pull factors has provided us with a useful framework to identify and categorize main factors influencing the decision to migrate to Germany in our group of Egyptian physicians and final year medical students. Overall, push factors to leave Egypt appeared more important than the pull factors attracting a move to Germany. This is in principle comparable to a study of South African physicians practising in Australia [4]. In our cohort, key factors for the intent to migrate are poor health care facilities, bad working conditions and poor quality of training in the source country and the conviction for better training opportunities in the destination country. This is in concordance with previous studies from South Africa, Cameroon and Pakistan [47–49]. It is however in contrast to studies from Iraq and Romania [24, 50], where the most important pull and push factors were related to salary structure and violence/terrorism. It is of notice that active recruitment activities played no obvious role in our study cohort.

The route of migration was an important theme in this qualitative study which was effected by both push and pull factors as wells as by barriers and facilitators of migration. In most cases, the decision to leave Egypt was made regardless of the choice of the destination country; the repelling power of the push factors was perceived much more strongly than the attractive power of pull factors. The destination of migration was either to the West, i.e. Europe and the USA where the professional pull factors took the upper hand, or to the East, i.e. Gulf countries where financial pull factors played the most significant role. Overall, the cohort of Egyptian physicians and final-year medical students interviewed in this study has decided to go West, thereby giving professional development factors a priority. The subsequent specific choice of the destination country is then further determined by barriers and facilitators of physician mobility. In our study, the participants apparently decided to choose Germany as the destination country itself but also due to the fact that it is part of the EU. Fundamental and facilitating reasons for this decision are the relatively low hurdles in the licensing and registrations procedures for foreign physicians by the official bodies. In some federal states of Germany, this involves merely a review of the applying foreign physician's credentials and a test of the German language [51]. Being licensed in one German federal state automatically allows their further working as a physician anywhere else in Germany; registration by any of the other German federal states is a formal and automatic procedure. Furthermore, it may not be a surprise that some of the participating Egyptian physicians and final-years medical students see Germany primarily as a country of entry into the EU labour market and then simply plan to make use of Germany as a transition country.

In line with choosing Germany as a destination country, there are also perceived barriers associated with other potential routes for migration. While the participating Egyptian physicians and final-year medical students would have preferred the USA or the UK as an ultimate destination country, they considered the hurdle of licensing and registration procedures in those countries too high because of their requirements to pass clinical and practical medical exams (i.e. USMLE in the USA or MRCP in the UK).

As a key facilitating factor in the decision to leave Egypt and migrate to Germany emerges the formation of a local community of migrating Egyptian physicians. The course "German for doctors" provides a formal social network platform that is linked to informal social networks, such as family members, colleagues and Egyptian physicians already working abroad. The face-to-face social network is further extended by online social media network sites for migrating physicians. Facebook is regarded as a highly helpful online resource in our study cohort and actually considered to be more useful than physician' migration-related websites which have been reported previously in the literature [17].

Our analysis indicates that these social networks serve as important sources of information transfer, identity formation and social support, e.g. for instrumental, informational and emotional assistance. These networks connect physicians and medical students planning to leave Egypt with those who have already migrated and are working successfully abroad, including those involved in a positive role-modelling. Thereby, they foster new migration in the sense of "once migration pathways are established, they will stimulate further migration" [52]. Our analysis indicates that around the theme "migration of Egyptian physicians to Germany" a community has developed with its own culture, where the community members offer shared understandings and beliefs of their current situation, including a positive attitude towards migration. They also show shared practices in their planning and preparation procedures. The community transfers the knowledge needed between their members, including the transfer from generations of physicians – who have already successfully migrated – to the future generations of physicians still intending to migrate [53].

Beyond the study itself, our findings may yield a few general implications and perspectives. First, Germany is part of an international carousel for migrating physicians, i.e. it is a destination and a source country at the same time. Leading destination countries are Switzerland, Austria, United Kingdom and the USA [36]. Overall, it seems true that Germany "loses more doctors to emigration than it gains by immigration" and this results in a relative shortage of physicians. ([36], p. 37). Secondly, the EU may consider establishing a general framework for the

licensing and registration requirement for non-EU physicians entering, similar to the framework already undertaken to manage the migration of physicians within the EU. Low hurdle procedures in one or more EU countries may potentially impair the quality of the healthcare system and patients' safety in those countries, but due to the free mobility of physicians within the EU, it could still affect the patients' care in the other EU countries.

This qualitative research study has some limitations. One is language, because the focus groups' discussions were conducted in the participants' native language, namely Arabic. The translation into English may have affected the original meaning that is constructed rather than expressed by language [54]. Translation also compromises a full discourse analysis and was a barrier against listening to audiotape while reading transcripts; that is a step which would have ensured more accuracy of interpretation [42]. Another limitation is selection bias. We invited only physicians and final-year medical students who are attending the preparatory course for the medical language examination in Germany. Most of our study participants were male physicians; although, this represents the male-to-female ratio of the "German for doctors" course participants. This may be a source of bias but it reflects the conservative Egyptian culture where most families don't allow their daughters to travel long distances even within Egypt, or let them alone migrate to Europe [55]. Furthermore, the findings of this study represent the experiences and views of Egyptian physicians and final-year medical students. That should not be generalized to physicians migrating in from other countries.

## Conclusions

The migration of Egyptian physicians and final-year medical students to Germany is driven by a specific weighting of push and pull factors. Push factors are more important than pull factors, and professional development factors play a leading role. The route of migration is mainly determined by the importance of low hurdle registration and licensing requirements in the destination country. The planning and preparation of migration is substantially facilitated by the local formation of a community and culture of migration with multiple sources for information exchange, identify formation and social support through face-to-face and online channels.

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**Availability of data and materials**
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**Authors' contributions**
MS, AM and HP were responsible for conception and design of the study, data interpretation, as well as drafting and revising the manuscript. MS was responsible for data acquisition and initial coding. AM and HP revised the coding. All authors read and approved the final manuscript.

**Ethics approval and consent to participate**
This research has been approved by the data protection office at the Charité – Universitätsmedizin Berlin on the 9th of June, 2017 and by the ethics committee at the Charité – Universitätsmedizin Berlin on the 21st of September 2017. Anonymity was assured; a consent form was signed by participants who also provided basic demographic data.

**Consent for publication**
This is not applicable here.

**Competing interests**
The authors declare that they have no competing interests.

## Publisher's Note



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## Lebenslauf

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## Publikationsliste

1. Oral presentation "*Evaluation of Integrated medical curricula - the MaReCuM experience as perceived by students, faculty and curriculum planers in Mannheim School of medicine in Germany*" at the doctoral scientific monthly meeting in Ludwig-Maximilian Universität, München, Germany, October 2013
2. Oral presentation "Gender inequalities in medical education: accessibility of orthopedic training for female interns in Egypt" at the Forum Transregionaler Studien, International Winter Academy at the Humboldt-Universität Berlin and the Wissenschaftszentrum Berlin für Sozialforschung (WZB), November 2014
3. Oral presentation of the master thesis titled " A house officer and junior residents' formal and informal learning experience during the practical year compared to the national competency framework" at the Association for the Study of Medical Education (ASME) conference in Edinburgh, July 2015
4. Short communication at the First World Summit on Competency Based Education, Barcelona 27th of August 2016 "The evolution of competency frameworks from business to international medical education
5. Short communication at the conference of the Association of Medical Education in Europe AMEE August 2016 in Barcelona "You'll never be a surgeon anyway" Gender effect on medical internship learning opportunities"
6. Doctoral report presentation at the conference of the Association of Medical Education in Europe AMEE August 2018 in Basel "Is the grass always greener on the other side? A qualitative study on the expectations of migrating physicians compared to reality
7. Marmon, W., Arnold, U., Maaz, A., Schumann, M. and Peters, H., 2018. Welcome, Orientation, Language Training: a project at the Charité for new international medical students. *GMS journal for medical education*, *35*(5).
8. Schumann, M., Maaz, A. and Peters, H., 2019. Doctors on the move: a qualitative study on the driving factors in a group of Egyptian physicians migrating to Germany. *Globalization and health*, *15*(1), p.2.
9. Short communication at the conference of the Association of Medical Education in Europe AMEE August 2019 in Vienna "My name is not Schneider": a qualitative study on the social integration of immigrating Middle-East physicians in Germany

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