Mobile phones and the preservation of well-being in Egyptian families

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Abstract— In the past 10 years the number of mobile phone subscribers in Egypt has climbed to over 20 million, representing 27 percent of the country's population. Research on mobile phones in the public health context has traditionally focused on the hazards of using the technology while driving and the risk perceptions of radiation from handsets and cell towers. The contribution of mobile phones within the general population towards enhancing health and health service delivery is generally taken for granted. The most prominent role that mobile phones play within Egyptian families is that of a preserver of physical and mental well-being. Through enhanced family communication, family members report experiencing an improved sense of safety and security at a time of social change during which there is a shift from extended families to nuclear families and increased migration to pursue employment and educational opportunities. This paper describes findings from a qualitative study of the direct and indirect health-related benefits of mobile phones in Minia Governorate, Egypt.

Among family members mobile phone uses associated with work and social interaction contribute to economic and psychological well-being, and a by-product of possessing the technology is the increased capacity to mobilize support for emergency health care in order to maintain physical well-being. Before mobile phones and associated increases in fixed-line telephones, most Egyptians besides those residing in major cities had to go outside of the home to make phone calls. Their options included not making phone calls (and *'leaving things to God'*), telegrams, local telephone stations known as *centrales* mostly located in urban and peri-urban communities, pay phone booths, and private land-lines owned by wealthier neighbors willing to share their fixed-line in emergency situations. For husbands, wives, children, aging parents, and siblings mobile phones enable direct contact to mobilize collective responses to problems as they occur. This enables them to attain reassurance particularly in mitigating the effects of motor vehicle accidents, caring for sick children and aging parents, and maintaining harmony in marital and pre-marital relations.

Index Terms—**mHealth, mobile phones, well-being, public health, low and middle income countries**

I. INTRODUCTION: MOBILE PHONES AND EGYPTIAN SOCIETY

Mobile phones have become a visible part of the lives of millions of people throughout the world. As of December 2007, there were reportedly over 3.5 billion mobile phone subscribers in a population of 3.3 billion people. However widespread mobile phones have become globally, there is limited empirical data that directly addresses or documents their use and related social change in developing countries.

This paper focuses on the use of mobile phones by families in Minia, Egypt in their efforts to attain perceived health-related benefits. The perceived benefits to the health of Egyptian society included improved responsiveness to medical emergencies, improved access to and coordination of general health services, and the preservation of the well-being of family members. The study contributes to several growing bodies of literature, namely mobile phones and health, mobile phones within society, and mobile phones in developing countries, and is based on research that primarily relied on ethnography to explore the intersection between key social constructs associated with mobile phones and health and well-being in a developing country context. This was supported by the use of qualitative research methods to provide descriptive explanations for how the introduction of mobile phones affects segments of society in a particular context, namely those who access health services through the use of mobile phones.

Minia Governorate, located in Upper Egypt (southern part of the country) contains Minia town and 57 villages and was chosen because it is a predominantly rural governorate with poor telecommunications infrastructure prior to the introduction of mobile phones. It also provides a diverse cross section of people of varying socioeconomic status as well as remoteness to health facilities. The study was conducted at a time in which respondents were able to describe their experiences as early adopters and reflect on changes derived from newly acquired mobile phones.

Using an Ethnographic Field Guide as a starting point, a series of open-ended questions were used in a variety of configurations based on the type and nature of

respondents. The questions focused on their general and specific perceptions and behaviours related to health care and the social determinants of health when and since mobile phones first became available in Egypt. During four months in Egypt, 66 in-depth interviews were conducted with a variety of key stakeholders both within the health sector as well as in the general population in the governorate of Minia. Of the 66 individuals interviewed, 53 were current mobile phone users, ten were non-users, three were former users; 44 were men and 22 were women; and 24 were health professionals and 42 were lay users. Respondent ages ranged from 19-51 years.

A. *Mobile Phones and Well-being & Social Change*

Similar to the rest of the Arab Region, the family in Egypt is the foremost social institution [17]. When acknowledging the WHO definition of health as the maintenance of a state of "physical, mental, and social well-being," and exploring the perceived health benefits of mobile phones in Minia, Egypt, there was a strong association between the technology and assuring the well-being of family members. Jon Agar describes this dynamic in his modern historical review of mobile phones, aptly entitled Constant Touch: A History of the Mobile Phone.

> Mobile phones are carried as part of the complex strategies that we all develop for dealing with the risks and dangers of modern life. So a phone is bought by parents for a son or daughter who is leaving home as a student, or for a teenager who is starting to stay out late at night, as an act of reassurance. Should they ever be in trouble, they will not lack the means of contact. The diminishing guardianship of family is replaced by the constant touch of the mobile phone. [2, p. 139]

The most widely documented benefit derived from mobile phones is the capacity to be in motion and communicate at the same time. According to Rich Ling, a mobile phone sociologist, the mobile phone completed the revolution towards mobility that began with the invention of the automobile [21]. The automobile has increased mobility over land between geographic locations, while the mobile phone has enabled communication while in motion. Similarly, "the

mobile phone becomes a kind of place where its owner can be found" [18, p. 34]. This is of particular relevance to the coordination and organization of activity, particularly in developing countries which did not have previous access to fixed-line telephones.

Mobile phones are a catalyst or support mechanism for pre-existing trends within society. Similarly social change, Leslie Haddon argues, has the potential to set the precondition for how mobile phones are in turn domesticated [12]. Social change in Egypt is broadening distances between family members as well as supporting a trend towards a more individualist society [3] in the country. Many of the familial mobile phone trends observed in the study are either exacerbating existing trends in gender relations or forging new territory for future exploration in the broader context of social change in Egypt.

B. *Telecommunications Trends*

At the time of data collection (2002-2003), a recent study of fixed-line telephones in Egypt looking at teledensity (number of working telephone lines per 100 inhabitants) and teleaccessability (number of home lines per 100 households) had been conducted in Egypt to determine the telecommunications infrastructure needs of the country. The study determined that the overall teledensity of Egypt was 9.82 with teleaccessibility at 40.37 [16]. These statistics vary significantly from urban areas to rural. For example, the governorate of Cairo's teledensity and teleaccessibility were 24.38 and 84.15 respectively, while Minia, a predominantly rural governorate, had a teledensity and teleaccessibility of 3.21 and 14.41 respectively in 2001 [16]. Poorer, more rural regions have much lower access to working fixed-line telephones [16]. At the time, the cost of installing a fixed-line telephone into a household was prohibitive for most Egyptian households at $260 USD, which was nearly half of the yearly income of half of the country's population. Once the line is installed, the rental per month is $1.50 USD and local calls cost $1.80 USD per hour.

The mobile phone networks covered and services were made available to the major inhabited parts of Egypt along the Nile by 1998. Mobile phones could be purchased in payment installments, as second hand devices, and with pre-paid phone service. At the time of my data collection, the average cost of one hour of mobile phone time was $8 USD [1]. Based on reports from the two major mobile phone service providers, MobiNil and Click (Vodafone) in 2002, there were over 3.3 million mobile phone subscribers in Egypt. These

figures have since continued to increase to 10.3 million fixed-line telephone and 14 million mobile phone subscribers reported at the beginning of 2006 [32] and to 20.3 million by March 2007 [9].

The profile of the mobile phone user in Egypt at the time of the study was quite diverse. In the study sample, there were a range of professionals who felt that the mobile phone would facilitate their work. The major groupings of these early adopters included medical professionals, mostly health administrators, physicians and pharmacists; businesspeople- especially engaged in the buying and selling of goods; truck and automobile drivers; and students. People who travelled for work and study were also more likely to invest in buying a mobile phone.

C. Egyptian Context

Recent movements within Egypt to harness the potential of information and communication technology have resulted in strategic developments for the integration of technology in both the education and health sectors [10]. The Arab Republic of Egypt is a predominantly desert country located in northeast Africa, spanning approximately one million square kilometres and sharing borders with the Mediterranean Sea, Libya, Sudan, and the Red Sea. The population of the country, approximately 66 million in 2002 [30], inhabits only six percent of Egypt's geographic area, mostly in the Nile delta and along the narrow southern part of the Nile River [10].

Egypt has been categorized as a *lower middle income* country by the World Bank along with countries such as Colombia, Dominican Republic, Jordan, and Thailand. The Gross National Income (GNI) per capita was $1,490 USD [31]. One of the major problems in Egypt as in many countries is an uneven distribution of wealth. Twenty-two point nine percent (22.9%) of Egyptians lived below the poverty line in 1995-96 and 52.7 percent (52.7%) earn less than $2 USD per day [31].

Life expectancy has risen significantly over the past sixty years. In 2000 it was 65.4 for males and 69.1 for females [24], which is slightly lower than other *low middle income* countries [31]. There is evidence that overall quality of life in rural Egypt has been gradually improving [15]. In Minia in 1996, 80.6 percent of the population was living in rural areas [28]. As of 1999 households in Minia Governorate reported having electricity (93%), radios (57.8 %), and televisions (78.6%) [28]. These figures are lower by varying degrees than those for Egypt as a whole. Literacy rates in 1998 this were 41 percent (41%) for people over the age of 15 with a female literacy rate of 26.2 percent (26.2%) [28]. These and other statistics including education and employment are similarly lower for women as well as people living in rural areas [28]. In light of statistical differentials within development indicators between men and women, it is worth noting some key cultural considerations regarding gender in Egypt.

1) Gender

In Egypt, the gender of an individual defines much of how s/he will be perceived by the people with whom s/he associates with during his/her life. A daughter is traditionally viewed with a sense of ambivalence primarily because of the expectation that she will eventually leave her household to join that of her husband.

> [In Egypt] the birth of a female child is reacted to negatively by the family and the culture for a number of social reasons. Even though she will be expected to assist her mother in the household, her [labour] will eventually belong to her husband's family. There is also fear that a girl can be a source of shame if she breaks existing sexual rules. Given these concerns, mothers react to the birth of a daughter with ambivalence. [14, p. 295]

This ambivalence towards female children extends to engendered uses of mobile phones within Egyptian society, particularly for the control and protection over a young woman's integrity and marriageability.

In Egypt there has been an ongoing transition to nuclear families instead of traditional extended families [3, 27]. There is also an increased need for a woman to contribute to household income as well as continue in her role as primary caretaker of her husband and children [3, 6]. For women in rural settings this mostly consists of agriculture or petty commodity jobs. Women in 1996 in Minia represented 12 percent of the labour force, 24.1 percent of professional and technical staff, and 12.3 percent of legislative and managerial staff [28].

There are gender implications for how mobile phones contribute to extending the support structure network for women, particularly as they are increasingly not living

within extended family households. Most women (and men for that matter) prefer to contact their mothers when they require decision-making support related to health and treatment of illness options. These sorts of communication are becoming more frequent and efficient with the increased uptake and use of mobile and fixed-line telephones by Egyptian families.

2) Social change and the Egyptian family

Before presenting the data related to mobile phones and family well-being, it is important to introduce critical aspects of social change being experienced in Egypt. Egyptians are increasingly mobile. Extended families are becoming exceptional and nuclear households living in separate geographic locations the norm. Young people are travelling more for education as well as employment opportunities. Husbands are continuing a trend towards migration for work to other Arab countries. Along with an aging population, such movements are creating changes in both husband and wife as well as parent and child communication. Mobile phones entered Egypt at a time in which these dynamic changes within society were being experienced by more and more families. Although some observers might attribute aspects of social change to mobile phones, my observation based on comparisons of the empirical data with demographic and other ethnographic and sociological studies of Egyptian society is that mobile phones are a catalyst or support mechanism for pre-existing trends within society. In addition social change, Leslie Haddon argues, has the potential to set the precondition for how mobile phones are in turn domesticated [12].

Some of the key changes in Egyptian families that are now being intensified by mobile phones include:

- Movements away from extended family households to nuclear family structures [3, 27]

- Increased need for women to join the labour force [3, 6]

- Increased dependence on money income and consumerism [5]

- Migration of men for work and increasing number of female heads of household [3]

- Shifts towards an aging population [17, 22]

- Changes in parent-child relations [4]

These trends are contributing to dramatic changes for Egyptian households particularly with respect to the dynamics of husband-wife, parent-child, and male-female relationships. These changes are both trans- and inter-generational as family members cope with increasing distance between their nuclear family unit and the traditional support as well as control over decision-making from the extended family. Within nuclear families, travel for education and work is also more frequent for men, women, as well as youth. This is extending distances between members as well as supporting a trend towards a more individualist society [3]. One father who travels for work as a driver described calling his children: "If I am on duty at a distant place … and I am late, it is very difficult to find a phone, so I call my children to assure them that I am doing fine. Also they could call me at anytime to know where I am." One can legitimately speculate that mobile phones and overall improvements in access to telecommunications are easing some of these trends by enabling contact when needed to support the psychological well-being of family members.

Increased costs of living and focus on a money-driven economy are having two broad effects within Egyptian families: more frequent migration of men for work within Egypt and abroad as well as increases in women joining the labour force. "Women are forced to seek employment outside their homes to help pay for the increasing costs of educating and rearing children" [3, p. 172]. The result of both dynamics is an increased need for income and involvement of women as heads of households well as decision-makers over the allocation of household resources and other social aspects of daily life. Mobile phones in such situations enable families to increase their household income as well as maintain contact with migrated wage earners. They also enable women to maintain three roles within the household simultaneously as wives, mothers, and wage-earners. Many of the familial mobile phone trends identified in the study are either exacerbating existing trends in gender relations or forging new territory for future exploration in the broader context of social change in Egypt, particularly in support of maintaining economic well-being of the household.

II. RESULTS: PRESERVING PHYSICAL AND PSYCHOLOGICAL WELL-BEING

Both direct and in-direct health benefits derived from mobile phones are associated with a family's overall aim to secure the well-being of its members. Hania Sholkhamy, an Egyptian medical anthropologist, argues that the preservation of well-being should be recognized as a form of disease prevention and impact mitigation

for health conditions [26]. The holistic context in which mobile phones are used provides a more complete picture of potential interactions for health benefits apart from when they are used to address a specific health problem. The use of mobile phones by family members contributes to the broader **social determinants of health**.

In general, mobile phones were described by respondents in Minia as enabling 1) mobility, 2) the transfer of information regarding personal conditions (status), and 3) coordination of solutions to problems at a distance. This reportedly produced an increased sense of security that within an instant contact can be made with family members who can provide guidance, information, comfort, or mobile support. The converse as illustrated within the broader literature of mobile phones was also observed in Egypt.

During my data collection I specifically asked respondents what their *ruk'ya* or opinion was regarding the mobile phone. Those who expressed that it was positive described the technology as *good*, *the best*, or *useful*. Those who had the most positive things to say about mobile phones were respondents who did not have fixed-line telephones (predominantly in rural areas) and/or were from the isolated village in my sample, for which the technology is the sole means of telecommunication. Several respondents divided their responses into categories of *work* and *social life* with opinions on each. For those with mixed opinions this usually was expressed as, *"the mobile is useful for my work, but not my social life"* or vice versa. Respondents with mixed opinions also expressed them in terms of their experience over time. *"At first I thought they were good, but then..."* or *"at first I resisted, and then decided to buy one."* In terms of negative opinions, these were frequently linked to harassment between young men and women and to cost and/or complaints by adults about students and youth who generate cost from mobiles which are supported by their parents. These findings were similar to other mobile phone studies [7, 19, 23]. Students as a specific user group were frequently referenced as a group that has both benefited from mobile use, but also has perpetuated negative social change particularly in the development of male-female relationships with limited parental control.

Throughout the study, respondents described their mobile phone utilization purposes in relation to three major inter-related types of well-being that can be categorised within the following groups: *physical, mental* or *psychological,* and *economic well-being.* In relation to physical well-being, mobile phones are carried and distributed as part of a family's strategy to minimize the negative health impact of emergencies such as automobile accidents, routine, and chronic illness. The mobile phone is viewed as a tool to be carried "just in case" to mitigate the impact of physical harm particularly while travelling. Mobile phones provide assurance that individual members are fine when they are away from home, and that they have a means of direct communication should an emergency arise. In relation to enhancing economic well-being through business and other work-related uses, respondents described how they use their mobile phones to increase their revenues and income. Although this aspect was discussed by several respondents it had the weakest connection to health and will not be addressed in the context of this paper.

A. *Preserving physical well-being for those away from home*

In Minia, mobile phones are carried and distributed to family members *ih'tiyati* "just in case" they require remote assistance to deal with an emergency or unexpected situation. The domestication of mobile phones by families is interlinked with the household strategies for the preservation of physical well-being and mitigation of impact of health care emergencies. For households, mobile phones provide an efficient means to mobilise support and the capacity to enable contact among family members who maintain stand-by roles irrespective of location [11, 23, 25].

The subject of emergency health care in relation to mobile phones dominated discussions about potential health-related uses as well as empirical experiences. In the study sample almost all of the 66 respondents were able to describe a specific personal emergency care experience in which they used their mobile phones to improve access to emergency services. Among respondents emergencies ranged from reporting motor vehicle crashes to addressing the needs of aging parents to reporting accidents that they saw in the Nile River and tributaries.

In order to preserve the ability of respondents to recall details of empirical experiences, they were asked to share information regarding their last three phone calls to and from a mobile phone. A 23-year-old football coach answered that his last three phone calls were all related to helping his sister with a situation involving an injury sustained by her daughter as she tried to disembark from a moving minibus. The sister called from her mobile phone to her brother's mobile phone, and he was able to organize the necessary support.

> *My sister did not have an experience like that before in her life and when the accident occurred to her daughter*

and she got injured, my sister did not know what to do, she could not act alone, she called me and I helped her. So the mobile was very useful in that situation, she called me and found me at once.
Football coach; age 23; male; peri-urban; user

Prior to the mobile phone, the respondent's sister would have had to tend to her daughter's injury on her own. In this situation she was able to consult with someone she knows that can provide the information and guidance she needs to manage her daughter's condition.

1) Accessing emergency services through intermediaries

The use of *intermediaries* to access health services, transportation, and information, emerged as a prominent theme in interviews. *Intermediaries* use mobile phones or are contacted from a mobile phone to access services and information on behalf of others. This manifested itself as individuals used mobile phones to mobilize support on their own behalf or that of a relative or stranger (altruism).

In the case of information transfer and communication, the family in Egypt has become a central point for communication to access emergency transportation, health services, and information. Families were viewed as both more efficient and reliable in dealing with such situations than government supported systems, particularly in minimizing the impact of emergencies through faster mobilization of transportation to health facilities.

For some respondents it was the witnessing or experiencing of an emergency which motivated them to purchase the technology, especially individuals who own automobiles. One example of buying a mobile phone in "case of emergency" was shared by a respondent who uses his mobile phone to reassure his children.

There had been an accident on the highway of Samalut. It was a taxi and it turned upside down. That was two years ago, and the news had spread, and on that day I was working, and I returned late. I found my wife in a hysterical condition and when I asked her what was wrong, she told me that she didn't know anything about me,

and she heard that there was a taxi accident, and that I was late. So at that moment I felt that the mobile would be useful.
Driver; age 35; male; urban; user

2) "Mobilizing" mothers and children for health-related support

In efforts to preserve the physical well-being of household members, mothers emerged as having a prominent role as sources of health information in addressing the general health needs of their children who reside within the same household as well as those travelling for work or study. Primarily in rural households mothers and children use mobile phones to monitor health-related issues in the absence of fixed-line telephones. In urban households, mothers reported using mobile phones when they are off-site to monitor the progress of their children's recovery from illnesses such as colds, flu bugs, and stomach viruses.

A newly married 25-year-old who moved away from her family to live with her husband's family as is the custom in Egypt, explained that there were very few educated people in her new rural home environment with whom to consult about health-related problems. As a result she primarily consults with her mother, whom she describes as being older, understanding, and experienced, on behalf of her newborn child. Her mother regularly contacts her from a fixed-line telephone on the household mobile phone. This communication pattern was similar to that described in a study by Harrison et. al. which explored breastfeeding and weaning practices among women in Egypt [13].

With increased distances between nuclear and extended families, the burden of caring for aging parents, particularly for the treatment of chronic diseases, is increasingly being managed and coordinated among multiple nuclear households from a distance. An elderly fruit-seller in a rural outdoor market, who could not read or write, bought a mobile phone so that he and his wife could communicate with their children in case of emergencies. Globally, the market has increasingly been targeting older consumers (as the young and business oriented have already been reached) "presenting the mobile phone as a safety technology of last resort" [2, p. 141]. For those caring for aging parents calls were primarily related to the coordination of access to medical treatment and the financial resources needed to pay for it.

As documented by a number of mobile phone researchers, the elderly are also more able to communicate instantaneously with their children as well as health care professionals for guidance on their health than they were prior to having a mobile phone [2, 12, 21]. For this particular cohort as well as others who are struggling with health issues, social support has been found to provide positive effects for improved healing and recovery for a variety of conditions through the minimization of feelings of isolation [8]. Mobile phones have the potential to enable individuals to experience social support in aspects, borrowing the words of Sidney Cobb written thirty years ago, that make them feel that s/he is *cared for and loved*, *esteemed and valued*, and *belongs to a network of communication and mutual obligation* [8].

B. Maintaining psychological well-being and the changing roles of women

With increased mobility from portable communications capacity, the role of women in and outside of the home may be shifting [11]. Most women with access to mobile phones in Minia did not have previous access to fixed-line telephones. As such, mobile phones improve their sense of connectedness to social networks. In relation to young people, they help parents, especially mothers, maintain a sense of awareness of their children's whereabouts [12, 21]. The literature on mobile phones in society likens the technology to "an umbilical cord" within parent- child relations, whereby both parents and children have an increased sense of security when they are apart [11, 20].

The utilization of mobile phones for the preservation of "peace of mind" was prominent among respondents, particularly among women. Married women are attaining greater levels of freedom; however their mobility remains controlled by the traditional focus on their roles as wives, mothers, and increasingly members of the labour force. Adolescent boys and girls and recent university graduates are increasingly achieving greater levels of freedom with the facilitation of their travel for education as well as work with fewer responsibilities. Apart from *daily assurance* or *addressing household errands*, *solving problems* was the primary focus of phone conversations among family members.

1) Marital relations

As social change in Egypt dramatically impacts on the lives of families, the most documented aspect is related to married couples as well as marriage prospects. Eight female and seven male respondents mentioned that they use mobile phones to facilitate contact with their spouses. The range of communication topics as experienced by husbands and wives primarily focused on one of three major themes: 1) *communicating delays* in return home to let a spouse know that s/he will be late; 2) *confirming location* when travelling; and 3) *requesting items* to be brought home.

For one husband/wife pair with whom separate interviews were conducted, dynamics of utilization were described in confirmation of traditionally Egyptian patriarchal norms. The husband is the household wage earner who travels for work, leaving the mobile phone at home so that he can contact his family. According to his wife, he has taught her only how to answer calls, but not how to use the phone to initiate calls so that she will not waste minutes on frivolous conversations.

> From the husband's transcript:
> *They (my family) can call me anytime if they need something. Also, I go to Cairo a lot, and I am home every now and then. Sometimes I leave the mobile to my wife here because we do not have a phone at home, so I can make sure she is fine, and if they need anything from Cairo, it is easy for me to call them from work.*
> **Manufacturer; age 28; male; isolated village; user**

> From the wife's transcript:
> *I only receive calls, sometimes my husband leaves it to know how we are doing, and he taught me how to receive calls, and he doesn't want to show me how to use it. He is afraid to lose the card balance. And, I am afraid to play with it in order not to damage it. When my husband leaves it with me, I only receive calls.*
> **Housewife; age 25; female; isolated village; user**

In this case the mobile phone provides peace of mind to the wife, while the husband's control over knowledge of the use of the technology reinforces key cultural gender norms. This example highlights some of the aspects of engendered technological control described by Judy Wacjman in a review of feminist perspectives of technology [29]. In addition, to maintain their authority in the marriage relationship, men require that their wives seek permission for specific outings as well as to inform them of potential delays. Such dynamics reaffirm a man's position within the marriage relationship, while

resulting in increased mobility for the woman and enabling her to work and study outside of the home and in some cases outside of the home city or village as described by a woman from Cairo working in Minia.

With increased mobility for women, mobile phones provide working mothers with a means to ensure that household duties are addressed and maintained in spite of their physical absence from the home. The increased mobility for women avails them of additional opportunities for employment outside of the home contributing to increases in household income and enhanced economic well-being for the family. The changes for mothers as care providers are being facilitated by their own use of mobile phones as well as that of children who are outside of the home. This parallels the notion of the role of the mobile phone in enabling both remote mothering and remote work described by Hans Geser in a sociological review of the technology [11].

2) Pre-marital relations

Parents, students, and teachers all recounted that there is peer pressure among university-aged girls as well as boys to have a mobile phone. Thirty respondents focused some part of their discussions on the changes in youth dynamics as a major social change in Minia resulting from mobile phones with preferential distribution to girls who travel over boys.

The need for connectedness to girls is related to maintaining control from a distance particularly to avoid grey areas in the future marriage prospects of young women. As described by one mother below, it is due to the increasing caution regarding direct social interactions across the sexes.

> *When a girl between 17 and 18 years old goes to the college and she has a mobile, she will need some control, because the mobile facilitates many things, that is why there must be some way of control. It is not a good thing that boys and girls in that age have mobiles, unless there is some control.*
> **Receptionist at a health unit; age 44; female; peri-urban; user**

Twenty respondents described the risk of harassment and concerns over the perceived dishonouring of girls. The following example specifically focuses on problems caused by friends sharing numbers and receiving harassing phone calls from boys creating strains in formal engagement and marriage relations.

> *Boys could call, or send a message, and the students call a number and know that the number belongs to a girl, and he could tell her that her friend gave it to him. And, the girl might be engaged, and he gave her a ring while she is with her fiancée, and problems might occur in that situation. Also if someone is married and that happens, she could be divorced, or her fiancé might leave her. The mobile is a very big problem concerning harassments.*
> **Student from Sharm el Sheikh; age 19; female; urban; user**

The risk for young girls of such problems with fiancés and husbands has negative side effects on their own psychological well-being in addition to that of their parents whose goals often are to ensure a socially acceptable marriage for their daughters. By contrast there was little talk during my research, however, of the potential effect of such interactions for boys. When I asked one male respondent if he had ever experienced harassment on his mobile phone, he emphatically replied, *"I am a man, who could harass me?!"*

In 1998, a research program entitled, "Adolescence and Social Change in Egypt" was launched. A national survey was conducted with a total of 7,256 households with at least one member between the ages of ten and 19 years of age. As part of this program 9,128 adolescents were interviewed. According to a paper entitled, "Social Change and Adolescent-Parent Dynamics in Egypt," parent-child communications are shifting in varying degrees towards more egalitarianism [4]. Much of this is linked to the education levels of parents as well as the physical mobility of sons and daughters for higher education. The first noteworthy trend was that of boys towards embracing traditions in their best interest as males, whereby girls are much more willing to accept and advocate for social change. Another noteworthy trend is that daughters of mothers with higher education are more likely to pursue education and work away from home [4]. It is in scenarios such as this that mobile phones are both catalyzing and easing pre-existing social change.

III. CONCLUSION

Mobile phones entered Egypt at a time in which dynamic changes within society were being experienced by more and more families. Although some observers might attribute aspects of social change to mobile

phones, my observation based on comparisons of the empirical data with demographic and other ethnographic and sociological studies of Egyptian society is that mobile phones are a catalyst or support mechanism for pre-existing trends within society.

Often taken for granted, improved telecommunications is influencing health and well-being, particularly in developing countries where there was limited capacity for communication prior to the introduction of mobile phones. In Egypt, the family is the focal point for decisions regarding mobile phone use as well as health. Mobile phones are making important, often unacknowledged, contributions towards improving economic conditions, assuring the well-being of family members, and enabling availability and accessibility to deal with "unexpected situations" and emergencies as they occur.

> Family and community spheres of social identification and cultural outlooks [in Egypt] are complemented by new social encounters and new social networks. Education and work abroad, as well as television and radio [and mobile phones], provide new flows of information and cultural norms. [5, p. 184]

Improvements in telecommunications in Egypt (mobile phones and fixed-line telephones) are strengthening family-focused support systems particularly for physical and psychological well-being, easing social change through direct and immediate contact irrespective of geographic location.

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