Community-based interventions to support maternal and child health practices in Upper Egypt

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Abstract

Background: Actions to improve mother and child health should address the needs and demands of the local population. Community-based interventions contribute to understanding the current situation, mobilization of local resources, commitment to achievements and better chance for sustainability.

Aims: This is a community-based intervention implemented in two Upper Egypt governorates to improve coverage of selected maternal and child health interventions in Egyptian villages.

Methods: The study was conducted between May 2016 and December 2017. The National Population Council (NPC) started communication with Governorate leaders, Directors of Local Unit, Health District and Health Unit to facilitate implementation. A three-day training of trainers (ToT) workshop was held for eight public health universities' staff from two selected governorates. More than 30 NPC coordinators were trained for using an observation checklist. University trainers implemented a four-day workshop attended by 37 Mother and Child Friends (MCF) participants from Fayoum and 38 from Beni-Sweif. The MCF team selected 1200 women to attend the Health education (HE) sessions, and a total of 143 and 121 women participated in the focus group discussions (FGDs) before the first and after the last HE session for evaluation.

Results: An 18 items pre-test questionnaire completed by the trainees was useful to identify major gaps in knowledge and to evaluate the effect of training. There was significant improvement in the post-test in Fayoum (15.6 ± 1.3 SD) and in Beni-Sweif (14.1± 1.5 SD). Likert scale evaluation revealed MCF satisfaction with the training and MCF team provided HE to the participants. Most of the sessions had no negative comments by the observers. FGDs held after the HE classes revealed positive changes in the participants’ knowledge and attitude.

Conclusions: Implementation revealed that more needs were expressed by women and the MCF team. Future activities should consider customization to address community needs and expectations.

Keywords: Community-based interventions, maternal health, child health, health education, Egypt

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Introduction
The Egyptian government is paying great attention to the achievement of the Sustainable Development Goals (SDGs), as expressed in the document “Strategy for Sustainable Development – Egypt Vision 2030” (1). The National Population Strategy 2015–2030 (2) addressed maternal health, child health and family planning; both documents identified strategies and defined the national indicators used. The National Population Council (NPC) realized the need for disaggregated data and identified more than 70 indicators and developed “composite indicators” at the level of the governorates and districts, which were classified into three levels: green zone for best indicators, yellow zone for moderate, and red zone for the worst (3).

To be effective, national strategies should be translated into actions that reach communities, families and individuals at the grass root level. Egypt is covered by a network of 5314 Primary Health Care (PHC) facilities (4) and almost half of them are implementing the “Family Health Model”. Health education (HE) is a core component for care provided by PHC centres. The availability of PHC facilities have contributed to the trend of gradual improvement of health indicators, as shown by the results of the successive Egyptian Demographic and Health Surveys (EDHS) conducted since 1988, the latest being in 2014 (5). However, a WHO report stated that, “Available data indicate that despite the progress made during the MDG era major challenges remain in terms of reducing maternal and child mortality, and improving nutrition” (6).

This study conducted a trial to create a model to support healthy practices to improve health and nutrition of women and children aged under five years in Egyptian rural settings through implementing community-based interventions.

Methods
Setting and sample
This is an intervention study based on community involvement with support obtained at the governorate level. Selected and trained teams of local young females identified as “Mother and Child Friends (MCF)” provided health education to women. Local universities were involved in the process of training the MCF team.

Two Upper Egypt Governorates, Fayoum and Beni-Sweif, were purposefully selected to fulfill certain criteria: moderate level (yellow zone) according to composite indicators (3), have a medical school, and be accessible to NPC staff. One yellow zone district was selected in each governorate (Sennoris in Fayoum and Beni-Sweif in Beni-Sweif) and one easily accessible village purposefully selected from each district. An important criterion is a reasonably functioning health unit able to respond to the potential increased demand on service. The two villages selected were Behmo in Fayoum and Belvia in Beni-Sweif.

The strategy was to identify priority health messages to be communicated to a target group of women of childbearing age. The messages addressed main health / health related problems as identified by EDHS surveys (6) and as recommended by “Facts for Life” prepared by UNICEF (7). An Egyptian Mother Guide: “Proper practices for health of the mother and child” was prepared in a simple language, which
included advice on healthy life style, marriage, care for the pregnant mother, nutrition during pregnancy, alarming signs in pregnancy, preparation for delivery, delivery and purperium, postpartum alarming signs, alarming signs for the neonate, family planning, proper nutrition, breast feeding, weaning, child health, promotion of child development, diarrhea and acute respiratory infection. These messages formed the basis for training the MCF team. A copy of the guide was delivered to every woman attending health education classes.

*Implementation of the study*

The study was implemented over a period of 18 months starting May 2016 and included the following:

- Contacting Public Health Departments (PHDs) in Fayoum and Beni-Sweif universities to nominate staff to participate as trainers for the MCF group. Four lecturer public health staff members were nominated from each University.
- Preparation of a training manual for university staff, introducing objectives and process of implementation of the intervention, principles of effective training for trainers, and the manual for the MCF group.
- The research team held a three-day training of trainers (ToT) workshop for universities' staff at NPC premises. NPC staff and junior staff attended the workshop from PHD, Cairo University. First day was orientation about project activities, principles of ToT, basic communication skills, and explanation of “role playing”. Each participant was assigned a topic to present on the following day. On the last day, participants prepared their agenda for governorate training and completed a seven question evaluation sheet. Each question set a score of 10. The same evaluation sheet was completed after implementing MCF training.
- A one-day orientation workshop was held for more than 30 NPC staff to train them on observing the MCF training and the women HE sessions using structured observation checklists.
- The governor and governorate leaders attended an orientation meeting held at Governorate headquarters, including the Vice Minister for population, NPC Rapporteur, NPC key project staff and NPC governorate office representatives.
- A meeting held at the Local Village Unit was facilitated by researchers and the NPC project team and attended by directors of the Local Unit, Health District, Health Unit and Community Development Association, religious leaders, school directors, teachers and community leaders. The meeting was intended for orientation and initiation of community involvement. Participants discussed criteria for selection of MCF team and target women, defining places to implement MCF training and delivering women HE classes.
- The director of the Local Unit and group was asked to select the MCF team. Criteria for selection included: female, age 18 years or more, completed secondary education or more, and having an agreeable personality.
- University trainers implemented a four-day workshop that was attended by 37 MCF participants from Fayoum and 38 from Beni-Sweif. Training covered communication skills and HE messages. On the fourth day selected participants were asked to deliver HE messages and receive comments from trainers and their colleagues. NPC staff observed the training sessions. MCFs who could implement mothers’ HE classes were identified. A total of 16 educators were selected in Fayoum and 24 in Beni-
Sweif. Trainees completed pre- and post-tests, and Likert scale evaluation sheets. NPC observers using a structured checklist assessed the quality.

The selected MCF team was instructed to select women to attend HE sessions. Six hundred women were purposefully selected from each village. Women aged 18–50 years were recruited from different parts of the village so messages received would be disseminated through the whole village.

Women from each village were divided into 24 groups containing 25 participants. Each woman attended three one-day sessions over a period of three weeks and received the “Egyptian Mother Guide”. Classes were facilitated by two trained MCF. Public health staff and trained NPC coordinators observed the sessions.

Focus Group Discussions (FGDs) for evaluation of HE before the first and after last session took place. A total of 143 and 121 women participated in FGDs in both villages with an average of 10–12 women per FG. Trained Cairo University staff conducted FGDs and a FGD guide was prepared to keep discussions on track and facilitate data analysis (8,9).

**Ethical consideration**

Approval was obtained from the Vice-Minister for Population, NPC Rapporteur, and UNICEF. At the local level, the governors and directors approved the study. Informed consent was obtained from each participant after explanation of the objectives. Those not willing to participate could withdraw any time. We assured confidentiality and privacy throughout the study period.

**Data management and statistical analysis**

Data were entered and analyzed using SPSS. Pre/post-test score was 1 for the right answer, while wrong or ‘don’t know’ was zero. Mean, SD and t-test were used for comparison. P value less than 0.05 was considered statistically significant. Analysis and coding of the FGD was done at the village level (8,9).

**Results**

Eight lecturers attended the ToT workshop from the PHDs at Fayoum and Beni-Sweif universities. Immediate evaluation scores were 90%; after implementing MCF training, they re-scored at 98%. PHDs staff expressed their interest in expansion of similar activities in other villages and recommended more HE material and more days of training. They also suggested expanding the group of MCF educators to include secondary school female students.

Sociodemographic characteristics of the MCF trainees fulfilled the pre-set criteria for selection (Table 1). An 18 item pre-test questionnaire was completed by the trainees was useful to identify major gaps in knowledge and to evaluate the effect of training (Table 2). There was significant improvement in Fayoum (10.6 + 3.4 in pre-test and 15.6 ± 1.3 in post-test) and in Beni-Sweif (11.2 + 2.2 in pre-test and 14.1± 1.5 in post-test). On average, there was a statistically significant improvement in the post-test, although the knowledge score was not highly satisfactory in either (P < 0.001).

Using Likert scale evaluation revealed MCF satisfaction with the training; only two in Beni-Sweif were not sure they could provide HE. The most useful topics from the MCF point of view differed between the two villages; in Fayoum consanguinity, premarital examination, proper nutrition, early marriage and
breast-feeding, while in Beni-Sweif delivery and postpartum care, premarital examination, early marriage and postpartum dangerous signs were considered priority.

The MCF team provided HE to the participants. Observations done by the public health trainers and NPC coordinators revealed the participants gave good dedication to time (94%) and all MCF groups attended on time. NPC coordinators reported positive comments, sessions were interactive and the performance of the educators was good. The women were glad to receive the Egyptian Mother Guide and they were satisfied with place and time, and by educators’ responses. Most of the sessions had no negative comments by the observers.

FGDs conducted before educational sessions revealed the women had a reasonable knowledge in relation to their health and the health of their newborns, and showed good intentions to improve. (Table 3). Focus Group discussions held after the HE classes revealed positive changes in women’s knowledge and attitude, although they had some concerns about their economic ability to have adequate diet in view of the rising prices of food. The most important knowledge gained from the HE classes is presented in Table 4.

The women had some concerns and asked to know more about controversial issues such as female genital mutilation, early childhood development and adolescent health. Interaction with women pointed to an expected increase in service utilization, and the women and the MCF team mentioned the need for service improvement.

Discussion
The Global Strategy for Women’s, Children’s and Adolescents’ Health (2016–2030) “strives for a world, in which every mother can enjoy a wanted and healthy pregnancy and childbirth. Every child can survive beyond their fifth birthday, and every woman, child and adolescent can thrive to realize their full potential, resulting in enormous social, demographic and economic benefits” (10). This study conducted trialed a model for implementing replicable interventions to improve health and nutrition of women and children aged under five years in Egyptian rural settings. The model demonstrated links between different levels, starting from NPC, governorate universities and local communities.

Senior and middle level staff was satisfied by their contribution. This is a “learning by doing” exercise. The capacity building for NPC staff would be a building block for similar activities in other areas. Universities are important focal points in leading community development activities. What is needed is real community involvement through university—community engagement and/or partnership (11). In the current study PHDs in either governorate were engaged from the very beginning. The interest shown and knowledge gained is an excellent potential for sustainability and replication.

It is widely agreed that communities should take an active part in improving their own health outcomes. (12). Community-based initiatives are an integrated bottom-up approach to socioeconomic development, including health, aiming at achieving better quality of life for communities. A community-based initiatives programme was introduced in Egypt in 1999 with the support of WHO/EMRO (13).
Community involvement would better address their demands and create a sense of ownership and responsibility to support sustainability. In the present study, MSF, which is part of the community, targeted women and spelled out specific topics needed and which should be considered with further education for community members. The local university staff could support customization of interventions.

Interaction with the community should consider critical health literacy, respond to local situations and support community, consider determinants of health and exert greater control on people’s health and wellbeing (14). Interaction with MSF and with women during health education classes and FGDs revealed different factors related to culture or social norms that need to be addressed.

An important issue is the high rate of caesarean section (CS) deliveries. This has been of great concern to community leaders who participated in the initial meetings. EDHS 2014 reported a 51.8% CS rate, which is very high. Caesarean section was addressed in the HE messages to women; however, the message has to be customized to the local situation. Women should learn how to prepare their “birth plan” with their physician, to inform them they are not going to have CS or episiotomy unless necessary. In Egypt, episiotomy is almost routine in vaginal deliveries. In 2006, the American Congress of Obstetricians and Gynaecologists recommended “restricted use” of episiotomy (15). Such issues could not be addressed by health education alone; it should be addressed by the health system and included in medical education. In conclusion, this study demonstrated the importance of community involvement and role of university–community engagement to address local needs and improve health and quality of life in neighboring communities.

**Acknowledgements**

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**Competing interests:** None declared.

**References**


Table 1: Distribution of mother and child friends trainees by selected socio-demographic characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Fayoum N=37 (100%)</th>
<th>Beni-Sweif N=38 (100%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age in years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (+SD)</td>
<td>22.9 ± 2.3</td>
<td>24.0 ±3.2</td>
</tr>
<tr>
<td>Min – maximum</td>
<td>19 - 28</td>
<td>19 -30</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Middle / secondary education</td>
<td>25 (67.6)</td>
<td>22 (57.9)</td>
</tr>
<tr>
<td>High education</td>
<td>12 (32.4)</td>
<td>16 (42.1)</td>
</tr>
<tr>
<td>Work status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>14 (37.8)</td>
<td>12 (31.6)</td>
</tr>
<tr>
<td>No</td>
<td>23 (62.2)</td>
<td>26 (68.4)</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>8 (21.6)</td>
<td>14 (36.8)</td>
</tr>
<tr>
<td>Married</td>
<td>25 (67.6)</td>
<td>22 (57.9)</td>
</tr>
<tr>
<td>divorced</td>
<td>4 (10.8)</td>
<td>2 (5.3)</td>
</tr>
</tbody>
</table>
## Table 2: Mother and child friends trainees giving correct answers in the pre and post-tests and achieved knowledge score

<table>
<thead>
<tr>
<th>Questionnaire items</th>
<th>Correct answers Fayoum group</th>
<th>Correct answers Beni-Sweif group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-test</td>
<td>Post-test</td>
</tr>
<tr>
<td></td>
<td>N = 37</td>
<td>%</td>
</tr>
<tr>
<td>1. Importance of pre-marital examination</td>
<td>29 78.4</td>
<td>32 97.0</td>
</tr>
<tr>
<td>2. Appropriate age for marriage</td>
<td>36 97.3</td>
<td>32 97.0</td>
</tr>
<tr>
<td>3. Number of ANC visits</td>
<td>4 10.8</td>
<td>32 97.0</td>
</tr>
<tr>
<td>4. High risk pregnancy</td>
<td>17 45.9</td>
<td>9 27.3</td>
</tr>
<tr>
<td>5. Proper Nutrition during pregnancy</td>
<td>31 83.8</td>
<td>30 90.9</td>
</tr>
<tr>
<td>6. Post-natal maternal complications</td>
<td>31 83.8</td>
<td>32 97.0</td>
</tr>
<tr>
<td>7. Post-natal and neonatal complications</td>
<td>33 89.2</td>
<td>33 100</td>
</tr>
<tr>
<td>8. Maternal Post-natal care</td>
<td>18 48.6</td>
<td>31 93.9</td>
</tr>
<tr>
<td>9. Breast feeding</td>
<td>16 43.2</td>
<td>26 93.9</td>
</tr>
<tr>
<td>10. Family planning Contraceptive methods</td>
<td>21 58.3</td>
<td>29 87.9</td>
</tr>
<tr>
<td>11. Proper inter pregnancy spacing</td>
<td>17 47.2</td>
<td>29 87.9</td>
</tr>
<tr>
<td>12. Neonatal Post-natal care</td>
<td>27 73</td>
<td>29 87.9</td>
</tr>
</tbody>
</table>
Table 3: Main responses in the focus group discussion before implementation of health education in both villages

<table>
<thead>
<tr>
<th>Theme</th>
<th>Finding</th>
<th>Achieved mean knowledge score (±SD)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of marriage</td>
<td>Many girls marry before 18 years, 14 – 15 years is very common. They are aware of the health and legal problems and problems to register births without a legal marriage certificate; however, it is a social norm. Six of the attendants married before 18 years of age.</td>
<td>10.6 (± 3.4)</td>
<td>0.001</td>
</tr>
<tr>
<td>Premarital examination and counseling</td>
<td>Women are aware that premarital examination is required to register the marriage officially; however, it is not available. They pay money and get the required permission to register their marriage. Only seven ladies mentioned they had some investigations.</td>
<td>15.6 (± 1.3)</td>
<td>0.001</td>
</tr>
<tr>
<td>Consanguineous marriage</td>
<td>Consanguineous marriage is common as it is a social norm, “Because he is my relative, I know him”, “I wish my son married one of his relatives, she will be kind and lovely”.</td>
<td>11.2 (± 2.2)</td>
<td></td>
</tr>
<tr>
<td>Deliveries</td>
<td>Deliveries take place at hospital; home deliveries are very rare. Women said physicians prefer to do CS “because they gain more money”. Women do not want to experience the pain of delivery or the sutures of episiotomy routinely performed with vaginal delivery.</td>
<td>14.1 (± 1.5)</td>
<td></td>
</tr>
</tbody>
</table>
Women were not satisfied by the governmental health services. “The quality of service is poor”, “Physician is not regularly available”, “limited resources and drugs”. Women usually go to private physicians. They go to the unit for tetanus vaccination and to have some investigations and vitamins during pregnancy.

Table 4: Most important knowledge gained from health education according to focus group discussions in both villages

1. Taking premarital examination seriously.
2. Avoid as much as possible, early consanguineous marriage.
3. Better not to get pregnant before the age of 20 years.
4. Importance of regular antenatal care and family planning
5. Alarming signs of pregnancy and the importance of seeking immediate medical care.
6. Vitamin A supplementation after birth.
7. Proper breast feeding and weaning.
8. Vaccination should not be stopped due to minor illness – consult the physician.
9. Importance of well-baby care and sick child.
10. Do not get drugs on your own, consult health care providers.