

Impact of Service-Learning Paradigm on Demand Creation for Primary Health Care in the Rural Community

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Abstract: Improving the quality of performance of Egyptian physicians in health services delivery requires the introduction of educational strategy that addresses population health issues through service-learning (SL) paradigm. Therefore, the Public Health Department- Cairo University (PHD-CU) has introduced a "hands-on"/Problem Based Learning module for the fifth year medical students. This module is aiming at building the capacity of the students to anticipate and respond to rural community needs and create demands for health care. Objectives of the study were to examine the impact of PHD-CU- service learning module on coverage of the rural families with health education messages, demand creation for primary health care services, and the utilization patterns of rural health unit (RHU) in the target village. A community-based evaluation study design was used. Cluster sampling technique was used and 1405 families were interviewed during household survey. Focus group discussions were conducted with rural health unit (RHU) staff members and community workers and RHU's service statistics were analyzed. Results showed that 87% of families were exposed to different forms of students' SL activities, of which 61% were through home visits. About 91% of the home visited families have received health education especially for anti-smoking (58%), prevention of avian influenza (54%) and environmental sanitation (56%). Service statistics showed increase in different services e.g. Antenatal Care Coverage showed an increase by 32 percent points after students' visits. Rural health unit staff expressed appreciation to the students' role in demand creation for health care services.

Key words: Service-Learning, Medical students training, Problem-Based Learning (PBL), demand creation, primary health care, rural health unit, health education.

INTRODUCTION

To practice medicine effectively in a multicultural society, physicians need to understand population health determinants and disparities and expand their concept of professionalism to include prevention, health promotion, advocacy, and community engagement.⁽¹⁻²⁻³⁾ Therefore

physician training should build both knowledge about health disparities and skills to address the route causes of poor health. Although there are published accounts of medical school programs that incorporate population health concepts, there are few examples of required

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population health curricula. An important mandate of some of these new curricula is to incorporate an experimental learning component through which students work actively with community partners on projects that address population health issues.⁽⁴⁻⁵⁾ problem Based Learning (PBL) is a method of knowledge acquisition whereby small groups of students, guided by tutors, develop their own learning objectives based on real-world case scenarios and then reconvene after a certain period of independent study to solve "the case" with their newly acquired medical knowledge. There are several studies indicating that PBL is associated with a higher gain in medical competencies, in particular in interpersonal and cognitive domain which focuses on people interaction.⁽⁶⁾ PBL stimulates independent learning and demonstrate equivalent or superior professional competencies compared with graduates of more traditional curricula. However,

medical programs that have implemented (PBL) have met with gains and difficulties as a result of the innovative traits of such a change. A number of challenges related to PBL implementation have to do with formative evaluation, which is an integral part of assessment in the horizontal and vertical modules of the program.⁽⁷⁾

In Egypt; medical education reform in public health has specific objectives that is focusing towards influencing the medical students to become role models and to have community- oriented physicians capable of anticipating and responding to community health needs.⁽⁸⁾ Therefore, Cairo University, Faculty of Medicine, Public Health Department (PHD) has considered that reform of the practical training of the fifth year medical student is the key for achieving the reform objectives. Capitalizing on the training module in public health curriculum which is concerned with "rural health" has been addressed. Situation analysis showed that,

there was no adequate preparation of neither the students nor the rural community to conduct planned visits that have well-defined outcomes. Reforming the “rural health” training module included four phases. Phase 1 is a preparatory phase and included: identification of the target village, contact and orientation of the Rural Health Unit Staff, recruitment of community workers, copying the village map and identify the inhabited clusters, design and testing a questionnaire form, training of the PHD instructors and volunteer students in summer vacation in data collection, conduction of household survey that included all households. Development of database for the village families was essential for facilitating service-oriented research studies. Phase 2 included: integration of the reformed “rural health module” in the training manual of the medical students and training of the PHD staff on the reformed module. The module goal is to improve health of the rural community, and included five planned activities. Activity 1 is the preparatory practical session which addresses the health problems of the rural population, communication and health education skills, identification of the “at-risk family” according to the base-line household survey data and application of the Family Health Status Index included in the training manual.⁽⁹⁾ Activity 2 includes conduction of home visit to the selected families and discussing the main health problems and setting a provisional plan with the family to solve the problem. Activity 3 includes a practical session to discuss the feedback from the first visit, and preparing the plan of the second rural visit. Activity 4 is the conduction of the second visit which could be to the same family (for health education or referral to health facilities, social services), or conduction of “special students’ team activities” as health education seminars in the rural school, RHU, youth center or organizing medical

conveys. Activity 5 is a practical session to discuss the feedback of the students after the second visit to the village. Phase 3 included actual implementation of the “rural health” training module by participation of all fifth year medical students during the first four students’ rounds. Phase 4 included design and testing a questionnaire form, and training of the 5th round students to conduct an evaluation survey assessing the perception of the rural families towards the students’ activities in the target village. The survey covered families who are resident within the clusters visited by students during phase 3.

The outcome of phase 1 provided information that the target village had about 8000 population (about 1600 families) according to 2008 census and reported at RHU-health office. The village is composed of 6 geographic inhabited clusters. The populations are distributed in those clusters at a ratio of 1:1:1:1:2:2. During the initial baseline survey, forty trained data

collectors had worked with six recruited community workers, and completed 1600 forms for the village families in two weeks. After having a computerized data –base for the families, the questionnaire forms had been packed in 320 boxes (5 forms in each box). Those boxes were distributed among students during the first four rounds to select, the first priority family during the first round, and the second priority family during the second round (according to the family health status index) etc.,. The total number of fifth year medical students who participated in the PHD course was 1492 students (about 300 students in each round). The number of student per rural visit was 50 students. Home visits were done by students and were guided by the community workers to facilitate access of students to the target families distributed in the 6 clusters. In case of not finding the target family at home during the visit, the next door family interviewed. Two instructors were responsible for field

supervision. The total visits conducted for SL were more than 48 visits (during the first four rounds). Students were conducting extra visits especially during Fridays to prepare for specific events as medical conveys, seminars, referral services, social events. During phase 4, the six groups of students' fifth round (300 students) had received training in data collection using a structured questionnaire form. Students had been distributed according to the cluster size and completed the evaluation survey in one visit, where each student had conducted structured interview with 5-6 families. The evaluation component was not included in the training manual; however, it was added because almost of the available families in the village had been visited /contacted by the students during the first four rounds, as stated by community workers.

By the end of the academic year 2008/2009, PHD staff had considered that; the "rural health training module" included

different issues as hands-on determinants of health at the population, family, and individual levels (e.g. environment, life style), services learning (which includes also creativeness in communication/health education for enhancing healthy behaviors through plays, songs, seminars, foot-ball sport competitions with school teachers before health education seminar on anti-smoking and demonstrations e.g. personal hygiene, first aid services, puppet show to school children as well as referral/follow up to health facilities), personal communication to respond to sensitive issues as those related to adolescent health, health education, and integrated cooperation with other faculty departments through medical conveys, community mobilization activities (as working with rural school staff, youth center staff, RHU staff, NGOs staff, as well as MOHP,WHO to get posters and brochures) and advocacy for health issue through contacting the head of the village who attended the students'

conference which had "village health problems" as a major theme.

Before scaling up "the rural health training module", the PHD staff members are interested to assess the impact of the "rural health training module"- Service Learning component on the target community. There was a specific research question: What is the impact of PHD training activities on the rural community regarding demand creation for health services?

Having information about performance of PHD in the "rural health/community-service learning training module" will provide evidence-based best methodology in community-based training, to be an integral part of the practical curriculum of medical students in the coming academic years.

Aim

The aim of the current study is to evaluate the CMD Service Learning training module regarding achieving the

overall and specific objectives.

Overall objectives of the study

The overall objectives for introducing "rural health/community- service learning" training module in the public health course were to (a) Build capacity of medical students to anticipate and respond to community needs (b) Create learning environment that focus on real interaction with community needs and demands, (c) Encourage students ownership of learning through engagement in real situations for problem-solving; and (d) Assess feasibility of service -learning strategy in improving the community access to knowledge and services for health care.

The specific learning objectives for the students were to have the ability to (I) Set interventions to support health care at the family and community level, (II) Practice skills of communication and health education, (III) Synthesize community mobilization and participation activities to respond to community demands, (IV)

Advocate health issues and importance of utilization of the available primary health care (PHC) facilities' services.

Specific objectives of the study.

- 1- Explore the impact of the CMTP-SL on the served rural community in terms of receiving health education messages and other services from medical students,
- 2- Examine the impact of the CMTP-SL on the utilization pattern of the rural health unit in the target village
- 3- Assess the views of the RHU staff and the community works towards the impact of the CMTP-SL on the rural community and the RHU utilization pattern

METHODOLOGY

■ Study Hypothesis

The introduction of the Service Learning component in the practical field training course of the medical students, in a well-defined rural area, could build students' communication skills to cover rural families

with knowledge about public health topics, raise demand for health care and enhance the utilization of primary health care services.

■ Study design

The study is a health system research concerned with health workforce capacity building. The study is an evaluation study for the CMTP model- Rural Health Service-Learning Component 2006/2007. It is an evaluation study and use both quantitative and qualitative data.

■ Study Settings

- ✖ Rural Health Unit –Nazlet El-Ashter Village- Giza Governorate
- ✖ Nazlet El-Ashter Village- Giza Governorate- Rural Community

■ Sample Size and Techniques

Qualitative Data (FGDs): Rural Health Unit staff members and community workers

Quantitative Data – Community based survey: Cluster sample of 1500 families distributed in the six geographic blocks in Nazlet El-Ashter village

Quantitative data – Service statistics:

Service statistics of the Rural Health Unit –

Nazlet El-Ashter Village- Giza Governorate for the period 2007-2009 i.e. before and after the introduction of the Learning service course in September 2008.

■ Instruments and Methods of Data**Collection**

Panel 1 summarizes the sources of data, instruments of data collection, and methods of data collection

Panel 1: Sources of Data and Methods of Data Collection

Study Participants /Sources of data	Objectives of Data Collection	Instruments of data collection	Methods of Data collection (Time of data collection)
- RHUs staff members (Physicians) - Nurses - Community Workers	Impact of the students activities on the health unit performance- how to enrich the training in the village	FGD Guidelines	Three FGDs in the RHU (collected by the research team) (September ,2009)
Families in the village exposed to the learning service of the CMTF	Impact of the service learning component of the CMTF on the served community	Questionnaire form	Structured interview with women in Nazlet Al-Ashter village (collected by trained medical students of the fifth round), under supervision of the PHD staff and management of the research team (April-May ,2009)
RHU Service Statistics 2005-2007	Changes in the RHU output in PHC services	Spread Sheet	Review Service Statistics 2005-2007 (September ,2009)

■ Data Analysis Plan**■ Data Entry**

The quantitative data had been entered into the computer excel program, and statistical analysis had been by SPSS program.

The two types of quantitative data which had been entered into the computer are:

- 1- Community-based survey for 1500 families in Nazlet Al-Ashter village
- 2- The RHU service statistics 2007-2009

■ Data Quality Control

Office review of the collected data had been done. After data entry, frequency tables had been used to ensure consistency and reliability of entered data.

■ **Data Analysis: Qualitative Data**

The qualitative data collected during FGDs settings and recorded in cassette tapes, with remarks recoded by the moderator and the note-takers, had been analyzed according to specific themes related to guidelines and the study objectives.

FGD guidelines with RHU Personnel and community workers included the following topics:

- ▲ Impact of service learning on the rural community awareness about health issues
- ▲ Impact of the service learning on the utilization pattern of the RHU
- ▲ The clients attitude towards the RHU after students' visits to the village
- ▲ Role of the students in supporting the role the RHU in the village

■ **Data Analysis: Quantitative Data**

Statistical analysis: Simple frequency and bivariate presentation of data as tables and graphs were done.

✚ For the community-based survey, the Arabic format has been entered into the computer and analyzed to get simple frequency distribution

The RHU service statistics data had been analyzed to examine the differences in the unit output before and after the students' visits to the village. The analyzed output was to the following health services: ANC, FP and outpatient health services

■ **Limitation of the Study**

Involvement of the students in the last round in the community-based evaluation survey, indicates unstandardized training course across the 5 rounds. However, the CMD staff members affirmed that, it was a must to adjust the tasks within this module during the last round due to the following reasons:

- 1- During the routine meeting of the

students leaders of the 4th round and leaders of the "new" 5th round to exchange experience, the 4th round leaders stated that the village is completely "saturated" from the students' visits. Any visit to the village to follow the same approach of health education and learning service will not bring something new to the target village

- 2- The community workers in the village affirmed that, almost all of the families available in the village were covered by the students' visits and/or activities. They considered that any more home visits will expose the families to the same information that they already gained by students during the four rounds.
- 3- Students of the fifth round do not have enough time to conduct creative activities as those students of the previous rounds. However, the inclusion of the task as community-based evaluation of the service

learning activities done by the first four rounds, could make students of the fifth round gain skills in communication, use standardized format for data collection, and gain skills of data analysis. Students of the 5th round become fully aware about the students' activities in the village during the previous 4 rounds.

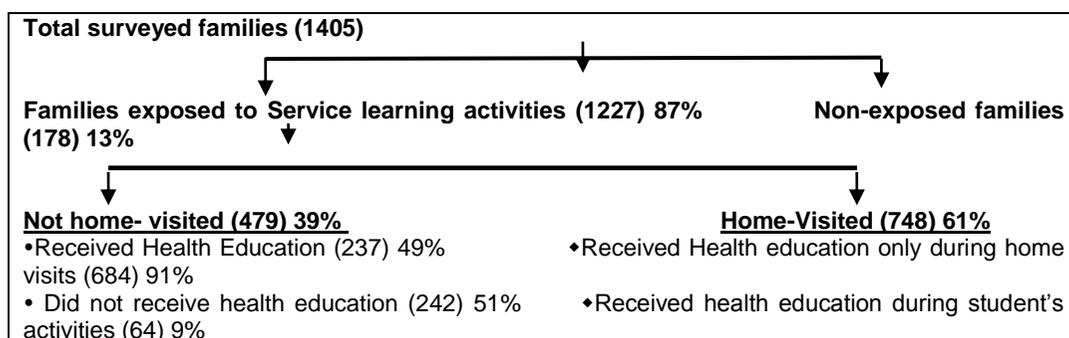
RESULTS

The results include key findings according to the following:

- Achievements of Service Learning in the Target Village (Community-based Survey)
- Impact of Service Learning on the RHU Service Output (Service Statistics October 2007-March 2009)
- Perspectives of RHU staff towards Service Learning Component of the CMTP (FGDs)
- ***Home-visits and exposure to communication-health education services***

The community- based household survey revealed that data were collected from 1405 families, distributed in the six geographic clusters of the target village. The findings of the structured interviews are summarized in Algorithm1. As depicted from the Algorithm, 87% of the interviewed families had been exposed to one or more of the students' service

learning activities during home visits and/or other students' activities. Out of the total contacted families (n=1227), 61% were home visited by students. The total number of families who stated that they received health information (during home visits or student's events within the village) was 985 families or 80% of the contacted families.



Algorithm (1) Summary of Students' activities in health education in the target village

Health Education as a component of Service- Learning Activities

Table 1 delineates that the students were focusing on 16 health education topics during their visits to the village. Analysis of data indicates that those 16 health education topics could be grouped

to serve three objectives: health promotion, orientation about PHC programs and increasing awareness about the epidemiology of the infectious and non-infectious diseases as well as the different types of health services. It could be observed that there is no single common

package of health education message students' carefulness to talk about an covering all the families. Yet, each family emerging health problem, which is the was exposed to specific health education avian influenza. message(s). One of the topics reflects the

Table 1: Percent of families exposed to different health education messages by category of health education topics

Category Topics	Health Education Topics	No of Families (n= 985)	
		No.	%
Health Promotion	Anti-smoking behavior	574	58%
	Water Sanitation	553	56%
	Sanitary House Environment	552	56%
	Personal Hygiene	544	55%
	Family Nutrition	458	46%
	Importance of Education	447	45%
	Physical Exercise	249	25%
PHC Program	Child Health	495	50%
	Child Immunization	486	49%
	Family Planning	459	47%
	Breast Feeding	438	44%
	Maternal Health	383	39%
Others	Avian Influenza	529	54%
	Non-Communicable Diseases	449	46%
	First aids	264	27%
	Geriatric Care	258	26%

Findings related to measurement of the effectiveness of the service-learning activities in responding to the families' demands for health education in specific topics were indirectly measured. The questionnaire included a question on the health topic that families are interested to discuss with students during home visits. Such question was directed to families who were home-visited (HV) (n=748 families) as well as the non-home-visited families (n=657). The responses of the non-visited families could reflect the pre-intervention situation for the HV families. Adjustment of

the data was done to assess the met- demands for health education for the home visited families and the results are illustrated in table 2. To explore the situation of the visited families (748) before the interventions regarding the demands for specific topics for health education, the families are redistributed according to column 5 and presented in column 6. Recalculation of the percent of the visited-families who still demand health education in specific topics, was done from columns 2 and 6 and the findings are presented in column 7. The estimated effectiveness of the service-learning activities to meet the demands of the home visited families for the different health education topics is shown in column 8. Almost of the demands for health education were met at a level of 87-95% for 13 health topics.

Dissemination of information about the topics covered by health education could forecast the extent at which capitalization on the service-learning activities took place by the benefited families. Figure 1 shows that, 44% of the families delineated that they will talk with the neighbours and friends about the health education messages. Conversely, 56% will not talk to others about such topics. Open ended question to know the causes of not disseminating the health information to others included: (a) The information they received during home visits through personal communication is specifically tailored to fit their conditions, and not suitable to others (b) They are not outfitted/prepared to disseminate scientific information as the students did, and (c) Families could have access to information from the same students or other sources

Table 2: Percent of the home-visited families and non-home-visited families according to demands for health education and the level achieved to meet the demands of the home visited families

1	2		3		4		5		6		7		8	
	Home-Visited families with Current Demand for HE		Non Home-Visited families With Current Demand for HE		Predicted number of H-V Families who were in demand of HE Column 5 * 748		Adjusted VF with remaining unmet Demands Columns 2/6		% of VF with met demands of HE 100- Column 7					
Health Education Topics	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Personal Hygiene	25	3	429	65	488	5	488	5	488	95	488	5	488	95
Sanitary House Environment	25	3	459	70	523	5	523	5	523	95	523	5	523	95
Water Sanitation	47	6	477	73	543	9	543	9	543	91	543	9	543	91
Family Nutrition	34	5	467	71	532	6	532	6	532	94	532	6	532	94
Importance of Education	22	3	419	64	477	5	477	5	477	95	477	5	477	95
Anti-smoking behavior	22	3	397	60	452	5	452	5	452	95	452	5	452	95
Physical Exercise	17	2	311	47	354	5	354	5	354	95	354	5	354	95
Maternal Health	24	3	345	53	393	6	393	6	393	94	393	6	393	94
Family Planning	22	3	334	51	380	6	380	6	380	94	380	6	380	94
Child Health	36	5	420	64	478	8	478	8	478	92	478	8	478	92
Child Immunization	29	4	355	54	404	7	404	7	404	93	404	7	404	93
Breast Feeding	26	3	337	51	384	7	384	7	384	93	384	7	384	93
Non-Communicable	45	6	38458	437	10	90	10	10	10	90	10	90	10	90
First aids	61	8	454	69	517	12	517	12	517	88	517	12	517	88
Avian Flu	68	9	444	68	505	13	505	13	505	87	505	13	505	87
Geriatric Care	22	3	355	54	404	5	404	5	404	95	404	5	404	95
Total	748		657		748		748		748		748		748	

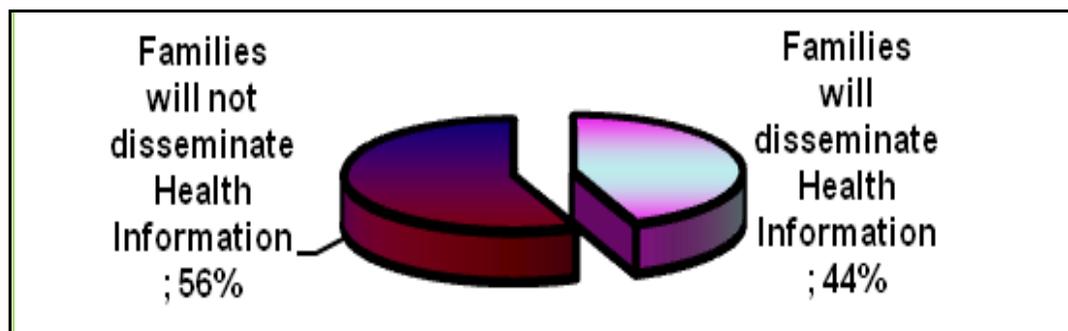


Figure 1: percent distribution of families exposed to health education by their attitude towards dissemination of information to others

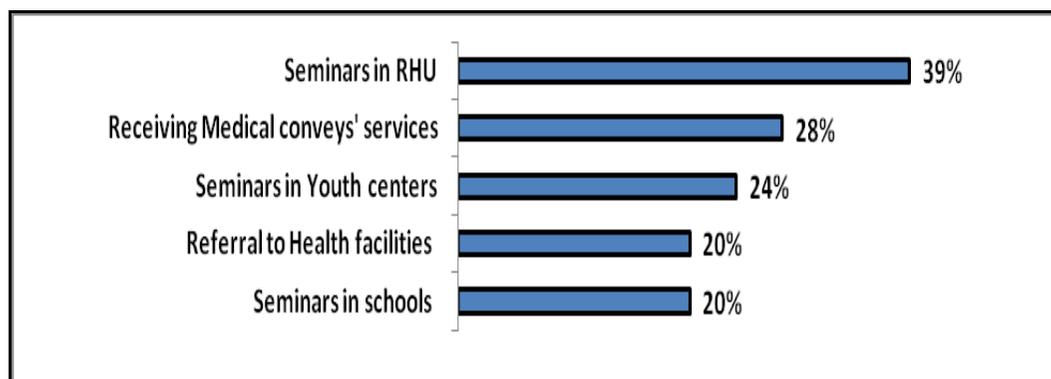


Figure 2: percent of families according to participation in learning activities

Community Mobilization Services

Beside health education activities which covered 80% of the families benefited from the services-learning, the home-visited families (n=684) demonstrated appreciation in participating in the students' conducted events in the village as seminars in the RHU, youth

center and school. More than one quarter of the home-visited families received the medical conveyers' services. The medical conveyers had been organized by medical students as collaborative activity with the different clinical departments in the Faculty of Medicine,

NGOs, pharmaceutical companies, sport clubs and MOHP (figure 2)

Perspectives of the RHU's Staff to impact of medical students' activities on demand creation for health services

Ten months after the initiation of Community Medicine –Service Learning Activities (CM-SLA), the FGDs with RHU staff and Community Workers (Raidat Refiat /RR) had revealed the feedback of CM-SLA on the served community and utilization pattern of the RHU.

All the FGDs' participants affirmed the positive role of SLA in enhancing health behavior of the village population. The impact was evident at all levels and influenced each population category. They attributed success of the SLA to the following potentials:

- The program is implemented by Kasr-Al-Aini doctors: Kasr Al-Aini has a great reputation and respect among the rural population;

- The objective of each student was clear and devoted towards serving the community;

- The home visiting strategy made the families feel that Kasr –Al-Aini doctors are dedicated to help them in improving health of all members of the family **(Quotation1);**

Quotation 1: *We heard a man in the village saying that, "those doctors are coming from Kasr –Al-Aini to my home and showed interest about my health, this raised my eager to take care of my health"*

Non-official RR

- Home visits were not once and for all – but it was repeated to the at-risk families irrespective to their socioeconomic standard **(Quotation 2);**

Quotation 2: *"Students home visiting activities facilitated access of both the poor and rich people to updated information about health care. But in the RHU we serve poor people only"* **RHU nurse**

- Adoption of the non-traditional methods in communication and health education through personal and group communication, the use of posters, demonstrations (**Quotation 3**), plays, puppet show, football play with the school students, mobile teams, etc.,

Quotation 3: *“We tried several times to talk to people about avian Influenza, but people resist and no response. However students succeeded to simplify information and told people how to protect themselves and how to use plastic bags when dealing with dead birds”* **RHU sanitarian**

- The mission of the students was to improve health by all possible ways. Therefore the health education messages were very comprehensive and covered different aspects of the family life including environmental sanitation (**Quotation 4**) and behavior changes (**Quotation 5**).

Quotation 4: *“Medical students support the role of RHU in improving people’s*

awareness about water sanitation and refuse disposal, RHU sanitarian cannot do this job alone”. **RHU sanitarian**

Quotation 5: *For males who cannot stop smoking, now the wife ask the husband to be out-of the home and away from the children when he smokes cigarettes*

RHU female worker

- The health education was coupled with expressing devotion to the families by providing medical appliances, gifts, and referral to Kasr-Al- Aini with follow up to ensure receiving the service;
- Working with RHU staff, Clinic Board members, School teachers, Youth center staff, Village official and non-official leaders and community workers was obvious and necessary to advocate for health issues;
- Putting special emphasis on the supply component by providing the RHU with medications. This had resulted in increase in utilization of the outpatient clinic as evidenced in the service

statistics (**table 3**);

- The success in making key changes in the RHU clients who become more aware about the health service and the rights for quality services (**Quotation 6,7**);

Quotation 6: *“Before medical students’ visits, the FP client was coming to the RHU asking for specific FP method, but after students activities, she talks and discuss different FP methods with the doctor, and she demonstrate views about methods and freely chose FP method after counseling”* **RHU –Physician**

Quotation 7: *“Now pregnant mothers come to the unit asking for iron tablets, and they talk about the importance of iron for prevention of anemia”* **RHU -Nurse**

- Complementary effect and filling gaps related to services provided by the RHU and other health projects (**Quotations 8,9,10,11**);

Quotation 8: *I participated in many training courses in RH, however, and for the first time I learned a lot from Kasr Al-Aini*

students: how to answer specific questions related to sensitive issue like those related to adolescent health. Students do health education in a very attractive and comprehensive way **RHU-RR**

Quotation 9: *We are working in the census, avian flu, immunization campaigns. We were having limited knowledge in other topics that people ask about. However, we learned a lot from Kasr Al-Aini students, and now we can continue the students' mission* **Non-official RR**

Quotation 10: *I have the phone number of Dr. Noha, very decent medical student. I always contact her to ask about specific medical information that people in the village enquire about* **RHU-RR**

Quotation 11: *Projects are focusing on single topic: family planning and birth spacing, etc. But Kasr-Al-Aini doctors talk about everything related to people's health. That is why students have high credibility in the village than projects* **RHU- RR**

- Sustainability is an important potential

of the CM-SLA. Despite, medical students had finished their activities in the village; they left the people aware and actively demanding health services in the RHU and other health facilities. Students left the posters, booklets and lines of contact with almost of the village individuals: within homes, RHU, school and youth center.

- Increasing the volume of health services delivered at the RHU as evidenced from the service statistics (Quotation 12)

Quotation 12: *People were seeking health services in Abou El-Nomros hospital, but after medical students' visits to the village, people trust the RHU, and there are much utilization of health services* **Non-official RR**

Impact of CM-SLA on Utilization Pattern of the RHU:

Table 3 illustrates information derived from analysis of service statistics for

selected intervals for the recoded data 2007-2009. The RHU service output that cover the period of CM-SLA is six months (October, 2008 – March, 2009). The data for a comparable period that corresponds to the same months, but in the previous year (October, 2007 – March, 2008) had been used as baseline to assess changes that could be attributed to CM-SLA. As depicted from the table, the volume of maternal and FP services had shown increase. However, with the increase in the number of mothers registered for ANC (43%), there was increase in the proportion of mothers identified as at-risk pregnancies by 8.5 percent points. The obvious findings that the annual increase in the average number of outpatients to be 467 percent points in 2008 (compared with 2007) and 500 percent point in 2009 compared with 2007.

Table 3 Selected service statistics indicators for the RHU serving the village visited by medical students

Indicator	Before Students' activities	After initiating Students' Activities	Percent Changes (percent points)
1-Antenatal care (ANC) coverage	66.5%	98.5%	+ 32
2-Average new ANC visits per month	21	30	+ 43
3-Average return ANC visits per month	114	140	+ 23
4-Percent of at-risk pregnancies	5%	13.5%	+ 8.5
5-Percent of anemic mothers	56%	48%	- 8
6-Average Family Planning Clients per month	82	110	+ 34

Changes in average number of outpatients per month: increased from **17** patients/month in 2005 to **94** patients in 2008 and **100** patients in 2009

DISCUSSION

To achieve the intended learning outcomes (ILOs) related to development of physicians capable to anticipate and respond to community needs, the design and management of innovative training course was mandatory. At the international level, the World Health Report 2008⁽¹⁰⁾, declared the shifted focus of the PHC from concentration on selected vulnerable groups and selected diseases into comprehensive response to people's expectations, demands and needs and spanning the range or risks and illnesses. Therefore, the medical curricula had included different strategies that focus on holistic approach in health care. The current study demonstrates a model for community-oriented training program regarding its design up to its evaluation. The implementation of the model in a rural community was a perfect idea. Martin 2010⁽¹¹⁾ had emphasized the significant need for training of undergraduate medical students in public health in the rural community. This type of training allows capacity building of the future physicians in assessment of resources in the rural areas, and determines the best alternative in meeting those needs. Additionally the current study illustrates the involvement of

different stakeholders in the training and evaluation of medical education programs. Hoat⁽¹²⁾ in their study tried to answer the question of how the university and non-university stakeholders were involved and motivated to contribute to the success and sustainability of the curriculum change process. Hoat stated that before this reform, health services providers were not involved in curriculum development although they could be asked to contribute to practical teaching. Hoat delineated that given that community members can be considered the end users of medical education, obtaining insight into their health care needs is highly relevant in community oriented education. The practical application of service learning through actual interaction of the students with the community had motivated development of different types of skills. Stellman 2008⁽¹³⁾ stated that for physicians to better treat and advise their patients on the role of behavioral and social factors in health and

disease, greater levels of competency in social and behavioral science are needed. McIntosh 2008⁽¹⁴⁾ in the article concerning with training of medical students in community health mentioned that students are required to spend their non-didactic time at their community sites, creating and sustaining partnership relationships, performing project-related tasks and implementing their projects.

The PHD-Cairo University succeeded in vitalizing the practical component related to "rural health module" by introducing Service Learning Activities (SLA), through ensuring interaction between the medical students and the served community. Such approach is different from the biomedical model traditionally employed in medical education which does not emphasize population –based approaches to the current health challenges but focuses instead on care of the individual patient. Therefore experimental or "hand-on" learning has been shown to increase

retention, comprehension, and application of new knowledge and cope with shortcoming of medical school curricula which addresses improving health at the individual level while overlooking the factors influencing the larger context of health.⁽¹⁵⁾ Hand-on learning in public health will help to solidify and integrate students' understanding of population health in their clinical training in the coming years. Realizing the skills gained in service learning, will ensure that population health themes are embedded and reinforced across the entire future faculty years of training and beyond.⁽¹⁵⁾

After implementation of the SLA during the academic year 2006/2007, the current study presents an evaluation that indirectly focuses on the learning process from the community side. The evaluation methodology employed in the study is characterized by six important ideologies: (1) It is an integral part of the learning process, as it started during the fifth

students' round; (2) Involvement of the students as partners in the evaluation process through conduction of the household survey; (3) Conduction of the evaluation process by PHD staff members as internal evaluators is considered self-assessment with enriching the study with experiences gained throughout the training course; (4) Involvement of the MOH-RHU staff members as external evaluators to achievement of the students in the population-based service learning; (5) Including the community workers as a sources of information about the perception of the community to the students' service learning activities; (6) Analysis of RHU service statistics provide quantitative evidence for changes in the utilization pattern of PHC services before and after SL activities.

The study design allowed evaluation of SLA in two phases. First, immediate post intervention evaluation was done through community-based survey in April 2009. To

measure changes due to intervention, the surveyed families had been categorized into two groups Home-Visited as intervention group, and Non-Home visited as control, and comparison was done as proxy design for pre-posttest. Second; data collection from the RHU was done in September 2009. This allowed assessment of the SLA which had been completed in 6 months (October 2008-March 2009) through investigating the perspectives/remaining impressions among the RHU staff and community workers six months after completing the intervention. Examining the service statistics allowed using pre-post intervention design due to including data covering the period 2007-2009.

The findings derived from the study reflect the contribution of different stakeholders in the service learning activities e.g. involvement of the MOH-RHU staff, the inputs of the faculty staff while receiving referred cases from the target community, had added positive facet for development of a community oriented

student.

SLA which stimulated students' autonomy, responsibility, research skill development, creativeness, and learning how to mobilize community resources, were found to be constructive markers of the training program. Thinking out-of-box had motivated students to generate real applicable ideas and test for its validity in practical life. The positive impact of service learning had extended to have its effect on the served rural community and the utilization pattern of the rural health unit. For example, the topics covered in health education were selected according to community health analysis done by the students. Additionally, service learning required working as teams to be more effective. The advantages of service learning had been declared by other studies. For example; PBL strategy improves student critical thinking, communication skills, self-assessment skills and general professional competencies, enhance self-directed learning, the vertical integration of curriculum between

basic and clinical sciences and the introduction of new formative and summative evaluation strategies that match with the curriculum changes.⁽¹⁶⁾ Comparing competencies required at work and taught in medical school, PBL was associated with benefits in "interdisciplinary thinking", "independent learning/working", "psycho-social competence", "Team work" and problem solving.^(13,18,17)

The current study had provided evidence that "change" could take place at the community level: families and institutions in a short time (six months) through the dynamics of intervention, autonomy and capitalizing on the large number of medical students to work in a well-defined community. Despite other studies described a community advocacy training program by applying asset –based community development in resident education. This program was based on building partnerships and capacity in communities. "Community-Physicians Together (CPT) was the first to teach and

apply through service learning the principles of Asset Based Community Development, where identification of the community resources (individual skills, voluntary associations, voluntary and governmental organizations and other physical assets) was part of the physicians' education. Through a three-year relationship with a community, residents learn to build partnerships and capacities that can sustain efforts to improve health after they have left in addition residents learn how their own assets as physicians and as people can support and catalyze change.⁽¹⁹⁾

The training program which considers "creativity" as central concern brings the high cost of increasing the workload on the PHD staff to respond to the pressure created by the hyper-energetic creative students. Additionally, standardization of the methodology of training is difficult for a program that depend on dynamic/flexibility profile, problem-solving, generic skills and creativity. However, it was a good opportunity to junior staff to feel the

experience of service learning. Other challenges to service learning had been raised by different studies.⁽²⁰⁾ Those challenges include the long time needed to develop students' projects, because the students must be able to discuss possibilities, choose projects, and form groups. Letting this process evolve requires patience, but having the students take ownership is essential. Additionally, there is difficulty in measuring the impact or long-term outcomes of community service-leadership model. And they recommend follow up studies to measure sustainability of leadership skills and experience during their postgraduate practical life. Additionally, this kind of teaching demands the creation of long-lasting relationship between the university and community stakeholders (i.e. the agencies participating in the learning experience, such as public centers for social welfare, community development centers, schools and hospitals. In addition, individual physicians,

nurses, and other ambulatory paramedics are involved. Working with locally well-embedded community health centers partially solves the problem of establishing and maintaining relationships between the university and community.⁽²¹⁾

As observed from the current study, the students had focused on behavior changes and covered many topics that are not included in their education curriculum as avian influenza and first aid. This indicates the dynamics by which the students were responsive to community needs. Moser (2009).⁽¹⁸⁾ Watmough (2009)⁽²²⁾ considered the importance of introduction of teaching behavior change concepts and skills to medical students. Risky health behavior and social factors are linked to half of all causes of morbidity and mortality in the United States. However, physicians reported lack of training as one of the barriers to providing behavior change counseling. the authors developed the Health Beliefs and Behavior (HBB) course to teach the unhealthy behaviors on health and

wellness , to broaden students' understanding of the many factors that affect behavior, and to give medical students tools to facilitate health behavior change in patients.

The current study is one of the studies that shows that cross-year peer tutoring at community level for undergraduate and practical skill training in medical education is feasible and very well accepted among staff.⁽²³⁾

The CM-SLA fulfills the following advantages, that are mentioned by other studies.^(24,12,18,17,28)

- 1- involving stakeholders inside and outside the university, preparing the environment for fruitful training process
- 2- interaction between the different stakeholders
- 3- Combined bottom-up and top-down approaches.
- 4- Investing on learning as motivation to teachers. When instructors joined the students in the field or practice sites, the teachers could also learn from

participating in teaching for students , thereby strengthening their own capacity and providing additional motivation

- 5- Development of personal skills, improved knowledge, self-esteem and relationships
- 6- Emphasis on self-motivation factors for students , like learning by doing
- 7- Motivation of stakeholders inside the organization /department and outside by providing coveys... referral, donations , community mobilization and participation (offer opportunities and advantages)
- 8- Flexible open –minded faculty committed to the course's success is enabling to improve the course rapidly and continually.
- 9- Practice opportunities and ample discussion of student perceptions of their counseling success and pitfalls advance counseling skills.

CONCLUSION:

Medical students when adequately prepared in soft/generic skills as

communication and team work, and given the opportunity to be interactive, responsible and creative could make changes at the community level. This type of service-learning coupled with cooperative and integrated learning among students had succeeded in coverage of the community with different health education messages, and raised demands for primary health care. The faculty design and the service learning project enable the students to simultaneously 1- integrate multiple leadership skills learned in the course 2- practice collaboration , team building and trust through interactions with classmates 3- contribute to addressing a community need, especially related to underserved population and, if possible 4- address a one-time community need, or build a more sustainable bridge with a community partner. A few service learning projects have been less successful, in large part because the students ultimately chose issues with more of an educational focus and did not link them sufficiently with policy outcomes.

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