

Community Engagement through a Community-based Medical Curriculum in a North-eastern State in Malaysia

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Abstract

Community and Family Case Studies (CFCS) is one of the major programmes under the community-based medical curriculum in Universiti Sains Malaysia (USM) which has served as a bridge for the university to engage with local communities on various health activities. A knowledge transfer project was carried out based on the modules of CFCS programme in 15 villages in two districts in Pasir Puteh, Kelantan. Two hundred and three medical students were assigned to selected villages in four serial community residencies. Preliminary health surveys were conducted to examine the health determinants followed by nine thematic community health intervention projects. There were significant improvements in health knowledge, attitudes and practices in the selected health issue ($P < 0.05$, paired t test). Improvements in the quality of life scores have been sustained at six month post-intervention. Village sub-committees and supporting groups were created to ensure sustainability. This engagement has contributed to satisfactory impacts in the community and facilitated students' professional development.

Keywords: *community engagement, medical curriculum, quality of life, community health interventions, sustainability*

Introduction

University-community partnerships between communities and higher educational institutions promote health through service-learning, community-based participatory research and other partnership strategies. These partnerships are powerful tools for improving higher education, civic engagement and the overall health of communities (CCPH, 2011). Community and Family Case Studies (CFCS), which was formulated in 1982, is a unique programme in the 5-year undergraduate medical curriculum of the School of Medical Sciences, Universiti Sains Malaysia (USM) leading to the Degree of Medicine. The CFCS programme truly reflects the philosophy and educational approaches of the USM medical school where it serves as a bridge for the

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university to engage with local communities on various health activities (Rogayah & Hashim, 1990).

This programme embarks on practical and experiential learning in the community known as the Community Residency (CR). Medical students are placed in selected operational areas for a 20-day community placement which consists of four residencies. During CR 1, students conduct a general survey to profile the community health status which they use in CR 2 to carry out specific studies to examine in detail the most prevalent health and social problems found in their host communities. These may include health knowledge, attitudes and practices (KAP) of the related health issues. Each group of students determines their own research methodology and data collection strategies to come out with the community diagnosis. Subsequently, during CR 3, students implement community intervention projects specific to the local communities which generally include social, educational and health projects. Lastly, during CR 4, students conduct post-intervention study to evaluate the impact and sustainability of the community health intervention projects

Almost all coastal and northern parts of Kelantan, a north-eastern state in Peninsular Malaysia, have at one time or other served as sites for the CFCS programme. Pasir Puteh is one of the districts in Kelantan which is located within 40 km from the state capital Kota Bharu. It has an area of 433.8 km² comprising eight districts and 73 sub-districts with major economic activities including agriculture, fishing and tobacco planting. Preliminary meetings and discussions between the university, community leaders and officials from the local district health office have highlighted areas of public health concerns in some selected communities such as inadequate awareness and correct attitude towards some communicable diseases such as food and water borne diseases and tuberculosis; lack of positive attitude and adequate good practice in prevention and control of non-communicable diseases and related risk factors such as smoking, obesity and lack of exercise; issues on women/family health such as family planning, breast and cervical cancer screening, and problems of inadequate safe water supply and proper waste disposal management.

Together with the identified local health problem as well as potential opportunities for community engagement, it was considered that both the community and the university would have gained much from this mutual beneficial partnership. Benefits that an effective university-community engagement brings to the community can significantly impact its growth and quality of life, and contribute to the sustainable health, educational, social and economical development (Farish, 2014). Many such programmes in selected universities in the United States have shown that the students also will be able to demonstrate knowledge of local culture, competency in analytical skills as well as understanding of the concept of social justice as it relates to health disparities by working with community partners (ACEC, 2011). Learning from community will benefit the students as future doctors as well. Researches from evidence-based studies have shown that a doctor's interpersonal and communication skills have a significant impact on patient care (Rider & Keefer, 2006).

Thus, the aims of this project were to transfer knowledge on identified local health issues among villagers in Mukim Bukit Abal and Bukit Jawa in Pasir Puteh, Kelantan as well as to train these communities on activities and skills to maintain good attitude and healthy behaviour practices. This study showcases one of the successful implementations of a community-based programme under the medical curriculum of the USM's medical school in engaging the local community towards betterment in health.

Methodology

All eligible children and adult community members residing in Bukit Abal and Bukit Jawa districts in Pasir Puteh, Kelantan who were available during the study period, estimated to be

around 6,500 to 7,000 people, were selected as the participants for this project. This community engagement project was conducted within the academic session of 2012/2013 involving 203 medical students divided into nine groups. During the first community residency (CR 1), cross sectional surveys involving randomly selected houses for each village were conducted by the student groups using standardised set of questionnaires. Based on the findings of the community profiles, students then carried out specific studies to examine the prevalent health and social problems which included health knowledge, attitudes and practices (KAP) and also on anthropometric and biological parameters during the second residency (CR 2).

Each students group developed a proposal to implement community health intervention programmes under the supervision of lecturers as academic supervisors and community leaders as field supervisors. For this purpose, they later determined the scope, strategy, activities and budget while engaging with the local agencies, NGOs, community leaders and villagers, which were conducted during the third residency (CR 3) involving the targeted villagers with risk groups.

Type of knowledge and skills that were transferred comprised health information that have been taught within the medical undergraduate curriculum on public health and preventive medicine, which encompass awareness on disease etiology, transmission, risk factors and methods of prevention and control on common health problems, such as communicable diseases (food-water borne diseases or tuberculosis) and non-communicable diseases e.g diabetes and hypertension including risk factors such as smoking, obesity and lack of exercises. Students' knowledge of family and women health issues such as family planning, breastfeeding, screening of cancers (Pap smear and breast self-examination) and adolescent and elderly health were also transferred to the relevant target groups. To ensure sustainability, students taught the community on skills and activities to maintain their healthy-seeking behaviours and formation of supporting groups for selected health issues. Students also applied theoretical and conceptual models from health education and related disciplines to improve programme delivery with common activities included group/personal health education, health talks, interactive exhibitions, dissemination of printed information materials, forum, physical demonstrations, quiz and games, audio-visual education and health examination and screenings.

The District Office of Pasir Puteh, Kelantan played major roles during this community engagement project. Apart from a large sum of non-monetary contributions, they provided the basic information on infrastructures and demographic data, facilities e.g community halls, meeting rooms and equipments, chairs, tables, public address system for programme activities, solicited cooperation of community leaders, schools, police, health departments, NGOs, assisted the university in the selection of adopted families for the students and also assisting in publicity and promotion among the villagers to participate in programme activities.

In order to measure the impact and sustainability of the programmes, post-evaluation measurements using the same questionnaires after one month on both quantitative and qualitative aspects were done. Changes in the mean scores and proportion of participants with good knowledge, attitudes and practices domains on selected health issues were performed using paired *t* test and Mc Nemar test respectively. The validated Malay-version of SF36 questionnaires with its generally acceptable internal consistency and validity (Sararaks et al., 2005) was used to measure the health-related quality of life (QOL) that incorporates eight major domains i.e physical functioning, role physical, bodily pain, general health, vitality, role emotional, social functioning and mental health. This tool, as delineated by the World Health Organisation (WHO), has been proven useful in surveys of general and specific or healthy populations (Ismail, Campbell, Ibrahim, & Jones, 2006). The QOL assessments were done on the targeted adult participants age 18 years and above at baseline, post-interventions at one month and follow-up at six months, and were analysed using one-way Repeated Measures ANOVA followed by paired *t* test with Bonferroni correction. Narrative reflections and personal observations from a variety of stakeholders and respondents were recorded to describe

qualitative impacts. Data entry and analysis were done using SPSS version 20.0 for quantitative measurements.

Ethical Consideration

This project was not considered a pure research but as one of the academic modules of the undergraduate medical curriculum conducted under the CFCS programme. Thus, submission for full review and ethical approval by the university's ethics committee was not required. However, proper ethical conducts and related issues were reviewed at the departmental level on the project proposal and were explained to all lecturers, as sub-project supervisors, and also to the medical students. Confidentiality was observed and every precaution was made to ensure that respondent's identity was protected throughout the study to ensure anonymity. Information letter and consent forms were distributed and explained to the respondents before the data collection.

Results

Nine thematic community health interventions projects comprising knowledge transfer activities were implemented involving 11 villages, 1,350 households and more than 6,000 community members. The target populations ranged from adolescents, school children, adult men and women, mothers and the elderly. Examples of those projects that targeted specific risk groups in the communities are listed as follows:

- Awareness & prevention of tuberculosis (TB) and smoking in secondary schools
- Knowledge, attitudes and practices in preventing TB in community
- Practicing healthy lifestyle in community
- Awareness and screening practices of breast and cervical cancers
- Prevention & methods of quitting smoking
- Obesity, exercise and diet among the elderly
- Metabolic Syndrome – knowing the diseases and risks

Improvements in Health Knowledge, Attitudes and Practices

Following the post-intervention at one month, the target communities shown significant improvements in health knowledge, attitudes and practices (KAP) domains in selected health issues, as shown by significant increase in the proportion of those who have good knowledge, positive attitudes and healthy practices. Table 1 shows some selected community-based thematic health intervention projects, as examples, that were successful in improving the KAP domains in selected health issues.

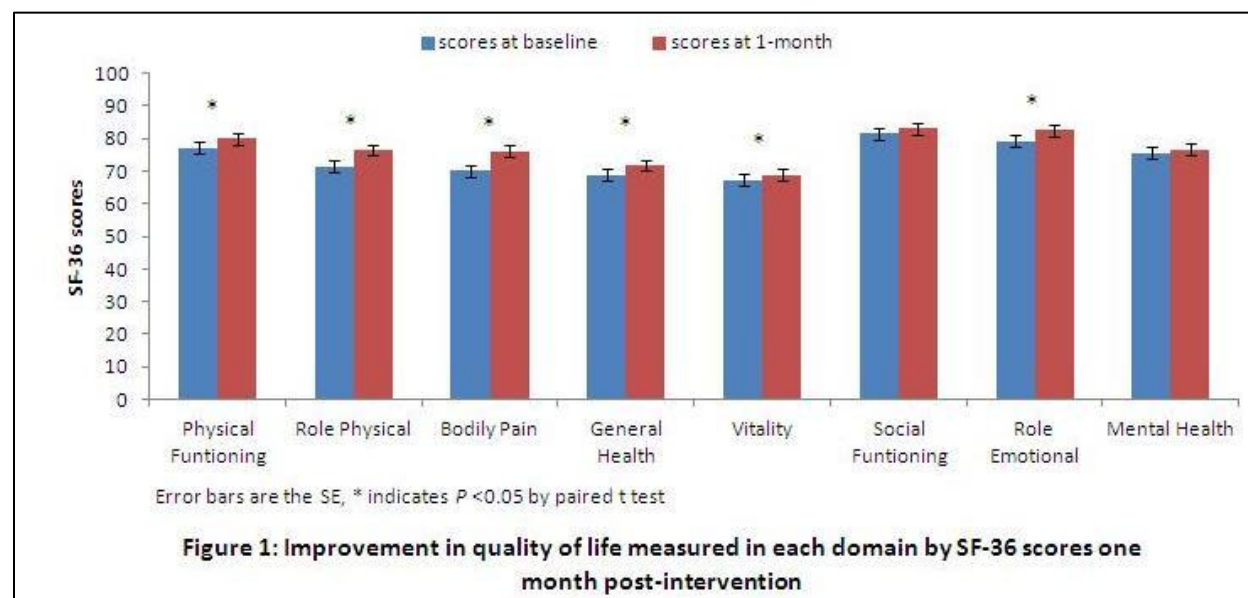
List of projects	Knowledge mean score (SD)		Attitudes mean score (SD)		Practices mean score (SD)	
	Pre	Post	Pre	Post	Pre	Post
<i>Awareness & Prevention of tuberculosis & smoking among secondary schools children (n = 200)</i>	60.1 (9.39)	71.5* (6.05)	28.2 (3.70)	33.1* (4.89)	19.1 (3.43)	22.6* (1.39)

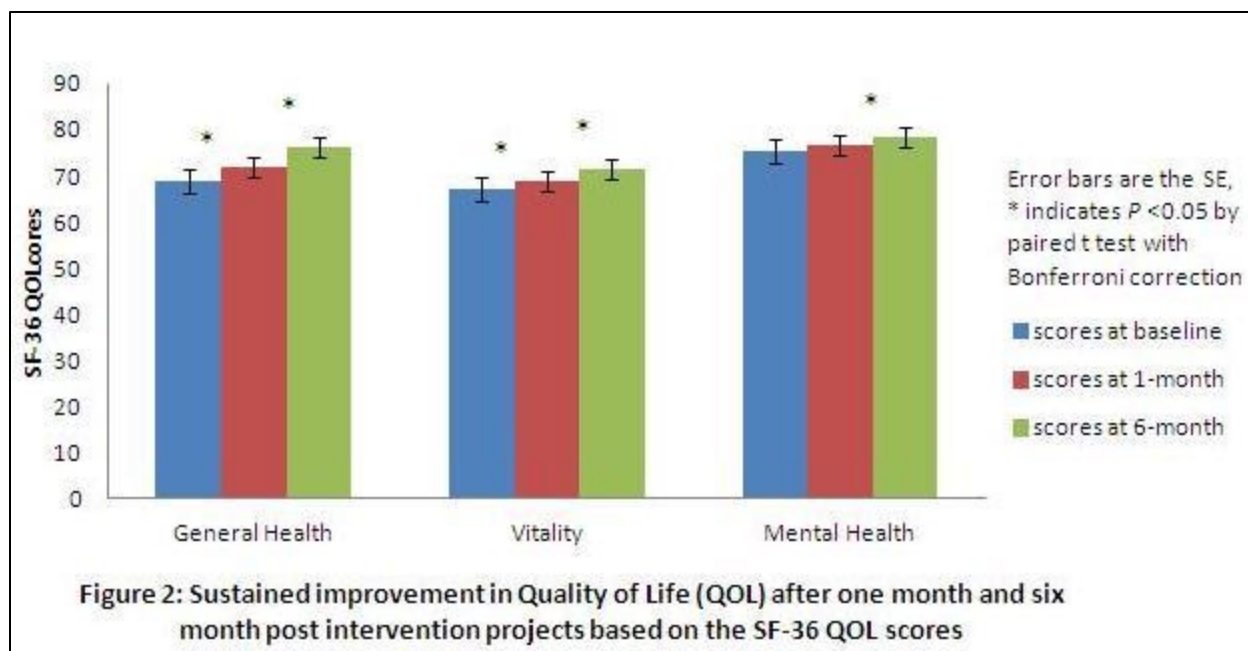
<i>Knowledge, attitudes and practices in preventing tuberculosis in community</i> [‡] (n = 162)	64.8	93.8**	48.1	77.8**	85.2	92.0**
<i>Practicing healthy lifestyle in community</i> [‡] (n = 100)	68.0	75.0**	63.0	93.0**	54.0	90.0**
<i>Awareness & screening practices of breast cancers</i> (n = 82)	35.7 (4.26)	38.7* (3.81)	31.6 (4.60)	31.9 (5.22)	16.6 (6.63)	22.0* (7.31)
() = number or respondents [‡] proportions of respondents with good scores based on respective questionnaires * significant change at $P < 0.05$ by paired t test ** significant change at $P < 0.05$ by Mc Nemar test						

Table 1: Post-intervention (Post) improvement from baseline (Pre) of overall knowledge, attitudes and practices on selected thematic health intervention projects based on their respective questionnaires

Improvements and Sustained Quality of Life scores

Nine hundred adults aged 18 years and above interviewed during post-intervention follow-up visits were taken as respondents in measuring the impact on quality of life (QOL). Changes in the QOL scores with statistically significant improvements (paired t test, $P < 0.05$) at one-month post evaluation in all domains of SF36 instruments i.e physical functioning, role physical, bodily pain, general health, vitality and role emotional, except the social functioning and mental health (Figure 1). Subsequent analysis among the respondents showed sustained improvements in the domains of general health, mental health and vitality during the follow up at six month (Figure 2).





Qualitative reflections from community

"This project helps us getting more accurate information about health and health behaviors affecting the communities and these are important for us in planning activities and community development programmes"

"The project was successful in increasing the confidence of community leaders in coordinating programmes with the universities on similar projects or student placement method"

"Guidelines for future studies by the USM community will be useful to us in the future"

(An Assistant District Officer of Pasir Puteh)

"..... I gained increasing awareness about the dangers of smoking in adults and children"

(A village head)

".....the majority of people understands and put to practice the health information provided by USM graduates", "My own wife uses less sugar in drinks and meals in her daily cooking for family...."

(A village developmental committee member)

"..... I personally started exercises 10-20 minutes every day before shower"

"... the parents begin to care about the cleanliness of the children and the village environment..."

"... really hope these programmes continue and I welcome USM in the future ..."

(A host family)

Discussion

Knowledge, attitudes and practices (KAP) studies have been widely used around the world in public health, water supply and sanitation, family planning, education and other programmes. Governments, NGOs, UN agencies and the World Bank use KAP evaluation methods as they are more cost-effective and resource conserving than other social research methods. The results of this project illustrate that through targeted and comprehensive health education and promotion activities, significant increase in the health knowledge, attitudes and practices (KAP) on selected health issues in the community were achievable. Even though in terms of percentage of increment was small, it was considered that this project has succeeded in promoting better health at the population level. An intervention that resulted in small population changes is important for public health and the overall health status of that population. This population-based low risk strategy of prevention refers to activities that target a whole population regardless of variation in individuals' risk status (Rose, 1992). In fact, most behaviour change specialists believe that a sequence of small or moderate successes is the best way to build morale, self-efficacy and commitment for future goals among the public (Jenkins, 2003).

Since SF-36 is a relatively stable metric which can be used as a repeated measurement in a same healthy population over moderate periods (Chinekwu, Susan, & Martin, 2010), these results were significant statistically and socially. This study has shown statistically significant changes in the QOL scores in most domains especially the three major domains that were sustained up to six month post-intervention i.e general health, mental health and vitality. However, future study may need further sub-analysis on the variability in scores by age and sex in SF-36 QOL in Malaysian population with appropriate age- or sex-specific normative data (Azman et al., 2003).

The reflections and examples of the qualitative impacts described above are the success story of this project. We have observed that the villagers' attitude towards health have changed into a more positive direction where they can identify their own local community health problems in general and in specific areas. The qualitative reflections suggested that some good healthy behaviours have been practiced in their everyday life. Village's sub-committees and supporting groups created in selected health issues ensured sustainability of the expected outcomes and facilitated the planning of similar projects with USM in the future. Working with both formal and informal community leaders can help will facilitate them so that in turn, an empowered community provides residents with a higher quality of life (Elder, Schmid, Dower, & Hedlund, 1993). This in turn will instill mutual beneficial partnership for both university and community.

For the community, they have benefited from this project through their increased health awareness, knowledge, positive attitude and healthy behaviours, reductions in risk factors on major health issues, and potentially long term reduction in the disease incidence and morbidity. Their overall quality of life has improved and sustained while attitude-wise they might be motivated and empowered to improve their health. There were several establishments of supporting groups such as the "Breast Cancer Advisory" club, the "Health Ambassador on Tuberculosis and Smoking" in a secondary school and the "Senior Citizens club" which in turn should facilitate sustainability of these programmes in the community. It is also believed that potential strategic partnership on other community engagement projects between university and the local organisation/community can also be strengthened in the future.

For the undergraduate medical students, the exposure to real field situations has gradually developed their skills in communication and solving problems (CFCS, 2008). This programme will be beneficial for their professional apprentice programme development in leadership, team building, communication skills and understanding of socio-culturally diverse populations.

Conclusion

This community engagement project through the CFCS programme has impacted the community and facilitated university students' professional development. The success of this programme in the villages has improved the overall quality of life of the community, contributed to the development of human capital of the community through the university. The project can be replicated in other communities because it is based on a comprehensive programme and based on a mutually beneficial partnership between the community and university.

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