Community Based Interprofessional Learning Promotes Equality of Participation among Health Professions Students

Authors:

Endang Lestari, Medical Education Unit (MEU), Faculty of Medicine, Universitas Islam Sultan Agung Semarang, Indonesia,
Suryani Yuliyanti, Department of Public Health, Faculty of Medicine, Universitas Islam Sultan Agung Semarang, Indonesia.

Address for Correspondence

Endang Lestari,
MEU Faculty of Medicine, Universitas Islam Sultan Agung,
Jl. Kaligawe KM 4, Semarang Indonesia 50112.
E-mail: endanglestari@unissula.ac.id.

Citation


Submitted: Jun 28, 2018; Accepted: Jul 10, 2018; Published: July 25, 2018

Abstract: Background: The complex health issues require comprehensive health practice involving various professions. Inter-professional education employing various learning activities method has been proposed to improve the quality of collaboration and attitude toward other profession. This study aimed to explore students’ participation and social interaction within community based IPE, and finding out the result of community health problems that had been addressed by the group. Method: A total of 78 final pre-clinical year students from medical, nursing, and midwifery were randomly divided into 15 interprofessional groups. Interprofessional education program employing surveys and discussion to solve community health problems was conducted. The information and result of community health problems that had been managed by the groups were collected from the groups’ report. Students’ discussion sessions were video-recorded and the conversations were verbatim transcribed. Content analysis was applied to evaluate students’ participation and social interaction dimension; included externalization, elicitation, quick consensus building, integration oriented, conflict-oriented consensus building. Statistical analysis was applied to evaluate the data. Results: There were various community health problems, which were identified and successfully managed by the students. There were no different number of participation, externalization, elicitation among the professions (p=0.104, p=0.871, p=0.557 and p=0.072 respectively) during discussion session. Externalization was the most produced statement for sharing knowledge. Equal production of externalization implies that students gave equal contribution in constructing knowledge during the discussions. Conclusion: Student interprofessional public healthcare teams were potential to solve complex community problems. Community based interprofessional learning promotes equal participation and equal contributions among learners from different health professional background.

Key Words: Community health, Problem solving, Learning, Interprofessional Education, Interprofessional collaboration

Introduction:

Current health issues become very complex, because health care is not only focused on efforts to cure the disease, but also on promotion and disease prevention at the society or community. (1,2) This situation requires comprehensive health services such as preventive, curative, rehabilitative and promotive, so it would be difficult if it is only done by a doctor. The entire healthcare professionals must work together to realize the comprehensive health services in the community, in order to obtain maximum results. However, literature reported that less effective interprofessional communication, poor inter-professional relations, lack of trust among team members, and underestimate the role of other health professionals gave negative impact on collaboration among the health professions (3). Previous studies reported that poor collaboration among healthcare professionals had led to medical errors and negatively impact on patients’ safety in significant ways (4-7) In addition, role blurring or role ambiguity among health care workers occurs in the health services community settings. This ambiguity is due that health professional education is conducted in mono-professional setting, with limited opportunity of interaction among professions, which in turn influences their readiness to work inter-professionally in work place, such as in primary care as well as causes overlapping of roles among the health workers when they have to work together (8). Hierarchy in Asian culture makes community considers doctors to have the highest position in society while marginalizing other health professionals such as nurses and midwives(9,10). This condition affects the power distance between doctor and other medical personnel resulting in inequality of contribution among medical personnel in completion of patients and community health problems. To address this challenge, the World Health organization (WHO) suggested that interprofessional education (IPE) should become part of health care curricula worldwide (11). All health care professionals should receive IPE to deliver patient-centred care as members of an interdisciplinary team, where students can learn IPC and bring their acquired knowledge, skills and values into their practice in the future. IPE is expected to play an important role in reducing the problems in the health care system by promoting effective collaboration. Research has reported that health professionals that were taught together in an interprofessional educational setting and learned to collaborate as a team during their student years, were far more likely to work
Educational psychologists explain that when learners interact and exchange ideas in a group, cognitive processes are stimulated. In one of these processes, co-elaboration, knowledge is generated when participants of the small group discussion extend each other’s ideas (14). Within the cognitive process, an important aspect is the move from assimilation to construction; that is creating a new understanding based on the discussion that the learners have had. Collaborative knowledge construction happens when learners do the process collaboratively (15). The processes dimensions that can be evaluated include from collaborative knowledge construction are participation and social interaction dimensions (15-17). Analysis of participant dimension in interprofessional learning will provide us information whether learners from different health profession background participate at all and on an equal basis. The quantity of participation can thus indicate if learners had theoretically been in the position of being able to acquire knowledge within the environment. Analysis of social interaction dimensions describe to what extent learners refer to contributions of their learning partners which indicate the existence of shared knowledge construction within interprofessional health care learning, and what patterns of social interaction dimension develop within interprofessional learning (16-18). Understanding collaborative learning requires making sense of the conversation that students engage in and the tools that mediate their learning (19). Therefore, to study collaborative knowledge construction we need to examine group activity in its specific context (20,21).

The purpose of this study was:
1. Do students participate equally during the discussion within community based interprofessional learning?
2. How the social interaction of the discussions within community based interprofessional learning was like?

**Ethical Approval**
The study was approved by the Ethical Committee of Medical Research of Sultan Agung Islamic University and was conducted at Sultan Agung Islamic University, Semarang Indonesia (Letter No. 290/XII/2013/KomisiBiotik). No physical risk could be identified by taking part the study. It was explained that participation was voluntary basis and that refusal to join the study would have no consequences. The purpose, procedures, and confidentiality of the study were explained to participants accordingly. Consent was implied by the fact that the respondents took part all the activities voluntarily. Confidentiality was ensured by anonymity.

**Method**

**Context**
In Indonesia inter-professional collaboration skills have been included in the core curriculum of all undergraduate health profession programs. However, very few universities in Indonesia have actually incorporated an IPE program into their curriculum to facilitate collaborative learning of multidisciplinary students. As IPE, including IPE for community health care, has not been implemented at Sultan Agung Islamic University, and as Sultan Agung Islamic University intended to develop an IPE curriculum for the programs of Medicine, Nursing and Midwifery, a pilot project on pre-clinical year IPE was conducted. Midwifery and nursing students have early clinical encounters as part of their curriculum in years 2 and 3 of the program respectively, where they experience at least two months of practice in the hospital or public health centers. Medical students do not gain experience of practice in their pre-clinical years other than practice in skill labs with simulated patients and manikins. Learning in all programs is mono-professional; therefore, students rarely interact collaboratively with other health care students other than their own, even during clinical rotation and community health care. Previous studies reported that students were generally favorable to IPE, appreciating the opportunity it offered them to hone their interprofessional leadership, collaboration and communication skills and to learn to address the problem of role blurring (22,23). Students in their final pre-clinical year of medical, nursing, and midwifery were approached to participate in inter-professional learning activities, including community program including survey to the community to gather information on community health problems as well as discussion the solving of the problem.

The inter-professional learning activities in community lasted for three weeks, and were done in between hours of students’ learning activities. Each group was assigned to conduct a survey of health problems, to discuss of health services to be addressed the health problems found in the survey, and to plan health services activities. Penggaron Lor village, District Bangetayu, Semarang was becoming the surveyed community village.

**Research design**
Mixed-methods research design employing qualitative and quantitative analysis was implemented to answer the research questions. The qualitative data were collected from the groups’ project reports. Meanwhile, the quantitative data of occurrence of participation during discussion and statements which described criteria of interaction were collected from interprofessional group discussions on deciding the community health care service.

**Subjects**
A number of 78 students from three different health professions; medicine, nursing and midwifery, participated the study. They randomly divided into 15 inter-professional groups; consisting 5-7 students each. Students’ participation to the study was voluntary basis. Each inter-professional group was required to survey of health problem in community. Based on the survey results, the required to discuss the settlement of the community problems as well as distributed roles based on professional authority for the resolution of the issues. The participation and social interaction in group discussion were evaluated to capture the equality of contributions among professions. The community intervention projects conducted by each groups were reported and presented in end of program panel discussion.

**Data collection method**
A content analysis was performed to explore the students’ participation and the type of social interaction was determined based on the statements produced during the discussion. For this purpose, all of discussions were video recorded and the conversations during discussions were transcribed by experts. All statements produced by students during discussion were analyzed whether they were considered as externalization, elicitation, quick consensus building, Integration-oriented consensus building, or conflict-oriented consensus building (Table 1).
### Table 1. Social interaction modes

<table>
<thead>
<tr>
<th>Social interaction modes of knowledge co-construction</th>
<th>Definition</th>
<th>Example from excerpt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Externalization</td>
<td>Learners make contributions to discourse without reference to other contributions. When externalizing, learners may explicate their knowledge and externalize what they know as well as their point of view.</td>
<td>Nurse 1: From the survey we know the house where the pregnant woman lives has not met the requirements of healthy settlement. The air circulation is not good and sunlight cannot enter the house so the house is damp. We know the properties of bacterial microorganisms of tuberculosis live in moist places and easily die when exposed to sunlight. My suggestion so that we can provide education about housing and health.</td>
</tr>
<tr>
<td>Elicitation</td>
<td>Using learning partners as a resource by asking questions. Elicitation aims at receiving information from the learning partners. Some studies showed that in more successful groups more task-related questions have been asked.</td>
<td>Midwife 2: at what temperature do mycobacterium TB die?</td>
</tr>
<tr>
<td>Quick consensus building</td>
<td>In order to get collaboration among group members, the learners accept the opinions of their peers, not because they agree with them, but because it is a way to quickly move on the discussion. In this way, quick consensus building may not indicate an actual change of perspective, but is rather a coordinating interaction.</td>
<td>Medical 4: We know that low family income also affects the incidence of TB in pregnant women. Even that’s the main trigger. Because of the low income, good health, education and decent home stay cannot be fulfilled. But we cannot educate them to improve economic aspect because it is not our domain. Medical 5: yes I agree. It's the job of economics or business students to educate them (to increase family income).</td>
</tr>
<tr>
<td>Integration oriented consensus building</td>
<td>The learners reach a consensus through an integration of their various opinions and points of view. They synthesize their ideas in order to understand the task logically. Integrative consensus is characterized by a take-over of perspectives. It happens when individual learners change their idea based on the reasoning of their learning partners. Learners may modify their beliefs and correct their argument based on their peers’ contributions</td>
<td>Medical 4: Besides the problem of living habitation, we also have to educate the importance of nutrition improvement of pregnant mother. We give education of healthy food for pregnant woman, if necessary we make daily healthy menu. Medical 5: they live with low socioeconomics. We educate them to create a family nutrition garden. Plant your own vegetables and fish with intercropping systems. Nurse 3: we need the help of agricultural students. Medical 5: we can learn by ourselves from the internet too much Medical 4: So agree, education for improving nutrition and family gardening education, huh?</td>
</tr>
<tr>
<td>Conflict-oriented consensus building</td>
<td>Creating a consensus through conflict is a prominent element in collaborative learning. When building a consensus, learners have to identify and understand what important aspects behind the contribution of their peers and modify them or give alternatives. In that situation, learners need to understand the reasoning of their peers rather than simply accept of other participant idea. In conflict oriented consensus learners are open to criticism, thus it is possible for them to find better arguments to support and justify their opinions.</td>
<td>Nurse 1: I suggest giving Fe supplement for pregnant woman Midwife 3: As far as I know, all pregnant women will get Fe supplements during pregnancy. Not only for those with the low Hb. It's part of the procedure to prevent anemia in pregnant women. We know that anemia in pregnant women can cause miscarriage, placenta solution and fetal death. Medical 4: if pregnant women got good nutrition during pregnancy, in my opinion they do not need to get additional Fe tablet. Midwife 3: As far as I know, all pregnant women are given Fe tablets, even other supplements such as folic acid, vitamin B6, B complex, vitamin C and calcium. But what commonly given by midwives to pregnant women is Fe and calcium, which are available at the public health center. Nurse 1: But how with those who do not do ANC regularly? Medical 4: Oh , OK. We will design a program to give the Fe and Calcium supplements for those who do not get the supplements from the public health center.</td>
</tr>
</tbody>
</table>

**Data analysis**

The community outcomes were evaluated based on the groups’ written reports on the projects. Students’ participation during discussion and social interaction was analyzed quantitatively, by comparing the number of the social interaction modes (externalization, elicitation, quick consensus building, Integration-oriented consensus building or conflict-oriented consensus building) given by each profession in every discussion. The difference of mean score of the occurrences of the social interaction modes was statistically tested employing Kruskal Wallis statistical test.
Result
The subjects were students of the final pre-clinical year students of medical, nursing, and midwifery program. A number of 78 students voluntarily took part the IPE pilot project which was focused on community health problem solving project. (Table 2)

Table 2. Demographic characteristics of participants

<table>
<thead>
<tr>
<th>Midwifery</th>
<th>Nurse</th>
<th>Medical</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Female</td>
<td>21</td>
<td>100</td>
</tr>
<tr>
<td>Admission</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scholarship</td>
<td>3</td>
<td>14.3</td>
</tr>
<tr>
<td>Regular test</td>
<td>18</td>
<td>85.7</td>
</tr>
<tr>
<td>Decision to study at the program</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Own preference</td>
<td>21</td>
<td>100</td>
</tr>
<tr>
<td>Encouraged by parents</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Experience of working with students from other study program</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>15</td>
<td>71.4</td>
</tr>
<tr>
<td>No</td>
<td>6</td>
<td>28.6</td>
</tr>
<tr>
<td>Mean</td>
<td>19.8</td>
<td>0.63</td>
</tr>
<tr>
<td>GPA (max score 4)</td>
<td>3.14</td>
<td>0.39</td>
</tr>
</tbody>
</table>

Community outcomes
There were various health problems, which were identified and successfully managed by the students. Students identified major problems such as: pregnant woman with low social economic status who did not have access to health insurance, did not have antenatal care in the public health center during their pregnancy and did not have enough nutrition in their daily diet. Some parts of the community health problems had been agreed to be followed up with community health care activities. (Table 3)

Table 3. Students' community project in pregnant women

<table>
<thead>
<tr>
<th>Problems identified</th>
<th>Students’ interventions</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only 20% of pregnant women who did antenatal care in local public health center</td>
<td>Motivate pregnant woman to do antenatal care in practice or to the nearest public health center</td>
<td>Moderate-high compliance</td>
</tr>
<tr>
<td>About 36.8% of pregnant women have low knowledge about monitoring of pregnancy</td>
<td>Direct education to pregnant woman</td>
<td>High compliance and motivated to do ANC</td>
</tr>
<tr>
<td>20% pregnant women with risk factors according to standard of WHO</td>
<td>Motivate to do routine ANC and monitoring, Educate family member to take care the pregnant woman</td>
<td>High compliance</td>
</tr>
<tr>
<td>2 cases of pregnant woman with TB</td>
<td>Educate the whole family about TB, to improve the quality of life, educate about healthy house etc.</td>
<td>High compliance</td>
</tr>
<tr>
<td>60% pregnant women don’t have health insurance due to social economic problem</td>
<td>Direct education to the family (husband and wife) on how to apply public health insurance</td>
<td>Some family consider to apply for health insurance</td>
</tr>
<tr>
<td>73% pregnant women did not have enough nutrition in their daily diet</td>
<td>Educate the pregnant woman healthy diet and examples of menu, provide calcium supplement</td>
<td>Moderate-high compliance</td>
</tr>
<tr>
<td>24% of pregnant women with anemia</td>
<td>Provide Fe supplement, educate to grow green vegetables using hydroponic.</td>
<td>High compliance</td>
</tr>
</tbody>
</table>

Discussion
Within interprofessional community program, the health profession students successfully worked together to empower the community to solve most of the community health problems that had been identified. The objective of the learning activity is to give health profession students direct experiences to work as a health team in dealing with the community health problems in this case, low income pregnant woman. In this study, students identified several health problems in the family with low social economic status, low education, and did not have any health insurance. Hence, the health profession students within this program also had an opportunity to learn several principles of culture, norms and social aspects for educating and communicate health related topic to low educated community.

Based on the discussion phase, the finding indicated that the externalization was the most common type of statements produced by students during the discussion process. Students produced more perspectives in accordance with their scientific background and based on their professional point of view. Externalization is important steps as when externalizing, learners may explicate their knowledge. Learners externalize what they know, such as to explain their perspective. By externalization, learners need to restructure knowledge into a linear form. Thus, knowledge is simultaneously reorganized when it is externalized. Considering that, understanding the knowledge that should be explained become very important aspect in externalization.(16-18) Thereby it was greatly understood if externalization becoming the most common type of statements produced in the IPE discussion, because students from different professions seek to contribute to solving the problem based on their scientific viewpoint.

Integrative consensus statements were the most widely produced consensus in the discussion. During discussion, integrative consensus was produced by both students and facilitator, to conclude and accommodate a variety of opinions. It was clear that integrative consensus were mostly produced consensus as students from different professions generally intended to add information from a different angle based on their scientific background. They wanted to contribute to make the consensus better integrate various opinions. Nonetheless, consensus based conflict also occur, especially if there was difference of opinion on an issue that requires a definite decision while each member of the group has a different opinion and point of view regarding the settlement of the issue. Consensus based conflict is an important element in collaborative learning (16). When building a consensus based on this conflict, the student must identify and understand what important aspects behind the
contributions of opinion produced by their peers and modify the opinion or give alternative opinions. In that situation, learners need to understand that the reasoning of counterparts not just accept the opinion of other participants (16). In the social interaction, consensus based on this conflict will make learners to learn to be open to criticism, and enable them to find a better argument to support and justify their opinion (16-18). The lack number of consensus based conflict was also probably due to the Asian cultural community that emphasizes tolerance and avoids conflict so that problem solving was done by compromising and integrating all viewpoints to minimize conflicts. This affected the pattern of dominant statement types in group discussions was integrative consensus rather than the conflict based consensus. As discussion is supposed to improve skills of critical thinking, arguing and defending opinions(24.25), and as the result of this study showed a lot of production of integrative consensus and lack of consensus based on conflict, this indicated that the discussion activities within IPE program conducted has not reach the target of improving critical thinking skill. Students seemed to create a cozy atmosphere of the differences and debates by accommodating and compile all the statements produced by participants. However, if the finding was viewed from the perspective of efforts to foster respect and equality within health professional team, the integrative consensus showed positive results, because it indicated that students from different professions could accept the opinion of other professions equally and accommodate other professions’ opinion in solving health problems faced by the health professional team (26,27). A quick consensus also produced several times by the students. This interaction pattern was commonly used at the end of the discussion when the time is not sufficient or to agree on a settlement of the case which has been described at length by the participants. The lack of students’ initiative revealed that awareness of students to do deep learning was still lacking. Significant differences occur only in the production of integrative consensus and consensus based on conflict, which were produced mostly by medical students. However, there were no significant differences in participation, externalization, initiative produced by students from different professional backgrounds. The findings indicated that students from different health profession program can participate in equitable. IPE class discussion on community health problems reduced the boundaries of the profession interaction and educated students to contribute in an equal way, to respect other professions and to encourage students to contribute in the process of discussion. As there was no difference on statements indicated externalization showed that the discussion run comfortably, grew mutual respect, so that all students of various professions can externalize their ideas confidently (16-18). As such, inter-professional learning applying discussion to solve community health problems could cultivate the attitude to respect other professions’ opinion, solve the problem of patients based on various viewpoints of different professions so as to produce a comprehensive settlement of community health problems.

Conclusion
Inter-professional community health problem solving learning approach improved students’ understanding of knowledge on solving community problems. There was no difference in participation, externalization, initiative and quick consensus produced by students during discussions indicated that this learning model potential to foster equality and mutual respect among health professions within health care team as well as respect other professions’ opinion. It is also potential to drive students from all health professional background to be confidence to contribute within interprofessional discussion.

Acknowledgement
The author would like to thank the Directorate General of Higher Education, Ministry of Research, Technology and Higher Education, Republic of Indonesia, for funding the project; all students who participated in the study; research associates of the Medical Education Unit (MEU) of Medical Faculty, Universitas Islam Sultan Agung, for their assistance in conducting the study.

Funding
This project was funded by the Ministry of Research, Technology and Higher Education of Indonesia Batch year: 2017

Reference


27. Delunas LR, Rouse S. Nursing and medical student attitudes about communication and collaboration before and after an interprofessional education experience. *Nursing Education Perspectives*. 2014;35(2):100-5.