JRIPE

Journal of Research in **Interprofessional Practice and Education**

Vol. 5.1
March 2015

The Current Status and Problems with the Implementation of Interprofessional Education in Japan: An Exploratory Study

Sachiko Ogawa, PhD; Yoshinori Takahashi, MPD; & Misako Miyazaki, PhD

Abstract

Background: Although interprofessional education (IPE) has come to be considered essential in health and social care education programs, most IPE programs in Japan focus on clinical settings. However, following the 2011 Great East Japan Earthquake, IPE programs are also considered essential for community development, especially in disaster-affected areas. To identify key issues for the development of IPE, we aimed to clarify the current status of IPE programs and problems in their implementation using an original questionnaire.

Methods and Findings: The targets were 865 undergraduate courses that qualify students to take national registered health/social care examinations. Effective responses were received from 284 targets. Of these 284 respondents, 103 respondents had already implemented an IPE program and 181 respondents had not. Among the 103 respondents who had already implemented an IPE program, we found a tendency to collaborate with partners in clinical settings or in social settings. Furthermore, respondents who had implemented or were planning to implement an IPE program had difficulty with "interdisciplinary and/or extramural collaboration" and "educational factors."

Conclusions: These difficulties could be considered barriers to developing effective IPE programs for community-based collaboration between health and social care professionals. Future research should investigate more specific solutions to these problems.

Keywords: Interprofessional education; IPE-implementing university; Non-IPE-implementing university; University planning IPE implementation

Introduction

Interprofessional education (IPE) has been recognized as an innovative approach for developing a collaborative, practice-ready health workforce [1,2]. In Japan, IPE programs have been implemented at various institutions throughout the country, but most IPE programs are focused on clinical settings [3]. Moreover, the current status of IPE and problems related to IPE implementation remain unknown.

The Great East Japan Earthquake (Tohoku earthquake) struck in March 2011 and caused tremendous corporeal and economic damage. The survivors not only faced

Corresponding author: Sachiko Ogawa. Email: s-ogawa@chiba-u.jp

physical and psychological problems, they encountered the fear of radiation exposure [4]. The survivors' recovery, both physical and psychological, requires interprofessional collaboration between healthcare and welfare professionals, and collaboration within the community. As the population of the disaster-affected areas was aging, interprofessional collaboration for aging care was also urgently required [5]. The experience from the Tohoku earthquake emphasizes the need for innovative IPE programs that not only provide clinical support, but also community support, especially disaster management and humanitarian assistance in Japan.

Based on the experience following the Tohoku Earthquake, the Japanese Ministry of Health, Labour, and Welfare (MHLW) set aside funds from the 2012 disaster recovery budget for the development of a home healthcare collaboration network [6]. The MHLW's aim was to develop a system and network for providing home healthcare services to anyone in a disaster-affected area. The MHLW also demanded that healthcare and welfare professionals initiate collaboration in communities. Therefore, the MHLW expects IPE programs to focus more closely on community-based healthcare professional collaboration.

In order to create new IPE programs based on the expectations of the MHLW, it is essential to determine what problems are being faced and what tasks must be completed to reach acceptable solutions. Therefore, the present study aimed to investigate the current status of IPE programs, identify problems with IPE program implementation, and propose methods for improving responses in disaster-affected areas through effective IPE programs.

Methods

Definition of IPE

As defined by the Centre for the Advancement of Interprofessional Education (CAIPE), "Interprofessional Education occurs when two or more professions learn with, from and about each other to improve collaboration and the quality of care" [7]. However, many terms in this field are used interchangeably with seemingly precise, but differently interpreted, meanings [8]. In Japanese, interprofessional collaboration is termed "team-treatment," but this term has not been defined and conceptualized, nor are there guidelines as to how team-treatment may be implemented in practice [9]. To more accurately reflect the current situation and problems faced in Japan, a more general definition of IPE was adopted for the present research. In this study, any education program that covered at least one of the following conditions was considered an IPE program: 1) aiming to develop interprofessional skills among health/social care professionals, 2) providing more than two courses or the same course for more than two departments simultaneously, and 3) learning that combines different courses and/or departments or universities.

Design of the questionnaire

As no standardized questionnaire that reflects our study's aims has been developed, we designed a questionnaire to collect the necessary data. This newly developed questionnaire consisted of three sections: 1) questions regarding the current status

of IPE programs, including respondents' attributes; 2) questions regarding IPE-implementing universities; and 3) questions regarding non-IPE-implementing universities. All respondents answered the questions in the first section, and if the respondents had already started an IPE program, they answered the questions on IPE-implementing universities in the second section. Respondents who had not started an IPE program answered the questions regarding non-IPE-implementing universities in the third section.

Section on IPE-implementing universities

The section on IPE-implementing universities included questions on the following topics:

Implementation system: Respondents were asked whether the implemented IPE program was an interdisciplinary collaboration (collaboration within the universities) or extramural collaboration (collaboration with other universities). Respondents were also asked the specific universities, departments, and courses they collaborated with.

Presence or absence of problems after introducing the IPE program: Respondents were asked whether they had experienced any problems. If they had, they were asked to write the details in the free space provided.

Section on non-IPE-implementing universities

At the beginning of this section, respondents gave a yes/no response regarding any plan to implement an IPE program in the future. If they had a plan (universities planning IPE implementation), they were asked questions about the following:

Project progress status: Respondents chose the most accurate status from the following five options: 1) the project has already been completed and the start time was decided; 2) the project is nearly completed, but the start time has not been decided; 3) the project is under discussion, but it will take time to develop; 4) preparing for the project; and 5) hope to introduce an IPE program, but do not have any plans yet. Respondents could also write any other comments in the free space provided.

Problems while carrying out the project: If the respondents encountered any problems while carrying out the project, especially administrative problems, we asked them to choose the responses that most accurately matched their problems from the following five options: 1) the IPE program curriculum (especially interdisciplinary curricular organization), 2) financing for management of the IPE program, 3) human resources for operating the IPE program, 4) difficulty with requesting support for the IPE program (especially for securing practical training facilities and learning contents), and 5) difficulty with requesting support for the IPE program (especially for co-operation among educational institutions). Respondents could also write comments regarding other problems in the free space provided.

"If you could consult any IPE-implementing universities about implementing an IPE program, what would you ask?" (open question): If the respondents had any other problems or required advice, they could write them in the free space provided.

Target population and responses

The target population was universities with departments or courses that qualify students to take national registered health/social care examinations. Figure 1 shows the overview of this study. Questionnaires were sent to the faculty members who were responsible for student/academic affairs or curriculum development or the heads of the respective departments at target universities. If they agreed to participate in our research, they completed the questionnaire and returned it by mail. The survey was conducted from January to February 2012.

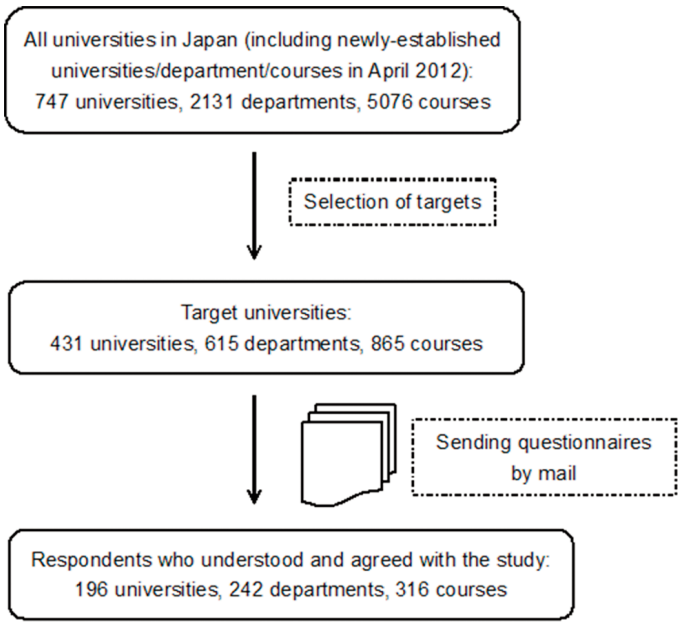
Ethical considerations

The current study was approved by the ethics review board of the Chiba University School of Nursing. All respondents were assured that their responses would be kept confidential through all the phases of the study and that they would not be identifiable in any written reports.

Data analysis

Questionnaire data were checked for errors and cleaned by eliminating contradictions. Quantitative data were analyzed using descriptive analysis. The analysis was performed using IBM© SPSS© Statistics version 20.0 (IMB SPSS, Chicago, IL). Qualitative data, including open questions, were independently coded by three researchers to classify statements into categories and themes. Codes were compared and all discrepancies were resolved.

Figure 1.
Overview of the present study



Results

According to the study overview (Figure 1), we selected the target universities from

among all 747 universities, 2131 departments, and 5076 courses established in Japan as of April 2012 [10]. In total, 865 courses in 615 departments at 431 universities were selected as the target population. Questionnaires were sent to these 865 targets, and responses were received from 316 (response rate 36.5%). The number of effective responses was 284 (effective response rate 32.8%) (Table 1). The effective response rate was higher for the pharmaceutical (N = 32; 45.1%) and rehabilitation/clinical technicians (N = 78; 38.8%) courses than for the other courses (except "other dentistry").

Table 1

Current status of IPE implementation, by course

Course	National qualification	Number of targets	Number of responses (%)	Number of effective responses (%)	IPE-implementing (%)	Non-IPE-implementing (%)	Total (%)
Medicine	Doctor	80	26 (32.5)	23 (28.8)	8 (34.8)	15 (65.2)	23 (100)
Dentistry	Dentist	27	10 (37.0)	9 (33.3)	2 (22.2)	7 (77.8)	9 (100)
Other dentistry	Dental hygienist, Dental Technician	5	3 (60.0)	3 (60.0)	3 (100)	0 (0)	3 (100)
Nursing	Registered nurse, Public Health nurse, Midwife	174	70 (40.2)	65 (37.4)	27 (41.5)	38 (58.5)	65 (100)
Pharmaceutical	Pharmacist	71	36 (50.7)	32 (45.1)	11 (34.4)	21 (65.6)	32 (100)
"Rehabilitation/ clinical technicians	Clinical engineering technician, Emergency medical technician, Medical technician, Occupational therapist, Orthoptist, Physiotherapist, Prosthetist and orthotist, Radiological technician, Speech-language-hearing therapist	201	91 (45.3)	78 (38.8)	39 (50.0)	39 (50.0)	78 (100)
Nutrition	Registered dietitian	114	30 (26.3)	27 (23.7)	5 (18.5)	22 (81.5)	27 (100)
Welfare	Certified care worker, Certified social worker, Psychiatric social worker	177	49 (27.7)	46 (26.0)	8 (17.4)	38 (82.6)	46 (100)
Others*	Certified social worker	16	1 (6.3)	1 (6.3)	0 (0)	1 (100)	1 (100)
	Total	**865**	**316 (36.5)**	**284 (32.8)**	**103 (36.3)**	**181 (63.7)**	**284 (100)**

* The course is not specific to health/social care.

Demography of IPE implementation status in Japan

As shown in Table 1, among the 284 respondents, 103 (36.3%) have already started an IPE program (IPE-implementing universities) and 181 respondents (63.7%) have not (non-IPE-implementing universities).

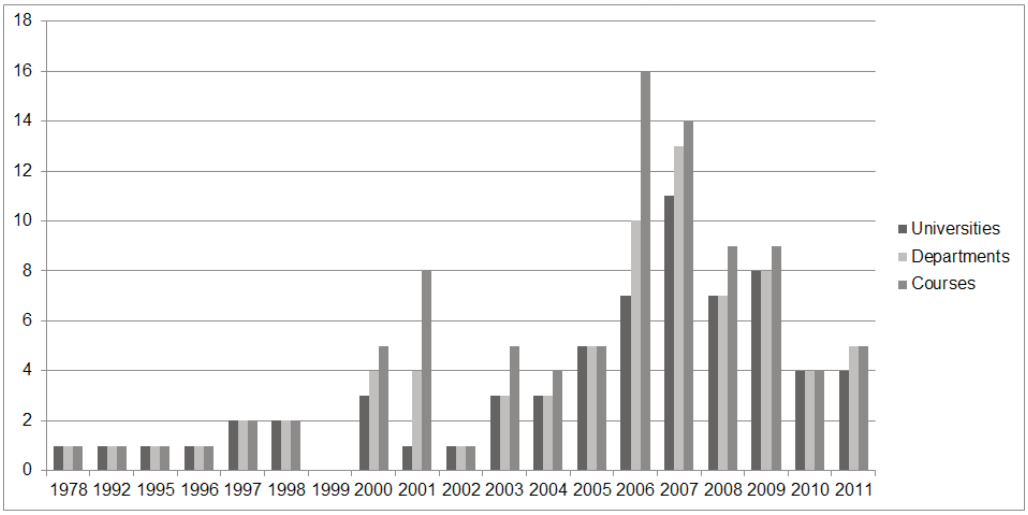
According to the course-based IPE-implementing status among the 103 respondents in the IPE-implementing universities, the most common course was

Rehabilitation/clinical technicians (*N* = 9; 50.0%), followed by nursing (*N* = 27; 41.5%). In contrast, among the 181 respondents in the non-IPE-implementing universities, welfare (*N* = 38; 82.6%) was the most common course, followed by nutrition (*N* = 22; 81.5%).

IPE-implementing universities

Figure 2 shows the frequency of implementation of IPE programs from 1978 to 2011. The number of respondents who have started an IPE program increased from 2000, and peaked in 2006. At that time, among the 103 respondents, 16 (7 universities, 10 departments, and 16 courses) had started an IPE program. This period overlapped with the term of the Ministry of Education, Culture, Sports, Science, and Technology (MEXT) Support Program for Contemporary Education Needs (2004–2007) and the MEXT's Support Program for Distinct University Education (2003–2007). At that time, many universities applied for and received grants from the MEXT.

Figure 2.
Trend in the number of IPE-implementing universities



Implementation system for the IPE program

Respondents' answers regarding the collaboration system for the IPE program are shown in Table 2. Overall, 93 (91.2%) of the 102 respondents (one not applicable) managed their IPE program by interdisciplinary collaboration, and four respondents (3.9%) collaborated extramurally. Five respondents (4.9%) indicated that both collaboration systems were used depending on the specific department and/or course.

Table 3 shows the partners the respondents collaborate with. The most common collaborations were between medicine and nursing (*N* = 8; 100%), between pharmaceutical and nursing (*N* = 10; 90.9%), between nutrition and welfare (*N* = 4; 80.0%), and between welfare and nursing (*N* = 6; 75.0%). Although the rehabilitation/clinical technician courses were involved in the largest number of collaborations (*N* = 31; 79.5%), overall, these courses had little collaboration among all courses.

Table 2.

IPE collaboration systems, by course

Course	Number of IPE-implementing targets	Interdisciplinary collaboration (%)	Extramural collaboration (%)	Both (%)
Medicine	8	8 (100)	-	-
Dentistry	2	-	1 (50.0)	1 (50.0)
Other dentistry	2*	1 (50.0)	-	1 (50.0)
Nursing	27	24 (88.9)	1 (3.7)	2(7.4)
Pharmaceutical	11	9 (81.8)	2 (18.2)	-
Rehabilitation/clinical technicians	39	38 (97.4)	-	1 (2.6)
Nutrition	5	5 (100)	-	-
Welfare	8	8 (100)	-	-
Total	**102**	**93 (91.2)**	**4 (3.9)**	**5 (4.9)**

* 1 not applicable

Table 3.

Current IPE-implementing status, by course

		Courses in collaboration with								
Course	Number of IPE-implementing targets	Medicine (%)	Dentistry (%)	Other dentistry (%)	Nursing (%)	Pharmaceutical (%)	Rehabilitation /clinical technicians (%)	Nutrition (%)	Welfare (%)	Others (%)
Medicine	8	0 (0)	0 (0)	0 (0)	8 (100)	5 (62.5)	2 (25.0)	0 (0)	0 (0)	0 (0)
Dentistry	2	2 (100)	2a (100)	0 (0)	1 (50.0)	2 (100)	0 (0)	0 (0)	0 (0)	0 (0)
Other dentistry	2*	0 (0)	1 (50.0)	0 (0)	1 (50.0)	0 (0)	1 (50)	0	1 (50)	0 (0)
Nursing	27	12 (44.4)	0 (0)	0 (0)	0 (0)	6 (22.2)	12 (44.4)	2 (7.4)	5 (18.5)	1b (3.7)
Pharmaceutical	11	8 (72.7)	1 (9.1)	1 (9.1)	10 (90.9)	0 (0)	5 (45.5)	1 (9.1)	1 (9.1)	1c (9.1)
Rehabilitation /clinical technicians	39	8 (20.5)	1 (2.6)	0 (0)	29 (74.4)	6 (15.4)	31 (79.5)	8 (20.5)	12 (30.8)	0 (0)
Nutrition	5	0 (0)	0 (0)	0 (0)	3 (60.0)	0 (0)	2 (40.0)	0 (0)	4 (80.0)	1d (20.0)
Welfare	8	0 (0)	0 (0)	0 (0)	6 (75.0)	1 (12.5)	4 (50.0)	4 (50.0)	3 (37.5)	0 (0)
Total	**102**									

* 1 not applicable; a Extramural cooperation; b Department of Design; c Department of Chemistry; d Department of Early Childhood Education

Problems after the implementation of the IPE program

In terms of problems after the implementation of the IPE program, on a course basis, 70 (68.6%) of the 102 respondents reported having problems, while 32 respondents (31.4%) did not report having problems (Table 4-1).

Table 4-1.

Problems after the implementation of the IPE program, by course

Course	Number of IPE-implementing targets	Yes (%)	No (%)
Medicine	8	6 (75.0)	2 (25.0)
Dentistry	2	1 (50.0)	1 (50.0)
Other dentistry	3	1 (50.0)	2 (66.7)
Nursing	26*	17 (65.4)	9 (34.6)
Pharmaceutical	11	8 (72.7)	3 (27.3)
Rehabilitation/clinical technicians	39	28 (71.8)	11 (28.2)
Nutrition	5	4 (80.0)	1 (20.0)
Welfare	8	5 (62.5)	3 (37.5)
Total	**102**	**70 (68.6)**	**32 (31.4)**

*1 not applicable

Table 4-2.

Details of problems encountered after the implementation of the IPE program

Q. If yes, what problems did you have? (Open question)		
No.	Categories	*N* (%)
1	Faculty	12 (26.7)
2	Interdisciplinary and/or extramural co-operation	17 (37.8)
	2-a: Environmental factor	1
	2-b: Curricular co-ordination	7
	2-c: Knowledge and/or skills distinction	3
	2-d: Operation	6
3	Educational issues in the IPE program	15 (33.3)
	3-a: Educational contents	9
	3-b: Evaluation of students and/or the IPE programs	4
	3-c: Other	2a
4	Administration of the IPE program	1 (2.2)
	Total items	**45 (100)**

a = Other: difficulty of handling repeaters (*N* = 1), difficult to understand nursing education because of the diversity of specializations (*N* = 1)

A total of 45 problem items were identified from the respondents' comments (Table 4-2). These items were qualitatively categorized into the following four groups: 1) faculty, 2) interdisciplinary and/or extramural co-operation, 3) educational issues in the IPE program, and 4) administration of the IPE program.

Moreover, categories 2 and 3 were further classified into more specific categories. As Table 4-2 shows, category 2 was the most common answer (N = 17; 37.8%) followed by category 3 (N = 15; 33.3%). Within categories 2 and 3, "curricular co-ordination" was the most common answer in category 2 (7 of 17 items) and "educational contents" was the most common in category 3 (9 of 15 items).

Non-IPE-implementing universities

Universities planning IPE implementation: The progress of IPE introduction

Table 5 shows the demographics of the non-IPE-implementing universities. On a course basis, 36 of the 181 respondents (19.9%) were planning to introduce an IPE program (universities planning IPE implementation). The most common response was for rehabilitation/clinical technician courses (N = 17; 43.6%), followed by pharmaceutical course (N = 6; 28.6%).

Table 5.

Plans for implementing an IPE program, by course

Course	Number of non-IPE-implementing targets	Yes (%)	No (%)
Medicine	15	1 (6.7)	14 (93.3)
Dentistry	7	1 (14.3)	6 (85.7)
Other dentistry	0	-	-
Nursing	38	6 (15.8)	32 (84.2)
Pharmaceutical	21	6 (28.6)	15 (71.4)
Rehabilitation/clinical technicians	39	17 (43.6)	22 (56.4)
Nutrition	22	1 (4.5)	21 (95.5)
Welfare	38	4 (10.5)	34 (89.5)
Others*	1	0	1 (100)
Total	**181**	**36 (19.9)**	**145 (80.1)**

* Department of Home Economics (with a Registered Dietitian course)

Regarding the universities planning IPE implementation, we also asked about the progress of their planning. As shown in Table 6, 14 of the 36 respondents replied "hope to introduce an IPE program, but do not have any plans yet" (38.9%), and 9 answered "the project is nearly completed, but the start time has not been decided" (25.0%). Six of the 36 respondents (16.7%) had already completed their plan and decided the time to start their program.

Universities planning IPE implementation: Problems encountered during the project

As shown in Table 7-1, among the 36 respondents, 29 (80.6%) had problems whereas 4 (11.1%) did not. The most common problems reported were: "the IPE program curriculum: especially interdisciplinary curricular organization" |(N = 23; 79.3%), "per-

Table 6.

Progress of planning IPE implementation, by course

Course	Number of planning IPE implementation targets	The project has already been completed	The project is nearly completed	The project is under consideration	Preparing for the project	Hope to introduce an IPE program
Medicine	1	-	-	-	-	1
Dentistry	1	-	-	-	-	1
Other dentistry	0	-	-	-	-	-
Nursing	6	2	1		1	2
Pharmaceutical	6		1	1	2	2
Rehabilitation/ clinical technicians	17	3	6	1	2	5
Nutrition	1	-	-	-	-	1
Welfare	4	1	1	-	-	2
Total	**36 (100)**	**6 (16.7)**	**9 (25.0)**	**2 (5.6)**	**5 (13.9)**	**14 (38.9)**

Table 7-1

Problems while carrying out IPE project, by course

Course	Number of planning IPE implementation targets	Yes (%)	No (%)	No response
Medicine	1	1 (100)		
Dentistry	1	1 (100)		
Other dentistry	0	-	-	
Nursing	6	6 (100)		
Pharmaceutical	6	4 (66.7)	1 (16.7)	1 (16.7)
Rehabilitation/clinical technicians	17	13 (76.5)	3 (17.6)	1 (5.9)
Nutrition	1	1 (100)		
Welfare	4	3 (75.0)		1 (25.0)
Total	**36 (100)**	**29 (80.6)**	**4 (11.1)**	**3 (8.3)**

sonnel resources for administering the IPE program" (N = 19; 65.5%), and "difficulty requesting support for the IPE program, especially for securing practical training facilities and learning contents" (N = 11; 37.9%). Additionally, the following three "other" problems were described: "too many students taking the same course," "do not have a university hospital," and "just established several years ago (quite a new university)" (Table 7-2).

Table 7-2.

Details of problems encountered during the IPE project, by course

Q. If yes, what problems did you have? (multiple answers)		
No.	Problems	*N*
1	Interdisciplinary curricular organization	23
2	Financial resources for administering the IPE program	6
3	Human resources for administering the IPE program	19
4	Requesting support for the IPE program, especially for learning content	11
5	Requesting support for the IPE program, especially for interdisciplinary co-operation	7
99	Other	2*

* Other: Too many students taking the same class (*N* = 1); do not have a university hospital (*N* = 1)

Universities planning IPE implementation: What advice was required?

For the last question regarding advice from IPE-implementing universities, a total of 52 items were collected from the respondents' written comments. These items were divided into the following categories: 1) faculty, 2) interdisciplinary and/or extramural co-operation, 3) educational issues in the IPE program, 4) administration of the

Table 8.

Details of problems encountered during the IPE project, by course

If you could consult any IPE-implementing universities about implementing an IPE program, what you would ask? (open question)		
No.	Categories	*N* (%)
1	Faculty	4 (7.7)
2	Interdisciplinary and/or extramural co-operation	19 (36.6)
	2-a: Environmental issues	9
	2-b: Curricular coordination	7
	2-c: Knowledge and/or skills distinction from other universities	1
	2-d: Operation	2
3	Educational issues in the IPE program	15 (28.9)
	3-a: Contents of the IPE program	12
	3-b: Evaluation of students and/or the IPE programs	3
4	Administration of the IPE program	6 (11.5)
5	Any experiences during IPE implementation	6 (11.5)
6	Other	2 (3.8)
	Total items	**52 (100)**

IPE program, 5) any experiences during IPE implementing process, and 6) other. Categories 2 and 3 were further classified into specific categories, as was done for the IPE-implementing universities. As Table 8 shows, 19 of the 52 items were in category 2 (36.6%), and 15 items were in category 3 (28.9%). Among these two categories, the most common items were "environmental issues" (9 of 19 items) in category 2, and "contents of the IPE program" in category 3 (12 of 15 items).

Discussion

The data collected in the present study provide insight into the IPE programs that existed prior to the Tohoku Earthquake and offer suggestions for future IPE programs, such as those demanded by the MHLW.

Tendency in collaboration partners and potential problems

As previously mentioned, IPE programs are not only required for clinical settings. As shown in Table 3, although a diverse range of fields are covered by IPE programs, collaboration was most common between medicine and nursing courses and between pharmaceutical and nursing courses, as these professionals work very closely in clinical settings. In contrast, rehabilitation/clinical technician courses had less collaboration with medicine and pharmaceutical courses. In particular, the welfare course had no collaboration with medicine or dentistry. One of the possible reasons for this lack of collaboration could be the function of each university. The respondents could be categorized into two groups: universities with their own hospital and universities without a hospital. Kamiyama et al. [3] described one example of a university with nursing and welfare courses, but no university hospital.

This university has a different perspective on IPE programs than other universities with a range of healthcare departments (e.g., medicine, pharmaceutical, nursing and rehabilitation/clinical technician) and/or their own hospitals. This is because the former university implements the IPE program based on a community support centre, whereas the latter universities focus on clinical institutions [3]. Kamiyama et al. also pointed out that IPE programs are currently in strong demand in Japan; however, the specific demands depend on the perspective of the institution [3]. Given the problems with interdisciplinary collaboration reported by respondents, future IPE programs must make such collaboration easier to achieve. As reported by Kuwabata, before the Tohoku earthquake, some affected areas already had serious chronic problems, such as an aging population, depopulation, and a lack of doctors and medical institutions. Moreover, before the Tohoku earthquake, patient and/or healthcare service user information was not effectively shared between healthcare and welfare professionals in the affected areas [11]. In aging communities, welfare professionals spend a great deal of time with elderly people. Consequently, welfare professionals are very close to them and are very experienced in caring for elderly and/or handicapped people. If patient and/or healthcare service user information had been effectively shared after the Tohoku earthquake, the network of healthcare and welfare professionals and the regional administration would have functioned more effectively in caring for the victims, especially the elderly and/or handicapped people, in the affected areas.

In the present study, we found that there is little collaboration between medicine and welfare courses in IPE (Table 3). Healthcare professionals and medical institutions faced challenges following the Tohoku earthquake. Healthcare human resources were already limited in depopulated areas in the Tohoku region prior to the earthquake; therefore, it is urgently necessary to secure human resources and promote collaboration among healthcare and welfare professionals. If healthcare and welfare professionals collaborate effectively, it should be possible to recover the community-based healthcare system more quickly.

Based on responses to the open question, "If you could consult any IPE-implementing universities about an implementing IPE program, what would you ask?" some respondents wanted to ask about problems with courses or institutions. For example, "how to develop or introduce an IPE program without a medical school" (pharmaceutical course), and "through the social care education program, how welfare courses can implement an IPE program with other healthcare departments" (psychiatric social worker course). In general, universities without a medical school or only one department face the same problem. They expect to encounter difficulties in adapting their curriculum to a clinical-based IPE program because most IPE programs focus on clinical settings.

Key role as a coordinator between healthcare and welfare

The levels of collaboration between nursing and rehabilitation/clinical technicians and between nursing and medicine are high (Table 3). Similarly, the second most common collaboration was between rehabilitation/clinical technicians and nursing. These two courses play important roles in clinical settings and in the community. For example, in a nursing course, students take classes to become a registered nurse, public health nurse, or midwife. Consequently, such courses include health and social care in the curriculum to encourage health and social care departments to work and learn together. Even a university with only one department could find suitable collaboration partners through a nursing department.

Limitations of this study

Firstly, the valid answer rate was 32.8% in this study. This is not considered high enough to accurately reflect the current status of IPE program implementation in Japan.

Secondly, some respondents might have been confused about what is *not* an IPE [12]. We used a more general definition of IPE than that of CAIPE because many terms in this field are used interchangeably with seemingly precise but differently interpreted meanings [8]. Moreover, interprofessional collaboration is termed team-treatment in Japanese, but this term has not been defined or conceptualized, and no guidelines on how team treatment can be implemented in practice have been published [9]. Although our definition of IPE programs might mix results on IPE programs with those on IPE-like programs, we consider that this would more accurately reflect the status of IPE implementation in Japan.

The present study is the first to show not only the actual status and problems of IPE program implementation in Japan, but also to suggest key issues to be addressed in future IPE programs.

Conclusion

We investigated the current status of IPE implementation in Japan following the difficulties experienced during the response to the Tohoku Earthquake. Our results identified problems in the implementation of IPE programs and emphasize the need for effective coordinators for collaboration between healthcare and welfare professionals. These are considered to be key issues for the development of new and more effective IPE programs.

Given the number of respondents that reported their institutions hope to introduce an IPE program, our future research will investigate how these key issues affect the spread of IPE and interprofessional collaboration between healthcare and welfare professionals in disaster-affected areas in Japan.

Acknowledgement

The authors would like to acknowledge the support of this work through a grant from the Japanese Ministry of Education, Culture, Sports, Science and Technology.

Abbreviations

CAIPE; Centre for the Advancement of Interprofessional Education
IPE; interprofessional education
MEXT; Japanese Ministry of Education, Culture, Sports, Science and Technology
MHLW; Japanese Ministry of Health, Labour and Welfare

References

1. Lapkin, S., Levett-Jones, T., & Gilligan, C. (2012). A cross-sectional survey examining the extent to which interprofessional education is used to teach nursing, pharmacy and medical students in Australian and New Zealand universities. *Journal of Interprofessional Care, 26*(5), 390–396.
2. World Health Organization. (2010). Study group on Interprofessional Education and Collaborative Practice. *Framework for action on interprofessional education and collaboration practice.* Geneva: World Health Organization.
3. Kamiyama, H., Ito, K., Sato, E., Yoshizawa, E., Shimizu. K. Tanaka, A., Mochizuki, S., Yamamoto, N, Ono, K., Osawa, J., Kouno, Y., Shimomura, Y., Yanagida, M., Yamada, C., Yokoyama, K., Ide, N., Izumune, M., Suda, Y., Nakahashi, J., Morita, H., Mitsui, C., Hiragata, M., & Matsuhashi, M. (2011). Development of inter-professional education based on accomplishment in Britain and America. *The Bulletin of Yamanashi Prefectural University, Faculty of Human and Social Services*, *6*, 47–56.
4. Hayashi, K., & Tomita, N. (2012). Lessons learned from the Great East Japan Earthquake: Impact on child and adolescent health. *Asia-Pacific Journal of Public Health, 24*(4), 681–688.
5. Science Council of Japan. (2011). *Chiiki de kurasu korei-sha wo shien suru senmonshoku no renkei ni mukete (interprofessional education for supporting aged people).* URL: http://www.scj.go.jp/ja/info/kohyo/pdf/kohyo-21-t133-2.pdf [May 10, 2014].
6. The Ministry of Health, Labour and Welfare. (2012). *The comprehensive reform of social security and tax.* URL: http://www.mhlw.go.jp/seisakunitsuite/bunya/kenkou_iryou/iryou/zaitaku/index.html [November 13, 2013].
7. Center for the Advancement of Interprofessional Education. (2015). *Defining IPE.* URL: http://caipe.org.uk/about-us/defining-ipe/ [May 10, 2014].
8. Rafter, M.E., Pesun, I.J., Herren, M., Linfante, J.C., Mina, M. Wu, C.D., & Casada, J.P. (2006). A preliminary survey of interprofessional education. *Journal of Dental Education, 70*(4), 417–427.
9. Tamura, Y., Bontje, P., Nakata, Y., Ishikawa, Y., & Tsuda, N. (2005). Can one eat collaboration? Menus as metaphors of interprofessional collaboration. *Journal of Interprofessional Care, 19*(3), 215–222.

10. Yoyogi Seminar. (2011). *Daigaku Juken Annai 2012 (Guidebook for University and College Admission)*. Tokyo: Shobun-sha.
11. Kuwabata, T. (2012). The actual conditions and issues of reconstruction (restoration) of local communities in the North Tohoku region after the Great East Japan Earthquake: With a focus on community health care in Iwate. *Shakai Sisutemu Kenkyu, 24,* 33–59.
12. Burning, S.M., Bhushan, A., Broeseker, A., Conway, S., Duncan-Hewitt, W., Hansen, L., & Westberg, S. (2009). Interprofessional education: Definitions, student competencies, and guidelines for implementation. *American Journal of Pharmaceutical Education, 73*(4), 59.