The evaluation of reproductive health PhD program in Iran: The input indicators analysis

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ABSTRACT

Background: Appropriate quality achievement of a PhD program requires frequent assessment and discovering the shortcomings in the program. Inputs, which are important elements of the curriculum, are frequently missed in evaluations. The purpose of this study was to evaluate the input indicators of reproductive health PhD program in Iran based on the Context, Input, Process, and Product (CIPP) evaluation model.

Materials and Methods: This is a descriptive and evaluative study based on the CIPP evaluation model. It was conducted in 2013 in four Iranian schools of nursing and midwifery of medical sciences universities. Statistical population consisted of four groups: heads of departments ($n = 5$), faculty members ($n = 18$), graduates ($n = 12$), and PhD students of reproductive health ($n = 54$). Data collection tools were five separate questionnaires including 37 indicators that were developed by the researcher. Content and face validity were evaluated based on the experts' indications. The Cronbach's alpha coefficient was calculated in order to obtain the reliability of the questionnaires. Collected data were analyzed by SPSS software. Data were analyzed by descriptive statistics (mean, frequency, percentage, and standard deviation), and one-way analysis of variance (ANOVA) and least significant difference (LSD) *post hoc* tests to compare means between groups.

Results: The results of the study indicated that the highest percentage of the heads of departments (80%), graduates (66.7%), and students (68.5%) evaluated the status of input indicators of reproductive health PhD program as relatively appropriate, while most of the faculties (66.7%) evaluated that as appropriate.

Conclusions: It is suggested to explore the reasons for relatively appropriate evaluation of input indicators by further academic researches and improve the reproductive health PhD program accordingly.

Key words: Context, input, process, and product evaluation model, indicators, Iran, program evaluation, reproductive health

INTRODUCTION

By expansion of sciences and the need for experts in the field of reproductive health, PhD in reproductive health plays a key role in quality improvement of service and achievement of scientific outcomes and advancements.[1] In 2012, the American College of Nurse Midwives (ACNM), which is responsible for the quality of midwifery educational programs, emphasized on creating opportunities for educating midwives to the highest academic level in order to meet the changing complicated health needs.

[2] PhD in reproductive health, which is the first PhD course designed for post-graduation of midwives with a master's degree, is a branch of medical and health sciences through which the students are familiarized with various dimensions of reproductive health, such as population affairs, nutrition, law, epidemiology, and advanced infertility techniques, to conduct planning, management, research, and education in the context of reproductive health. In Iran, students' admission in PhD in reproductive health started in Tehran, Shahid Beheshti, and Isfahan universities from 2006. Then, it was established in Tarbiat Modares, Mashhad, and Shahroud universities. This course was established in 1967 in Karolinska University in Sweden with different branches such as reproductive health and children's health, maternal health, and endocrinology in the Department of Maternal Health. Then, other popular universities like John Hopkins, Harvard, Keele, Lancashire, Warwick, Monash, and Edinburgh also admitted students in this course.[1] The goal of PhD program, based on American Association of Colleges of Nursing, was to train researchers and innovative scientists and critics to conduct research in the society and university, and ultimately extend their knowledge.[3] After establishment of each PhD course, one of the most important issues which should be

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notified is the quality of education and achievement of course goals. The quality guarantee of PhD education is among the most important influencing elements on development and improvement of PhD educational programs. To have a quality program, the educational programs should be investigated and evaluated periodically by the committee of internal and external quality.[4] In medical sciences education, quality is achieved when the students attain the capabilities defined by educational program goals. In other words, education and educational programs train the individuals to consider and be responsive to the extensive progression of medical sciences and attain adequate knowledge, experience, and skills.[5] The definition of quality in higher education is a multidimensional concept, and somehow ambiguous, and cannot be easily judged. Evaluation, as a tool making this judgment possible and documenting the quality, is of great importance.[6] Through evaluation of an educational program, its level of adaptation and coordination with individuals' and society's needs is revealed, the capability of the methods and tools is determined, and the effective factors in program progress are detected.[7] Educational authorities make judgments based on the consistency between educational programs' outcomes and the expected goals.[8]

Appropriate evaluation not only modifies and empowers the weak points, but also can act as a background for many educational plans and decisions and, consequently, promotes scientific level of the universities.[9] In the evaluation of any educational system, appropriate use of evaluation methods is very important. Various models have been designed and presented for educational evaluation. One of the evaluation models that have arisen from management-based approach is CIPP which is the abbreviation for Context, Input, Process, and Product. CIPP model has been designed and suggested to facilitate decision-making process of the managers. It is a holistic and comprehensive model which can investigate a program systematically and multi-dimensionally at the beginning, during administration, and at final stages.[10] In a research conducted by the American Development and Education Association, it was shown that CIPP evaluation model is superior to other models.[11] As this model is a comprehensive model to conduct programs, projects, products, organizations, and systems, through which the evaluating factors can enjoy all four domains to evaluate a program, in addition to separate evaluation of one or some parts of the program,[12] it has been considered as the theoretical foundation of the research. Inputs are among the important elements of curriculum planning which are ignored in most of the evaluation processes.[13] Input includes all elements that are entered into the system. Inputs contain various factors of which the most important ones are academic members,

students, curriculum, budgets, and educational facilities and equipments. They have been adopted in some studies like those of Singh,[14] Phattarayuttawat *et al.*,[15] Mohebbi *et al.*,[9] Fathabadi *et al.*,[16] and Shayan *et al.*[17] Using several approaches to conduct evaluation is very important in a valid evaluation. Nagata *et al.*, in a study on evaluation of doctoral nursing education in Japan among students, graduates, and the faculty, reported a significant difference among the evaluators. It showed that having evaluators with different roles is important to conduct a comprehensive evaluation of the quality of nursing education of PhD course.[18]

In the present study, the viewpoints of heads of departments, faculty members, library managers, graduates, and students were considered in conducting a comprehensive evaluation. No study has been conducted previously on the evaluation of reproductive health PhD curriculum. Evaluation of reproductive health PhD course based on the curriculum is essential, 3-5 years after the first group of students has graduated. In Iran, this course is the first approved PhD course for post-graduation of masters of midwifery, and as 7 years have passed after its establishment, its evaluation is essential. This study aimed to evaluate the input indicators of reproductive health PhD program in Iran based on the CIPP evaluation model. This article is a part of a research project to evaluate the reproductive health PhD program based on CIPP model.

MATERIALS AND METHODS

This is a descriptive evaluative study conducted using CIPP model in 2013 in the nursing and midwifery schools in Iran where reproductive health PhD course was taught (Tehran, Shahid Beheshti, Isfahan, Shahroud, and Mashhad). Study population comprised all heads of departments of midwifery/authorities of reproductive health PhD ($n = 5$), academic members of reproductive health PhD course ($n = 18$), heads of libraries in the nursing and midwifery schools ($n = 5$), graduates ($n = 12$), and reproductive health PhD students ($n = 54$) who had enrolled in the medical universities in Iran between 2006 and 2011. Ethics approval was obtained from the ethics committee of Vice Chancellery for Research in Isfahan University of Medical Sciences. The study population was selected by census sampling and based on the inclusion criteria. Inclusion criteria were: students of reproductive health PhD who had at least passed the first semester, faculty members who were responsible for teaching at least one credit or were a part of reproductive health PhD course, or the supervisors and counselors of a reproductive health PhD dissertation, and managers with at least 6 months of management experience in their position, and willingness

to attend the study and answer the questions. The data were collected by a researcher-made questionnaire based on CIPP model, and educational facilities and equipments evaluation checklists.

Voluntary return of the completed questionnaires by subjects showed their informed consent. With the help of existing sources in Iran and other countries, input indicators were prepared and five questionnaires and one checklist were designed accordingly. Researchers of this study, with the cooperation of expert professors, extracted the indicators and developed questionnaires from 4 tools: the tool used in research project conducted in York University in Canada, which was titled as "Evaluation framework for nursing education programs: Application of the CIPP model."[14] the tools of Nagata's study[18] and Kim's study[19] for the evaluation of PhD in nursing, and the questionnaire of Mohebi's study which was titled as "Application of CIPP model for evaluating the medical records education course at Master of Science level at Iranian medical sciences universities".[9] In domains of input, total of 37 indicators were prepared for evaluation of five factors of academic members, students, curriculum, budget, and educational facilities and equipments. Based on these indicators, a separate questionnaire was prepared for each of the following: heads of departments (responsible for PhD in reproductive health), academic members (teachers of reproductive health PhD course), graduates of reproductive health PhD course, and students of reproductive health PhD course. For evaluation of educational facilities and equipments, a checklist was made which was ticked by the researcher after direct inspection by referring to each university. Content and face validity of the questionnaires were assessed by 10 academic members who were experts of medical education, and reproductive health and midwifery. They were asked to write down their suggested modifications after having a careful review of the questionnaires. Cronbach's alpha values were calculated for department heads', academic members', graduates', and students' questionnaires as $\alpha = 0.95$, $\alpha = 0.91$, $\alpha = 0.95$, and $\alpha = 0.94$, respectively, to confirm the reliability. The questionnaires had two sections. The first section included subjects' demographic characteristics including age, name of the university where they studied, their average course of graduation in master's level, and work experience.

The second section contained multiple choice questions scored with five-point Likert's scale, rated as very much, much, average, little, and very little, which were scored from 1 to 5, respectively, as well as some open questions to measure subjects' viewpoints. If the score of the item was 1-2.33, it was evaluated as inappropriate; if the score was between 2.33 and 3.66, it was evaluated as relatively appropriate; and if it was 3.66-5, the item was evaluated as appropriate. Then, to investigate the status of input between groups, the appropriateness score was calculated out of 100. The obtained total score was multiplied by 100 and then it was divided to the multiplied of the number of the questions by the highest score that each item could gain (score five). Input status were evaluated inappropriate if the obtained score was 0-33, relatively appropriate if the score was between 34 and 66, and appropriate if the obtained score was 67-100. Educational facilities and equipments checklist included four sections of school educational and official atmosphere for PhD students of reproductive health, library and informative systems, computer facilities and services, and audio-visual facilities, which contained some three-point scale multiple choice questions rated as appropriate (score 1), relatively appropriate (score 2), and inappropriate (score 3). With regard to the condition of educational facilities and equipments, the scores between 1 and 1.66 were evaluated inappropriate, between 1.66 and 2.32 as relatively appropriate, and between 2.32 and 3 as appropriate.

The obtained data were analyzed by descriptive statistical tests (mean, frequency distribution percentage, and SD), and one-way analysis of variance (ANOVA) and least significant difference (LSD) *post hoc* tests to compare the means through SPSS.

RESULTS

Demographic characteristics
Mean age of heads of departments and authorities of reproductive health PhD course was 45.4 (5.84) years and their mean length of management experience was 4.6 (2.96) years. Mean age of the teachers was 47 (7.37) years and their mean work experience was 16.27 (9.23) years. Mean work experience of the teachers in the highest academic position was 5.70 (3.82) years. Mean age of graduates was 42.72 (3.79) years with the mean final average of 18.72 (0.46) years and the average of their master's or medical doctorate degree was 18.25 (0.44) years. Mean students' age was 37.87 (6.61) years, with the mean average of the passed credits being 18.65 (0.49) and the mean average of master's or medical doctorate degree being 18.18 (0.67). Mean age of library managers was 42 (7) years and their work experience was 15 (7.54) years.

Input evaluation status
Table 1 shows the frequency distribution of evaluation indicators of reproductive health PhD course in domain of input from the viewpoints of the subjects. In domain of input, the highest percentage of heads of departments, graduates, and students reported the evaluation indicators

of reproductive health PhD to be relatively appropriate, while the teachers reported it as appropriate. All library managers evaluated the condition of all reproductive health PhD evaluation indicators appropriate with a mean score of 77.5 (4.11). Mean total scores of evaluation indicators in domain of input were 65.64 (13.25) for heads of departments, 67.90 (9.86) for teachers, 54.66 (16.39) for graduates, and 49.27 (16.86) for students. The highest score was obtained by the teachers and the lowest by the students. One-way ANOVA showed that mean scores of evaluation indicators' status in domain of input were not the same in different groups ($P < 0.001$). LSD *post hoc* showed no significant difference in the mean scores of teachers and heads of departments, but students' mean score was significantly less than the other two groups of managers ($P = 0.02$) and teachers ($P < 0.001$) [Table 2]. Total mean of evaluation indicators in the input domain of curriculum of reproductive health PhD in Iran based on CIPP model is presented in Table 3. From the viewpoint of the managers, students, and graduates in domain of input, the highest mean score was for the indicator of "consistency between hours of students' access to library sources and their logical and normal needs," while from the teachers' viewpoint, it was "teachers' knowledge about various teaching methods and their application specifications" which had the highest appropriateness. The lowest level of appropriateness from the managers' viewpoint was for "goal achievement of course by the curriculum," "consistency of available budget with the course research needs," and "students' welfare budget adequacy." From the teachers' and graduates' viewpoints, the lowest mean in input indicators was for "the balance between facilities and sport and recreational places and the number of students." Meanwhile, "presented courses of reproductive health PhD meet students' educational needs and expectations" had the

lowest level of appropriateness from students' viewpoint. Table 4 presents the mean (SD) scores of educational facilities and equipments through direct inspection which has been evaluated appropriate with a mean of 2.49 (0.49). The highest mean was for "computer facilities and services" and the lowest for "library and informative system."

DISCUSSION

This study aimed to evaluate the input indicators of reproductive health PhD program in Iran based on the CIPP evaluation model. The obtained results showed that the input indicators of reproductive health PhD are relatively appropriate. In this study, mean age of graduates was 42.72 (3.79) years and ranged 38-48 years. Mean age of students was 37.87 (6.61) years and ranged 27-50 years. Pastor reported that mean age of graduates was 46 years, and 48% of the subjects were between 45 and 54 years of age and 12% were more than 55 years. He believes that to increase the use of graduates' services, nurses should be encouraged to attend a PhD course from younger age.[20] Mean age of graduates was reported as 46 years in the report of American Association of colleges of nursing in 2011.[21] Farahani and Ahmadi reported mean age of nursing PhD students as 37.5 years,[22] which is consistent with the present study. On comparing these two studies with Pastor's and the above-mentioned report of American Association of colleges of nursing in 2011, it seems that PhD students are younger in Iran and expected to be more productive for the health system. Based on researcher's review, the present study is the first report of reproductive health PhD educational condition in Iran and other countries. Therefore, there is no article on evaluation to be compared with the present study. Findings of the present study, in relation with evaluation of curriculum factor in domain of input, showed that the indicator of

Table 1: Frequency distribution of reproductive health PhD evaluation indicators in domain of input from the viewpoint of subjects

Subjects	Heads of departments		Faculty members		Graduates		Students	
Frequency	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Input								
Inappropriate (0-33)	0	0	0	0	1	8.3	8	14.8
Relatively appropriate (34-66)	4	80	6	33.3	8	66.7	37	68.5
Appropriate (67-100)	1	20	12	66.7	3	25	9	16.7
Total	5	100	18	100	12	100	54	100

Table 2: Mean and SD of reproductive health PhD evaluation indicators in domain of input from the viewpoint of subjects

Subjects	Heads of departments		Faculty members		Graduates		Students		F	*P* value
Mean score	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**		
Domain										
Input	65.64	13.35	67.90	9.86	56.66	16.39	49.27	16.86	7.45	<0.001

SD: Standard deviation

Table 3: Mean of evaluation indicators in the input domain of curriculum of reproductive health PhD in Iran from the viewpoints of subjects

Input domain indicators	Subjects							
	Heads of departments		Faculty members		Graduates		Students	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Curriculum factor								
Achievement of course goals by curriculum	3	1	3.11	0.75	3.08	0.99	2.61	1.01
Curriculum goals clearness	3.4	0.89	3.33	0.90	2.83	1.02	2.65	0.99
Consistency of presented courses in the university with their approved outline	4.2	0.83	3.89	0.67	3.33	0.98	3.22	0.98
Coordination and consistency between the presented courses and the determined volume	3.8	0.44	3.67	0.68	3.50	1	2.78	0.96
Coordination and consistency between the presented courses and the determined time	3.6	0.54	3.72	0.57	3.92	0.66	3.04	0.98
Coordination and consistency between the presented courses of this program and the determined prerequisites and students' previous knowledge	3.6	0.54	3.61	0.60	3.17	1.26	2.87	1.08
Response of the presented courses of this program to students' educational needs and expectations	3.2	0.44	3.61	0.97	2.92	0.99	2.39	1.07
Flexibility of the presented courses of this program for teachers' and students' innovations	3.4	0.89	3.50	0.85	2.83	0.83	2.56	1
Clear emphasis of the presented courses on reproductive health science and research education	3.8	0.83	3.94	0.72	3.25	1.13	2.80	0.93
Logical sequence and association between courses of this program	3.8	0.83	3.61	0.91	3.17	0.93	2.81	0.89
Consistency of sequence and the amount of credits presentation of PhD program	*	-	3.78	0.94	3.42	0.99	2.83	0.92
Consistency of the presented courses with students' professional abilities and interests	-	-	-	-	3.42	0.99	2.67	1.06
Adequacy of courses deficit or compensatory	-	-	-	-	2.75	0.96	2.63	1.05
Faculty members factor								
Consistency of teachers' major with the presented courses	4	1	4.33	0.76	3.42	1.16	3.41	1.07
Familiarity of teachers with the goals and content of reproductive health course	4	1	4.50	0.61	3.33	0.98	3.20	1.03
Academic members' familiarity with the statistical methods, research, and computer	4.2	0.83	4.50	0.70	3.42	0.66	3.54	1.09
Academic members' knowledge about various teaching methods and their application specifications	4.2	0.83	4.56	0.61	-	-	-	-
Consistency between supervisors' professionalism and the reproductive health course	3.8	1.30	-	-	3.42	1.16	3.24	1.33
Consistency between dissertation referees' professionalism and the reproductive health course	4	0.70	3.44	1.04	3.66	1.15	3	1.02
Level of teachers' interest in teaching	-	-	-	-	3.42	0.79	3.28	1.08
Holding educational workshops and programs needed for reproductive health teachers' improvement	3.4	0.89	2.67	0.90	-	-	-	-
Students factor								
Entry of students with needed motivation toward this course	3.4	0.89	4.11	0.67	-	-	-	-
Appropriateness of reproductive health PhD admission	3.6	0.89	3.61	0.84	3.53	0.90	3.20	1.12
Facilities and equipments factor								
Consistency between school educational facilities and equipments and research and educational needs of this program	3.4	0.54	3.94	0.87	3.33	1.23	3.11	1.22
Consistency between computer and internet access and students' number and their educational needs	3.6	0.54	4.11	0.67	3.67	1.43	3.30	1.20

Contd...

Table 3: Contd...

Input domain indicators	Subjects							
	Heads of departments		Faculty members		Graduates		Students	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Consistency between library sources access hours and the number of teachers and students and their educational needs	4.4	0.54	4.17	0.78	3.67	1.2	3.54	1.05
Efficacy and updating of existing educational sources and materials in the library	4	1	3.78	0.80	3.25	0.96	3.11	1.17
Consistency between educational facilities and places and number of students	3.6	0.89	3.83	0.98	3.17	1.33	3.13	1.13
Consistency between recreational and sports facilities with the number of students	3.6	0.89	2.61	1.09	2.33	1.30	2.59	1.26

*The question was not asked from the subjects

Table 4: Mean and SD of educational facilities and equipments

Mean scores	Mean	SD
Facilities and equipments		
Educational and official places	2.35	0.54
Library and informatics system	2.24	0.26
Computer services and facilities	2.80	0.34
Audio-visual facilities	2.56	0.55
Total	2.49	0.24

SD: Standard deviation

"achievement of course goals by curriculum" had the least mean from the viewpoints of heads of departments and teachers, while from graduates' viewpoint, it was "adequacy of offering courses deficit or compensatory." From the viewpoint of students, it was "fulfillment of students' educational needs and expectations from the presented courses." Kim *et al.* reported that the advantages of nursing PhD curriculum from the subjects' viewpoint were "emphasis on specific fields of research" and "research ethics and multi-disciplinary courses." The disadvantages were "inadequate time for developing the curriculum," "shortcomings of the courses to meet core research competencies," and "lack of linkage between practice and theory." In Kim's study, like the present study, the response of the courses presented in PhD course to students' educational needs and expectations was among the disadvantages of PhD, in addition to the fact that university suggests limited and fixed courses to the students to select.[19] In most of the countries, PhD students determine the courses they want to select, usually based on the subject of their dissertation.

This issue, despite an increase in motivation, efficacy, and efficiency of educational courses, leads to a variety in the professions among the graduates of such courses and lets them play a more effective role in fulfillment of the needs of the society.[23] In a survey conducted by Farahani and Ahmadi on the nursing PhD students' viewpoint about their curriculum, the students highlighted the importance

of their own determination of the courses based on the subject of their dissertation through which they claimed they could save time and enrich their literature review in their dissertation. In our study, from the graduates' viewpoint, "adequacy of courses deficit or compensatory" had the lowest mean score. Most of the students and graduates also indicated the weak points of the course as the incapability of some courses concerning their empowerment in research abilities like qualitative research methodology and advanced statistics. They also reported weak points of nonexistence of clinical courses in outline and lack of reproductive health experts' empowerment in their clinical skills.

Kim *et al.* laid much emphasis on theorizing and analysis as the weak points of nursing PhD curriculum from the viewpoints of presenters of the course and suggested to focus on those theories which are applicable in nursing practice in the curriculum. In this study, both presenters and learners pointed to interdisciplinary courses as the positive points of curriculum.[19] In a study on evaluation of nursing PhD in Iran, most of the credits were reported to be theoretical, as there were no independent credits for care, and activities and problems in the clinical setting.[22,23] In John Hopkins University, PhD in reproductive perinatal and women's health includes practical education in the fields of research, function and policy making in fertility and family planning, maternal health, health discrimination, services for women at fertility age, and gender-related issues in the world. Their curriculum includes clinical aspects of reproductive health,[24] while in the curriculum of reproductive health PhD in Iran, there are no clinical subjects.

With regard to this issue and existence of several clinical problems in Iran, it is essential that the curriculum planners and experts take this issue under close consideration.

In the present study, the indicator of "achievement of course goals by curriculum" had the lowest score from the

viewpoint of the managers and teachers. Three roles are considered in the goals of reproductive health PhD. They are educational, research, and planning for the graduates. However, based on the viewpoints of the students and graduates in response to the open question on the presented courses, they claimed that the course prepared them just for educational role, while there were defects in two other fields. Most of the subjects emphasized on the necessity of including research method, especially qualitative research, in the curriculum. They claimed that the outlined courses were not adequate in relation with management, planning, and promotion of care for the graduates. Adams suggested that universities should prepare the PhD students not only for research but also for several responsibilities they would face after graduation, such as teaching, university life, seeking jobs, and academic choices.[25] The findings of the present study concerning evaluation of academic members factor in domain of input showed that the indicator "consistency of reproductive health PhD dissertation referee's professionalism with reproductive health" had the lowest mean from the viewpoint of the teachers and students who entered the research stage. From the viewpoints of graduates and students, "adequate familiarity of the teachers with subjects and course of reproductive health" had the lowest score, and from the viewpoints of heads of departments, "consistency of supervisors with the course of reproductive health" had the lowest appropriateness.

These problems are also observed in evaluation of other PhD courses. In Nagata's study on evaluation of the receivers (students and graduates) about the adequacy of professional academic members, it was surprising that qualitative and quantitative inadequacy of academic members in PhD courses was mentioned among the problems in Japan and the US.[26,27] Although academic members had a different viewpoint, they agreed with this mentioned qualitative and quantitative defect.

In their study, the graduates were more positive, compared to students, possibly revealing that most of the nursing PhD courses are conducted in counseling professor's lab with no force on students to pass a high number of unneeded courses in Japan. In the study of Farahani and Ahamadi, nursing PhD students claimed that some teachers had inadequate mastery on the courses of PhD.[22] Pakdaman *et al.*, in a study on achievement of educational goals of periodontics and community oral health departments in Tehran university based on CIPP model, concluded that in domain of input, the students claimed that the teachers' skills and motivation were not adequate.[28] Kim *et al.* conducted a study on description of positive and negative points of academic members, students, curriculum, and nursing doctoral education resources from the viewpoints

of authorities and academic members (presenters), students, and graduates (receivers). They concluded that the number of knowledgeable and adequately skillful teachers was not enough, although the receivers had a more positive viewpoint about the teachers, compared to presenters.[19] This issue may be due to Asian culture in which the teachers are believed to be respected and the Japanese culture focusing on "self-criticism" instead of "emphasis on self-positive attitude."[29] This issue in reproductive health course may have been rooted from the variety of dissertation subjects and the existing limitations based on university regulations on selecting teachers from related nursing and midwifery schools and most of these academic members' professional irrelevance with dissertation subjects.

As only two groups of reproductive health PhD students have graduated up to now, the qualitative and quantitative defects of the teachers in this course seem normal. The problem will be solved through time if the newly graduated students have the chances of scholarship for post doc courses. With regard to mean of indicators in domain of input, graduates' viewpoints were higher than those of students (like two aforementioned studies), which can be possibly due to the fact that the graduates had passed their dissertation and had a more positive evaluation, compared to students. There may be another reason. The graduates, due to their limited number, work as teachers after graduation and have a feeling of belonging to reproductive health as a professional and not as a student, and this feeling may have been effective on their attitude. Meanwhile, as the students face challenges with the curriculum, they can feel the positive and negative points of the curriculum better. In the School of Reproductive Health, Population and Family in John Hopkins University, an agreement was established for the supervisors of PhD students, especially reproductive health PhD students, to guarantee the quality of counseling services given to these students. Based on this agreement, the supervisors should thoroughly know about PhD course curriculum.[24]

It is suggested to hold an orientation session to introduce the curriculum of reproductive health PhD before the semester starts to let the teachers conduct the students better as many teachers reported their improper familiarity with reproductive health PhD program. In the evaluation of facilities and equipment factor in domain of input, the indicator "consistency of sport and recreational facilities and places with the number of students" had the lowest score level of appropriateness from the viewpoints of teachers, students, and graduates and from the viewpoint of the heads of departments for the indicators "consistency of educational facilities and equipments in the school

with educational and research needs of this course" and "consistency between existing books and journals in the library with students' and teachers' number and needs" were the lowest. Anderson states that the quality of tools and places and facilities are the factors of success, in addition to students' and academic members' abilities and the curriculum.[30] In the present study, the heads of the departments claimed that facilities and equipments as well as the existing books and journals in the library could not fulfill their educational needs. Of course in the studies of Nagata[18] and Kim,[19] the receivers gave a higher score to these indicators, compared to the presenters. Nagata found the difference in the roles of these two groups to be the reason behind this. Receivers like students are not involved in precise and minor needs of resources to represent quality education, while the heads of the departments face provision of resources for students' quality learning. In the study of Farahani and Ahmadi, about half of the students were dissatisfied with the existing physical atmosphere facilities, and 50% reported that their library facilities and access to functional websites were poor.[22] A review on the findings of various studies reveals the importance of facilities and equipments, and educational atmosphere in the administration and evaluation of curriculum, which proves the necessity of their evaluation.[13] In higher education, physical spaces and equipments are modified or promoted if they are regularly evaluated through an efficient method. CIPP model is a framework through which the success of this process can be monitored.[31]

CONCLUSION

The quality of education in domain of input was relatively appropriate; therefore, it is suggested to detect the indicators of input which led to the relatively appropriate status of this educational course to promote the quality and modify reproductive health PhD program.

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