

看護師継続教育実践における方法論的・理論的問題 —批判的文献レビューおよびエビデンスに基づいた実践への示唆—

Methodological and Theoretical Issues in Evaluating Continuing Education Practices for Professional Nurses: A Critical Literature Review and Implications for Evidence-Based Practice

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ABSTRACT

ヘルスケア分野における急激な変化のなかで、看護師継続教育が、看護師の専門職としての発達と質の高い看護の提供を維持するために重要であることは広く認められたところである。しかしながら、看護師継続教育の有効性のエビデンスは、主に方法論上の問題から、ほとんど示されてこなかった。さらに、効果的な評価に対する重要性にも関わらず、プログラムを導く理論と評価モデルは、先行研究においてほとんど議論されてこなかった。そこで、本稿は、看護師継続教育プログラムを評価した最近の研究を、プログラムを導く理論、評価モデル、プログラムアウトカムの測定という方法論の点からレビューした。また、今後の効果的な評価研究への示唆を検討した。文献検索には、PubMed, CINAHL, 医中誌を用い、2006年から2016年8月までの文献を検索し、結果的に19本の文献が検討対象として残った。レビューした文献のうち、プログラムが理論によって導かれていたものはほとんどなかった。また、プログラム前後を比較する評価アプローチを用いた研究が大半を占めたのに対して、それ以外の評価モデルを使った研究はわずかであった。さらに、レビューした文献のほとんどは、プログラムによる変化を参加者の

知覚による評価に頼っており、患者へのケアにおける変化を検討した研究はほとんどなかった。これらの結果から、今後の評価研究は、理論に基づくプログラムを用い、プログラムの複雑性を理解するのに有用な評価モデルによって計画されるべきであることが示唆された。また、実践や患者におけるアウトカムを捉えるために、より感度が正確な指標を開発するためのさらなる努力が必要であることが示された。

In the rapidly changing and diverse health-care practices around the world, continuing education is recognized as important so as to ensure the delivery of quality care by professional nurses in hospitals and other health-care facilities. However, serious methodological concerns have been raised in evaluating nursing continuing education. Moreover, the use of theory-guided programs and evaluation models, both essential ingredients for the delivery of effective programs, have hardly been discussed in the past literature on continuing education in nursing. The present literature review examined selected evaluation studies of continuing education in nursing with respect to program evaluation issues. Also, implications for future research were discussed in providing evidence-based education programs. A literature search (2006-2016) was conducted in August 2016 using PubMed, CINAHL, and *Ichu-shi*. Nineteen articles from various regions of the world were eventually included in the review. There were only a few studies whose programs were guided by certain theories. Additionally, a simple pre-post evaluation design approach was the type of evaluation design most frequently used in the reviewed articles; overall, the studies using a full program evaluation model were few and far between. The identified evaluation approaches and models did not adequately inform researchers of the process or outcome of program efficacy. The measurement of program outcomes in most of the reviewed studies depended on participants' perceptions of changes as expected outcomes. Only a few studies examined changes in patient care with objective measures. Overall, the review of the literature suggests that evaluation of future continuing education programs for nurses should include theory-based programs with valuable evaluation models, enabling researchers to fully understand complexities of their programs. More efforts should be made to develop more sensitive and accurate indicators of changes in practice and patient outcomes.

1. Introduction

The importance of continuing education in nursing has been globally recognized as an important aspect of post-graduate training mechanism for practicing nurses to maintain their skills (Gallagher, 2007; Griscti & Jacono, 2006; Webster-Wright, 2009). nurses are required to update their expertise in the context of rapidly changing nursing and health care practices to deliver quality services through life-long learning. Some countries (e.g., the U.S., the U.K., and Australia) have policies that participation in continuing education is mandatory for renewing nursing licensure.

In Japan, however, such participation is voluntary but strongly recommended. Consequently, enormous time, resources, and money have been expended on continuing education in Japan, as well as in other countries (Lee, 2011) because an urgent need is clear for evidence-based practice in continuing education for nurses (Lee, 2011; Penz & Bassendowski, 2006).

1.1 Evidence on effectiveness of continuing education programs in nursing

Very little is known about the effectiveness of continuing education on nursing practices and patient outcomes (e.g., Griscti & Jacono, 2006;

Lawton & Wimpenny, 2003). Positive changes in nurses' competency and patient care resulting from continuing education are difficult to assess mainly due to lack of robust evaluation methodologies (Jordan, 2000; Lee, 2011). In a comprehensive review of 40 evaluation studies of continuing education for health care professionals, Griscti & Jacono (2006) found that there were only a few empirical studies that examined how continuing education would contribute to "good practice." Toward evidence-based practice in continuing education in nursing, methodological issues present a huge challenge to overcome.

1.2 Theory-guided programs and evaluation models

Theory-based programs and robust evaluation models are both essential components in any successful program. Theories guiding programs give explanations on how a program produces desired outcomes and impact, enabling evaluators to conduct theory-based evaluation to test hypotheses on causal relationships between program components and desired outcomes (e.g., Dalton, Elias, & Wandersman, 2001). There are at least two sources of program failure: theory failure and implementation failure. If a program was implemented well but with no desired outcomes produced, then the theory behind the program may be perhaps the reason why the program did not work. Therefore, evaluation information from a theory-based program is necessary for evaluators and stakeholders to improve their programs.

Whereas a theory or model may explain a causal relationship between program contents and its outcomes, an evaluation model gives evaluators and stakeholders a structure of program evaluation. More than several evaluation models such as a logic model (Centers for Disease Control and Prevention, 2011), Kirkpatrick's model (Kirkpatrick, 1998), and empowerment evaluation

(Fetterman, 1994) have been used in evaluating continuing education programs. An evaluation model allows evaluators to structure their evaluation process and to assure them not to miss important information. Moreover, evaluation models have to be decided in consideration of complexities in educational programs and settings where the program function for successful and informative evaluation of educational programs. In a series of recent discussion in evaluation, educational programs are considered as complex systems with nonlinear relationships between their components and program-related changes (Frye & Hemmer, 2005). They are often affected by many factors from both inside and outside of the program such as participants' characteristics and relationships, expectations of various stakeholders, and organizational structure and culture (Coventry, Maslin-Prothero, & Smith, 2015; Frye & Hemmer, 2005). This means that experimental or quasi-experimental models that would test effectiveness of isolated independent program based on positivist orientations, do not always function effectively to inform evaluators and stakeholders knowledge about the program and its outcomes.

Both theories guiding program and evaluation models are crucial for sound and effective program evaluation. However, they have not been adequately examined in the past literature on educational programs for health care professions. Hence, the present review examined recent evaluation studies of continuing education in nursing in terms of theories guiding program and evaluation models.

1.3 Aims

The past literature clearly demonstrates the paucity of empirical evidence for the effectiveness of continuing education for nurses (Griscti & Jacono, 2006; Jordan, 2000) mainly because of poor evaluation designs and strategies. Additionally, theories guiding programs and evaluation models, which are both important for effective program

evaluation, were not adequately discussed in the past literature.

Therefore, the present paper addresses critical issues in evaluation methodology as well as program theories and evaluation models by reviewing recent studies on continuing education in nursing. With an eye toward gaining insights on evidence-based practice in nursing continuing education, implications for further evaluation research on continuing education programs will be also discussed.

2. Methods

A literature search from 2006 through 2016 (August) was conducted using PubMed, CINAHL, *Ichu-shi*, and the Internet. Search words used were: nurs*, health care profession*, continuing education, professional development, evaluation, and effectiveness. The reference lists from relevant studies and resources were also carefully examined to identify studies not found via the above computer search. Inclusion criteria were: (a) articles/studies whose main topic was specific to continuing education as opposed to formal education; (b) articles whose contents directly addressed effectiveness or evaluation of continuing education programs for health care professions including nurses; (d) articles or studies which included educational programs associated with quality patient care; (c) articles which were published in peer-reviewed journals; (e) articles written in either English or Japanese. After the initial compilation of the articles, they were all examined with respect to: (a) theories guiding each program, (b) evaluation models used, and (c) assessment strategies for changes in practice and patients outcomes.

3. Results

The search yielded 2,360 articles including 1032 in Japanese. A total of 19 articles including one in Japanese met the inclusion criteria. The characteristics

of reviewed articles were shown in Table 1.

3.1 Characteristics of Reviewed Articles

As Table 1 shows, the studies were conducted in various countries, showing that continuing education is a global issue. Additionally, continuing education programs were implemented in various types of nursing fields, hence necessity for continuing education is not limited to specific specialty areas.

The primary objectives of continuing education can be classified into three types. First, changing in clinical practice was found in half of the included articles. Hus, Chiang-Hanisko, Lee-Hsieh, Lee, Turton, and Tseng (2015) evaluated a newly developed e-learning program aimed at improving caring behaviors in clinical practice at two hospitals in Taiwan. Another evaluation study conducted in Canada (Murray, Stacey, Wilson, & O'Connor, 2010) examined effectiveness of a program aimed at improving the quality of decision-making support for patients considering place of end-of-life care. Yoshioka, Moriyama, and Ohno (2014) also examined the effectiveness of the end-of-life care continuing education program on practices among general-ward nurses. Those studies focused on applying acquired knowledge and skills to clinical practice not simply transferring them from experts to less knowledgeable ones. In other words, this is consistent with a goal of continuing education, i.e., to update nurses' knowledge and skills so that they would be of use to quality care.

Second, acquisition of knowledge and skills was identified as one of the primary program objectives in six articles. Topics that the programs addressed ranged from basic medical knowledge and skills such as diabetes management (Yacoub, Demeh, Barr, Darawad, Saleh, A. M., & Saleh, M. Y. N., 2015) and intravenous catheter insertion (Lyons & Kasker, 2012) from emerging topics such as genomics (Bell, Pestka, & Forsyth, 2007). Knowledge and skills transfer was

Table 1 Characteristics of the Articles included in the Present Review (N = 19)

Countries of Origin	
US	6
Taiwan	4
UK	3
Australia	1
Japan	2
Canada	1
Finland	1
Jordan	1
Speciality Fields of Program Contents in Nursing	
General skills and knowledge	4
Psychiatric nursing	4
End-of-Life care/ Palliative care	3
Cancer nursing	2
Critical care nursing	2
Nursing of chronic illness	2
Pediatric nursing	2
Primary Program Objectives	
Positive changes in practice	10
Increase of clinical knowledge and skills	6
Improvements of communication/ collaboration in health care team	3
Program Methods	
Didactic lecture	2
E-learning	5
Combinations of multiple methods (e.g., didactic lecture and workshop)	12

the most common objective in continuing education programs for health care professions (Griscti & Jacono, 2006; Owen, Brashes, Littlewood, Wright, Childress, & Thomas, 2014). However, an over-emphasis on this objective was criticized because acquisition of knowledge and skills may not be conducive to actual improvement in nursing performance (Stolee, Esbaugh, Aylward, Cathers, Harvey, Hiller, Keat, & Feightner, 2005). This is possibly why a fewer programs with this objective were found than others aimed at changing in practices in the current literature search.

Finally, there were three articles with continuing education programs aimed at improving communication/ collaboration in the context of health care teams. Unlike the previous types, this objective was not directly related to nursing knowledge and skills. Those studies were based on the notion that communication

and collaboration across health care professions is essential to providing safe and quality care (McCaffrey, Hayes, Stuart, Cassell, Farrell, Miller-Reyes & Donaldson, 2010; Owen et al., 2014). Because medical services are generally delivered by a medical team consisting of multiple health care professions (e.g., physicians, nurses, and social workers), it is assumed that enhancement of communication and collaborations in a medical team has become a more important topic in continuing education.

Programmatic or pedagogical methods utilized in reviewed articles were also shown in Table 1. Although a didactic lecture format has been identified as the most popular one in the past literature (Griscti & Jacono, 2006), more than half of the reviewed articles utilized multiple methods such as didactic lectures and workshops (e.g., Araki, Urizaki, Matsuo, Maeda,

Okabe, Masaoka, Fushimi, Iwata, & Yoneda, 2014; Zapka, Hennessy, Lin, Johnson, Kennedy, & Goodlin, 2006) or lectures and follow-up practices in clinical settings (e.g., Duff, Gardner, & Osborne, 2012). In contrast, programs that made use of lectures were found only in two articles, whose objectives were transferring clinical knowledge and skills (e.g., Bell et al., 2007; Yacoub et al., 2015). One study on continuing education (O'Brien, Freemantle, Oxman, Wolf, Davies, & Herin, 2003) indicated that participatory styles such as interactive workshops or group discussions can be the most effective way in continuing education programs for health care professions. This possibly led to the more frequent use of multiple methods with workshops and/or discussions within the reviewed articles.

In addition to traditional methods such as didactic lecture and workshops, Five e-learning programs were found among the included articles (e.g., Cheng, Hsu, Yang, Yeh, & Shu, 2007; W. Liu, Rong, & C. Liu, 2014). In those studies, participants accessed e-learning materials on the web (Hsu et al., 2015; Lahti, Kontio, & Valimaki, 2015; Murphy, Worswick, Pulman, Ford, & Jeffery, 2015) or watched a DVD/CD (W. Liu et al., 2014; Cheng et al., 2007). E-learning methods were employed in those studies because they were considered as more time-saving and accessible ways of learning for health care professions in their studies when compared to other methods (Chen et al., 2007; Hsu et al., 2015; Lahti et al., 2015; W. Liu, Rong, & C. Liu, 2014; Murphy et al., 2015). Although the effectiveness of e-learning program is still under examination, evaluation research generally concluded that their e-learning programs could improve the knowledge level and produce positive changes in practice via acquired knowledge among participants (Chen et al., 2007; Hsu et al., 2015; Lahti et al., 2015; W. Liu, Rong, & C. Liu, 2014; Murphy et al., 2015).

3.2 Theories guiding program among included articles

Of 19 reviewed articles, only six studies articulated theories guiding their programs. For example, Owen et al. (2014) integrated multiple theories: social identity theory (Ellemers, Spears, & Doose, 1999), reflective and experiential learning (Clark, 2009), and learning within communities of practice (Sargeant, 2009) into their program. They decided on the program components and targeted outcomes based on those theories to enhance inter-professional collaboration in the sepsis care. The conclusion of their program evaluation indicated that theoretical foundation for the learning program enhanced their understanding on factors that influenced the effectiveness of their program. Similarly, Duff, et al. (2012) and Pridham, Limbo, Schroeder, Krolkowski, and Henriques (2006) utilized an integrated educational model for continuing education (Forneris, 2004) as its framework to enhance knowledge acquisition and transfer of learned skills into real clinical situations. The model was an integration of multiple concepts including participatory learning principles and reflective learning, critical thinking in complexities of the clinical environment (Forneris, 2004). Both studies employed multiple theories applicable to their programs based on the notion that the application of multiple theories is more appropriate and effective to deal with complexities of education programs in clinical settings than the application of only one theory (Duff et al., 2012; Hean, Craddock, & Halloran, 2009; Owen et al., 2014). In addition, two studies (Hsu et al., 2015; Lahti et al., 2015) articulated a single theory as a theoretical foundation of their programs. Both of them developed a program with reflective learning principles (Barbour, 2013; Lowe, Rappolt, Jaglal, & Macdonald, 2007). Whereas the studies mentioned above explained connections between their program contents and expected program outcomes, two studies (Lyons & Kasker, 2012; Zapka et al., 2006) actually included adult learning principles (Knowles, 1970) as a theory

guiding their programs but did not give clear explanations about relationships among the theory, program components, and their expected outcomes.

Of all 19 reviewed articles, more than half of the reviewed articles did not clearly state what theories or concepts guided their programs. However, it was assumed that they had a set of “hidden” assumptions bridging their program components and expected outcomes. For example, some studies examined whether an isolated single educational program increased knowledge level among participants with experimental design or quasi-experimental design (e.g., Bell et al., 2007; Yacoub et al., 2015). These studies assumed the positivist’s view that more educational interventions would increase participants’ knowledge and skill levels. The other programs with workshops and group discussions (e.g., Araki et al., 2014; Kelly, 2010) were guided by participatory learning principles, even though they were not explicitly stated as such in the published articles. Those studies might have had hidden assumptions on how their program components work, yet were likely to focus only on changes in outcome variables but not on the process of changes. Lack of theories behind the programs appeared to be problematic because it would be difficult to assess why a program worked or did not work.

3.3 Evaluation models used

As the past literature (e.g., Jordan, 2000; Grisetti & Jacono, 2006) indicated, evaluation studies of an isolated independent program with experimental or quasi-experimental design were still a major evaluation approach relying on the traditional positivist view. Causal relationships between program elements and outcome variables were the most significant concern in those studies (e.g., Bell et al., 2007; Duff et al., 2014; Lyons & Kasker, 2012; W. Liu, Rong, & C. Liu, 2014; Tsai, Lin, Chang, Yu, & Chou, 2010; Pridham et al., 2006; Yacoub et al., 2015; Zapka et al., 2006). Whereas

some of them considered participants’ characteristics in their analyses (Cheng et al., 2007; W. Liu, Rong, & C. Liu, 2014), others did not include factors that possibly affected program outcomes such as participants’ motivation and interactions, expectations among other stakeholders, and organizational structure and culture (e.g., Bell et al., 2007; Lyons & Kasker, 2012; Yacoub et al., 2015). Therefore, those studies are short-shrifted on gaining more insights on why their programs worked or did not worked.

In addition to those studies with an experimental or quasi-experimental design, there were a few qualitative or mixed-method studies with no explicit evaluation model (e.g., Kelly, 2010; McCaffrey et al., 2010; Murphy et al., 2015). They also focused primarily on post-program changes in expected outcomes including participants’ knowledge level, attitudes toward the program, and/or knowledge transfer to practice. They rarely considered other factors that might have affected their program outcomes. As noted above, studies with a traditional evaluation approach, that focuses simply on gathering data on program outcomes, were unlikely to provide adequate information to understand the whole program and to illuminate why the program worked or not.

Two studies were identified as those guided by some form of evaluation model. One of the studies (Lahti et al., 2015) examined the effectiveness of an e-learning program on clinical practice at psychiatric hospitals. It was guided by Kirkpatrick’s model (Kirkpatrick, 1998), which is a widely used model for evaluating learner outcomes in training programs. The model is consisted of four hierarchical levels of data collection on learner outcomes: 1) learner reaction or satisfaction to the program, 2) learning attributed to the program, 3) changes in learner behaviors in the learning settings, and 4) the program’s final results in its larger context (Kirkpatrick, 1998). According to Kirkpatrick’s four levels of evaluation, Lahti et al. (2015) collected qualitative data by interviewing

nursing managers in the wards where nurses who participated the program worked in order to examine changes in knowledge and attitudes among the nurses as well as knowledge transfer from the program to clinical practice. Thus, Kirkpatrick's model offered researchers what information should be collected to verify learner outcomes. However, it did not guide researchers to reflect on why the program worked. Moreover, the model did not take into account variables related to participants' readiness such as learning motivation and levels of knowledge and skills among participants. Thus, studies with Kirkpatrick's model itself are unlikely to assist researchers to collect adequate information for both program improvement and accountability on program effectiveness.

The other study by Lee (2011) employed the pluralistic evaluation approach (Draper & Clark, 2007) in their evaluation process. This is a multidimensional approach to obtain valid and multiple perspectives from various sources to enhance methodological rigor (Draper & Clark, 2007; Lee, 2011). Qualitative data were collected on post-program changes such as learning transfer and learning impact from multiple stakeholders including participants and program practitioners. However, Lee (2011) stated that she failed to conduct a full evaluation considering factors such as learners' motivations to learn and apply learning in practice or to systematically analyze organizational resources for learning.

Thus, although evaluation models supported researchers to structure their evaluation process in the reviewed studies, these models did not adequately guide the studies to take into account interactions among the programs, participants, and their surroundings to demonstrate how the programs worked.

3.4 Assessment of changes in clinical practice and patient outcomes

Most of the studies using either a quantitative or

qualitative research design depended heavily on self-reported changes on program outcomes such as knowledge level, intentions to apply the acquired knowledge and skills into practice, or confidence on the targeted care (e.g., Araki et al., 2014; Yacoub et al, 2015). However, there were three exceptions where no self-report data were used. For example, Murray et al. (2010) used "fake" patients who were trained to evaluate nurses' performance. These "patients" were instructed to play the role of being a patient using a standardized evaluation tool. In addition, Hsu et al. (2015) explored whether a 3-year program improved nurses' performance by real patients' rating with RCT. A total of 480 patients (240 for control and 240 for intervention group) rated nurses' performance by using a newly developed standardized evaluation scale. Pridham et al. (2006) also added qualitative data on nurses' practice from their patients to verify their findings from quantitative data.

In addition to the use of patient evaluation, some studies collected data on changes in practice from other stakeholders. For example, Lahti et al. (2015) interviewed nurse managers in the ward where they worked to gather information on attitudes toward the program and transfer of learning among nurses. However, the authors indicated that a very low participation rate among nurse managers were serious threats to both validity and reliability. As noted above, Lee (2010) also collected qualitative data from multiple stakeholders including participants, program managers, and program instructors to illuminate what happened after the program. However, this approach was extremely time-consuming.

4. Implications for future evidence-based practices

The present paper reviewed nineteen recent studies that evaluated continuing education programs for professional nurses. The studies done in various countries and nursing fields indicated

that continuing education in nursing has attracted considerable attention internationally in various nursing fields. However, results showed that methodological challenges for sound program evaluation remain challenged.

4.1 Program theories and evaluation models

The current review clearly demonstrated that only a few continuing education programs exist that were explicitly guided by certain theories or models. Theory is highly important to ensure that program activities produce its desired outcomes and impact. As Owen et al. (2014) showed, theories guiding the program determine program activities, appropriate outcome variables, and causal assumptions therein. Then, an evaluation research plan is highly dependent on a program's theoretical orientation. In particular, theories guiding programs influence the selection of outcome variables. Unfortunately, the lack of clear theoretical rationale for a program would increase the likelihood of program and evaluation failure. It also presents a challenge for researchers to examine why a program worked or did not work.

The type of evaluation design used in the reviewed studies here was mainly of experimental or quasi-experimental type with an isolated single program in a single clinical setting. However, this traditional approach may not be effective to fully understand an educational program in a complex environment such as clinical settings in several ways.

First, it is grounded on an assumption of simple "linear" relationships between program components and its expected outcomes, even though program outcomes can be affected by many other factors (Frye, & Hemmer, 2012). In clinical settings, it is nearly impossible to control all confounding factors as in laboratory studies. Therefore, studies evaluated an isolated single program with the pre-post approach are unlikely to produce valid information on program effectiveness. Second, data contamination is suspected because participants (nurses) in experimental and

control groups are easily able to contact each other in their work settings. Finally, studies evaluating an isolated independent program are likely to focus rather on changes in knowledge and skill level than on those in practice or patient outcomes. It is possible because the aims of isolated independent programs, especially with didactic lecture, tend to focus on transfer of knowledge and skills. Moreover, difficulties in measurements of changes in practice and patient outcomes may also lead to their excessive attention on changes in cognitive level rather than those changes in performance level. Therefore, studies evaluated an isolated single program with experimental or quasi-experimental design is not always effective for evaluation of continuing education programs in nursing.

In this review, there were only two studies with an evaluation model such as Kirkpatrick's model (Kirkpatrick, 1998). This popular evaluation model for training programs strongly helps define what information should be collected to learn about learner outcomes. Because of its focus on learner outcomes in training programs, the model is assumed not to fit an evaluation of educational programs that function in complex clinical settings. According to ecological perspectives (Bronfenbrenner, 1979), individuals are profoundly influenced by the multiple layers of systems in their surroundings. It is therefore assumed that post-program changes in nurses' practice can be affected not only by the program itself but also by their correlates of their surroundings. Hence, in evaluating continuing education for nursing professions, evaluation models are required to offer a structure of evaluation with dynamic interactions among the program, stakeholders, and surroundings so that researchers can explore why a program works or not. Program evaluation should be guided by such an evaluation model, thereby contributing to evidence-based practices in continuing education in nursing.

Then, what evaluation models may prove optimal

in evaluating continuing education programs in nursing? The logic model would be a recommended model (CDC, 2014). As program evaluation involves the systematic collection and analysis of information related to design, implementation, and outcomes of a program (ACGME, 2010), evaluation models should offer a clear structure of evaluation process from the beginning of planning through the end of impact evaluation. The logic model appears to support the overall process of evaluation's tasks.

The logic model consists of four components: inputs, activities, outputs, and outcomes. "Inputs" includes both material and intellectual resources, expected to be or actually available to a program (e.g., facilities, staff time, educational technology, organizational culture). "Activities" refers to the program activities. "Outputs" refers to the direct and immediate results of program activities, whereas "Outcomes" are the desired program accomplishments. As such, through the process, the model takes into account factors surrounding the program. This is a strong benefit in evaluation of continuing education programs, because it enables researchers to examine why the program works in consideration of dynamic interactions among the program, participants, and its surroundings. Unlike an experimental approach, the model can contribute to improving the external validity of evaluation results. This is extremely important, because clinical contexts are all unique as influenced by a myriad of factors in and out of a particular clinical setting.

Evaluation team members with various stakeholders determine each component of their program and their rational relationships. Criticism has been often heard that nurses must be involved in planning and implementing continuing education; and in fact, participation of various stakeholders including nurses themselves would lead to successful continuing education (Griscti, & Jacono, 2006). Use of the logic model can contribute to the greater likelihood of successful evaluation of continuing education program via collaboration among evaluators and stakeholders.

There is another evaluation model that puts more emphasis on collaboration among evaluators and stakeholders, viz., empowerment evaluation (Fetterman, 1994). This evaluation approach aims to increase the likelihood that a program will achieve goals by increasing the capacity of stakeholders to plan, implement, and evaluate their own programs (Fetterman & Wandersman, 2005). In Japan, each hospital often develops its original continuing evaluation programs. If an evaluation project is guided by empowerment evaluation, the stakeholders in the hospital and researchers work closely together to identify their goals and strategies to achieve the goals. This process may result in promoting stakeholders' capacity to plan, implement, evaluate their programs, and use the results for improvement of the program. Empowerment evaluation would also contribute to sustainable implementation of evidence-based programs in certain clinical settings.

4.2 Effective assessment of program outcomes

Another significant challenge in evaluation methodology is how to measure or illuminate changes in field competencies and patient care. It is primarily important to note that what is measured represents program outcomes. However, there was no standardized or established methods to evaluate clinical practice and patient outcomes (Jordan, 2000). Hence, the majority of research studies is still dependent on participants' perceptions of changes as shown in the present review.

In the literature, several improvements in assessment of changes in targeted practice have been developing in recent years: e.g., use of standardized patients (Murray et al., 2010) and a large-scale patient evaluation method (Hsu et al., 2015). Such studies can provide more reliable and valid information on changes in practice and learning transfer compared with that from self-report. However, feasibility of such studies is questionable due to practical, ethical, and budgetary

difficulties in clinical settings.

Another way to assess changes in practice and patient changes would be via use of data from multiple sources. Pridham et al. (2006) combined quantitative data from participants' self-report survey and qualitative data from interviewing participants' clients about their supports to illuminate changes in clinical practice. To examine targeted outcomes with data from different sources may be more feasible and effective when compared with observational methods. Hence, future evaluation studies of continuing education programs should examine program outcomes with data from multiple sources for convergence if it is difficult to measure program outcomes directly.

5. Conclusions

Methodological issues in evaluation of continuing education programs in nursing still present challenges in evaluating the effects of continuing education in nursing. In particular, careful selection of an evaluation model ought to be made in order to achieve effective and sound evaluation given the complexities of clinical settings. Program evaluation is not a simple set of activities. There are various groups of stakeholders in clinical settings and may have different expectations on program outcomes. Without their collaboration with each other, successful implementation of programs and evaluation cannot be accomplished. Moreover, theory-based programs should guide the evaluation team to rationally connect program activities to desired outcomes. Theory also defines outcome variables. Measurement of program outcomes continues to present methodological challenge in evaluation. More efforts are needed to develop more sensitive and accurate indicators. Data from multiple data source on the targeted outcomes may produce more reliable judgments on changes in program outcomes at this point.

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