

Health Care Partnerships: A Literature Review of Interdisciplinary Education

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ABSTRACT

Interdisciplinary education is an excellent teaching model for nursing and other health care professions students. When one considers that nurses, physicians, and other health care professionals must work together in the same environment, it seems feasible that learning together through allocated learning activities as an interdisciplinary group might enhance educational outcomes. According to the literature, interdisciplinary education fosters collaboration and teamwork among the health care team. In addition, anecdotal comments from nursing students indicate that they feel unprepared to communicate with other health care disciplines. Although there is an abundance of articles related to interdisciplinary education, few studies of student outcomes have been conducted. This article provides an overview of interdisciplinary education studies with nursing and other health professions students.

Interprofessional education is a modality suitable for training students in nursing and all health professions. The Institute of Medicine (2001) recommended interprofessional education for all health care professional students to improve patient care through increased collaboration. In addition, the Quality and Safety Education for Nurses (2011) project, funded by the Robert Wood Johnson Foundation, has identified teamwork and collaboration as one of six competencies required for prelicensure nursing students to achieve the knowledge, skills, and attitudes to become safe practitioners. When one considers that nurses, physicians, and other health care professionals must work together in the same environment, it would seem feasible that learning together through allocated learning activities as an interprofessional group would enhance educational outcomes. The literature suggests that interprofessional education fosters collaboration and teamwork among the health care team (Coleman, Roberts, Wulff, Van Zyl, & Newton, 2008; Fosnaught, 2002; Goelen, De Clercq, Huyghens, & Kerckhofs, 2006; Haas & Sheehan, 2008; Kipp, Pimlott, & Satzinger, 2007; Messmer, 2008; Persaud, 2008). In addition, anecdotal comments from graduating nursing students indicate that they feel unprepared to communicate with professionals in other health care disciplines. Although the number of interprofessional educational learning activities to health care professionals has increased, evidence of student outcomes related to this educational format is lacking in the literature.

A literature review was conducted to locate interventional studies or program evaluations of interprofessional educational activities with prelicensure, precertification, or pregraduate-degree health care students. The search was conducted using CINAHL[®], PubMed, Medline, Academic Search[™] Premier, and Google[™] and was limited to the English language; however, no limitation was placed on the year of publication. The results included articles related to interprofessional practice, interprofessional education of health care professionals, and interprofessional education of health professions students, and many articles on interprofessional education in health care were also found. Inclusion criteria for the review were articles reporting results on intervention studies on didactic courses, laboratory or simulation activities, clinical component, or a combination

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thereof. These activities had to include participants in two or more health care professions from prelicensure, precertification, or pregraduate programs. Exclusion criteria included non-research or nonprogram evaluation articles, interprofessional education of licensed professionals, and surveys of nonstudents.

LITERATURE REVIEW

Of the articles reviewed ($N = 18$), most focused on student perceptions and feelings regarding interprofessional education. Didactic methods, such as classroom teaching and seminars, were used in eight of the studies reviewed (Curran, Sharpe, Flynn, & Button, 2010; Fineberg, Wenger, & Forrow, 2004; Goelen et al., 2006; Hobgood et al., 2010; Hope et al., 2005; Kearney, 2008; Margalit et al., 2009; O'Neill & Wyness, 2005). Simulation and laboratory activities were used in three of the studies (Dillon, Noble, & Kaplan, 2009; Hobgood et al., 2010; Stewart, Kennedy, & Cuene-Grandidier, 2010), whereas three studies focused on students in clinical areas (Fineberg et al., 2004; O'Neill & Wyness, 2005; Salvatori, Berry, & Eva, 2007). Regardless of the teaching method, group work was used in all studies. Student outcomes were self-reported and were not objectively measured in most of these studies. Two studies evaluated student performance following interventions (Bradley, Cooper, & Duncan, 2009; Hobgood et al., 2010). The main overarching outcomes or themes reported by researchers in relation to interprofessional education with health care students were understanding of others' roles and collaboration and teamwork.

Understanding of Others' Roles

Interventions that resulted in greater understanding or appreciation of others' roles were accomplished via all three learning modalities of didactic, laboratory or simulation, and clinical teaching. Fineberg et al. (2004) used a quasi-experimental longitudinal design with medical and social work students in a palliative care training intervention. Students in the intervention group ($n = 45$) participated in a 4-week course facilitated by an interprofessional faculty team, whereas students in the control group ($n = 26$) received written materials when the study was concluded. The weekly sessions consisted of experiential exercises with small groups. The students were required to conduct a one-time visit with a patient and the patient's family at an inpatient palliative care unit in interdisciplinary pairs. Participants in the control and intervention groups completed self-administered survey instruments developed for the study at baseline, at the completion of the intervention, and 3 months later. Compared with the control group, the intervention group reported an increased mean of 2.33 points ($p < 0.001$) for medical students and an increased mean of 2.16 points ($p < 0.001$) for social work students in perceived role understanding immediately following the intervention and 3 months later. Both medical and social work students in the control group showed a slight decrease in posttest scores ($p < 0.001$).

The Downstate Team-Building Initiative, reported by Hope et al. (2005), was instituted at the State University of New York, Downstate Medical Center in 2000. The year-long program brought together students from schools of nursing, medicine,

physician assistants, physical therapy, occupational therapy, midwifery, and diagnostic imaging to learn about building effective health care teams. Students attended 18 sessions and self-evaluated their progress using Tuckman's four team development stages of forming, storming, norming, and performing. Students participated in 11 team-building sessions during which they formed teams, then they spent the remaining seven sessions identifying and implementing a health related community action project. Program evaluation was accomplished through matched presurvey and postsurvey instruments developed for the study ($n = 34$ matched surveys). Students reported a significant increase in their understanding of others' roles following the intervention (mean improvement, 36%; $p < 0.001$).

Rodehorst, Wilhelm, and Jensen (2005) developed two interprofessional simulations and recorded the scenarios to compact discs (CDs). Students ($n = 26$) from the nursing, medicine, respiratory therapy, and pharmacy disciplines participated in a focus group session during which they individually watched the CDs and answered questions when prompted by the program. Students were allowed to discuss the vignettes as they watched the CDs. A semistructured interview was conducted with the students immediately following the intervention. Findings from the study indicated that the exercise helped individual students gain a better understanding of the roles of other disciplines.

High-fidelity and low-fidelity simulation, role-play, and reflection were used in a study by Whelan, Spencer, and Rooney (2008) with students ($n = 59$) from the nursing, medicine, and pharmacy disciplines. All participants in the study received the intervention and completed presurveys and postsurveys regarding the intervention. Focus group interviews were used to collect qualitative data. Results from postintervention questionnaires developed for the study indicated students felt they obtained a broader understanding of their roles, as well as the roles of the other disciplines ($p < 0.05$).

Interprofessional education in the clinical setting was demonstrated in studies by Kipp et al. (2007), O'Neill and Wyness (2005), and Salvatori et al. (2007). Kipp et al. (2007) recruited students from nursing, medicine, pharmacy, and nutrition and placed them together in the clinical setting as part of a team experience to help increase their knowledge of diabetes management. Both qualitative and quantitative methods were used for data collection. Postintervention survey results indicated that 75% of the students had an increased understanding of the roles of other professionals in patient care (Kipp et al., 2007).

Students from the nursing, medicine, pharmacy, and social work disciplines were placed together in classroom and clinical settings in a qualitative study by O'Neill and Wyness (2005). Results from group and individual interviews indicated that the students perceived an increased understanding of others' roles following the class and clinical interventions.

Salvatori et al. (2007) measured student perceptions of interprofessional clinical experiences and group meetings through preevaluations and postevaluations of medical students, physical therapy students, and occupational therapy students using the Interprofessional Education Perception Scale (IEPS) and through analysis of individual reflective journals. Mean scores on the IEPS showed no difference on pretest and posttest scores; however, physical therapy and occupational therapy students

demonstrated more positive perceptions of interprofessional education than did the medical students ($p < 0.01$). Qualitative data extrapolated from students' reflective journals indicated an increased knowledge and understanding of others' roles.

Collaboration and Teamwork

The second outcome found in this literature review was that interprofessional education increased understanding and practice of collaboration and teamwork among students and health professionals, along with modeling by educators and professionals. In a study by Cooke, Chew-Graham, Boggis, and Wakefield (2003), participants attended sessions regarding communication skills and interprofessional learning and observed physician and nurse facilitators in a role-play demonstration. The participants were then assigned to an interprofessional group to work together on predesigned scenarios. Qualitative findings indicated that the participants perceived increased collaboration and collegiality among each other during class instruction, facilitator demonstrations, and group scenarios.

In their evaluation of the Downstate Team-Building Initiative project, Hope et al. (2005) reported that student evaluations indicated that team atmosphere and group teamwork improved the most during the intervention. Findings by Whelan et al. (2008) indicated that students significantly valued interprofessional teamwork and collaboration. O'Neill and Wyness (2005) found that students thought the team-teaching approach in the classroom provided valuable education regarding interprofessional collaboration.

Using a mock code simulation, Dillon et al. (2009) implemented an interprofessional activity for nursing and medical students. Quantitative and qualitative methods were used to measure students' perceptions of collaboration. The Jefferson Scale of Attitudes Toward Physician–Nurse Collaboration was administered to the students preintervention and postintervention. Posttest scores for medical students showed significant differences for collaboration, $F(1,7) = 7.38$, $p = 0.013$, and nursing autonomy, $F(1,7) = 5.8$, $p = 0.025$. Nursing students did not demonstrate a significant difference in scores (pretest mean, 53.0; posttest mean, 54.5). Qualitative data analysis revealed medical and nursing students perceived value in collaboration among disciplines.

Selle, Salamon, Boarman, and Sauer (2008) found that students in the intervention group who observed interprofessional faculty facilitators modeling collaboration in a team meeting through role-play demonstrated "a deeper understanding of the importance of bringing together multiple perspectives" (p. 89). All students in the intervention group agreed or strongly agreed that observing the modeling prepared them for participation in an interprofessional team meeting, compared with 84% of the control group. The authors believed that the students who experienced the role modeling exhibited a higher level of comfort and appeared more prepared to participate in interprofessional groups. Student responses to the prerecorded CDs in the study by Rodehorst et al. (2005) indicated that seeing the interprofessional team in practice in the scenarios was beneficial. In the study by O'Neill and Wyness (2005), students had mixed responses to witnessing licensed professionals participating in interdisciplinary team meetings in the clinical setting. Some stu-

dents experienced effective interdisciplinary meetings, whereas others had negative experiences.

An interprofessional education program was developed by faculty from the Colleges of Nursing, Medicine, Allied Health, Public Health, and Pharmacy at the University of Nebraska Medical Center (Margalit et al., 2009). Students from the College of Nursing were required to attend the program, whereas students from the other programs were asked to volunteer. The program included interactive Web-based modules, large panel presentations, and interactive small group exercises. Participants included students from the nursing ($n = 24$), medicine ($n = 34$), pharmacy ($n = 55$), allied health ($n = 34$), dentistry ($n = 6$), and public health ($n = 2$) disciplines. Student preprogram and postprogram attitudes and perceptions were measured using the Readiness for Interprofessional Learning Scale (RIPLS) and the IEPS. Findings were measured as aggregate group scores and indicated an increase in positive attitudes on RIPLS and were homogeneous for preprogram and postprogram scores on the IEPS.

Bradley et al. (2009) reported on a mixed-methods study with medical ($n = 26$) and nursing ($n = 27$) students. Participants were randomized to a uniprofessional group or an interprofessional group. Each group attended a 1-day intermediate life support class. Performances were rated using an adapted Leadership Behavior Description Questionnaire, Emergency Team Dynamics scale, and Resuscitation Team Task. Student attitudes were measured using the RIPLS. Focus group interviews were conducted 3 to 4 months after the class. A multivariate analysis of variance indicated no significant differences between interprofessional and uniprofessional teams on all performance measures. RIPLS results indicated that scores significantly increased from preactivity to postactivity for teamwork and collaboration and for professional identity; however, these scores dropped at the 3-month to 4-month follow-up survey. Themes that emerged from the qualitative data included interprofessional education opportunities and desires, tribal affiliations and preconceptions, and curriculum issues.

In a randomized controlled trial with senior nursing students ($n = 203$) and fourth-year medical students ($n = 235$) from two universities, Hobgood et al. (2010) examined the effectiveness of four pedagogical methods on preintervention and postintervention knowledge, skills, and attitudes. An initial lecture on teamwork training was provided to all participants. The participants were then randomized to one of the following groups: didactic lecture alone (control group), audience-response didactic, low-fidelity simulation role-play, and high-fidelity human patient simulation. Following the interventions, participants within the same groups were randomized into teams of two medical and two nursing students. These teams participated in a 20-minute exercise with a standardized patient. Significant improvement in pretest and posttest scores was observed in participants' attitudes toward teamwork and knowledge. Ratings of teamwork skills by standardized patients indicated no significant difference between groups. No significant differences were noted between educational methods.

A time series study design was used to evaluate a project implemented to provide interprofessional education activities to medical ($n = 572$), nursing ($n = 2,293$), pharmacy ($n = 341$), and social work ($n = 339$) students (Curran et al., 2010). These

students participated in nine interprofessional education modules during a 3-year period. Teaching methods included asynchronous online case studies, small group seminars, and panel discussions. Two Likert scale surveys were administered to students at three points during this 3-year period. The instruments used were the Attitudes Towards Interprofessional Health Care Teams and the Attitudes Towards Interprofessional Education. Scores on the Attitudes Towards Interprofessional Health Care Teams indicated significantly lower scores for nursing and medical students than for the other professions at the first survey point and remained lower for medical students than for the other professions at the second survey point. Pharmacy students reported significantly higher scores than medicine and nursing students at the third survey point. Analysis of the scores on the Attitudes Towards Interprofessional Education surveys indicated significant differences at each of the three survey points, with medical students reporting significantly lower scores than the other professions.

High-fidelity simulation was used in a mixed-methods study by Stewart et al. (2010). Medical ($n = 49$) and nursing ($n = 46$) students participated in an interprofessional pediatric simulation activity. Following the activity, participants completed a questionnaire designed to elicit student perceptions of knowledge and skills, communication and teamwork, professional identity and role awareness, and attitudes to shared learning. Although mean nursing students' scores were higher than medical students in all four domains, there were no significant differences between groups. Qualitative analysis of comments revealed the following themes: better way of learning, future interprofessional education, role awareness, and unfamiliar setting.

Other Findings

Findings from three studies did not fall into the previous categories. Goelen et al. (2006) sought to examine students' attitudes toward interprofessional education. The IEPS was administered preintervention and postintervention to both the control and intervention groups. Students in the intervention group attended five 2-hour interprofessional seminars. Findings indicated improvement in the attitudes pertaining to competence and autonomy of individuals in one's own profession in the intervention group. Significant improvements in attitudes of male students in the intervention group were noted (increased mean of 4.1, $p < 0.05$). Kearney (2008) reported overall student satisfaction with a mandatory interprofessional course involving prelicensure students in nursing, medicine, pharmacy, and social work. Findings by Tunstall-Pedoe, Rink, and Hilton (2003) suggested that many health care students begin their professional programs with preconceived ideas about the other professions, which challenges the supposition that these students develop their biases during their programs of study.

One additional point of interest was noted. Of the 18 articles reviewed, it was found that students reported increased knowledge acquisition in only one study. Students in the study by Kipp et al. (2007) indicated that although they felt they had significant prior knowledge regarding diabetes management, they learned additional information about the topic through participation in the project.

DISCUSSION

On the basis of the literature review, several gaps exist regarding nursing and health professions students' involvement in interprofessional health care education. Although nursing and medicine had the most representation, some of the studies were disproportionate in the representation of either discipline. Fewer studies involved prelicensure health care students compared with licensed professionals. All of the 18 articles reviewed focused on perceptions of health care students regarding their experience with interprofessional education. One study (Kipp et al., 2007) measured increased knowledge based on students' self-reports. Method of delivery varied among the studies.

Students in all of the intervention studies overwhelmingly provided positive feedback regarding interprofessional education. Several studies (Bradley et al., 2009; Dillon et al., 2009; Rodehorst et al., 2005; Selle et al., 2008; Stewart et al., 2010) measured perception after a single intervention, whereas other projects implemented interventions over several months. Most of these studies conducted postintervention measures at a single time point and indicated significant positive results overall. Studies that measured perceptions, attitudes, or both a second time at least 3 months after the initial postsurvey reported decreased overall scores (Bradley et al., 2009; Curran et al., 2010). This leads to the question of the sustainability of perceptions of students without additional exposure to interprofessional activities. In addition, further studies are needed that compare attitudes and perceptions over time rather than at one point.

Also needed are intervention studies that measure learning outcomes of students involved in interprofessional learning activities through the use of multiple teaching modalities. Measurement of communication between and among professions is an area that needs to be studied with health care students. Nurse educators and researchers must continue to refine and expand intervention studies with prelicensure students to include measurement of learning outcomes. Research using control and experimental groups would also provide more robust data on interprofessional education. Study findings from the research indicate that students perceive value with interprofessional education activities; however, research needs to focus on the influence of interprofessional education on student learning. In addition, longitudinal research with consistent, scheduled activities is needed to examine the long-term effects of interprofessional education on student outcomes. The theory surrounding interprofessional education is that it leads to improved patient outcomes; however, research is needed to support the theory.

Barriers to interprofessional education have been identified in the literature. Problems with school schedules, turf battles, lack of perceived value, lack of financial resources and administrative support, and rigid curricula were cited as barriers to the implementation of interprofessional education (Curran, Deacon, & Fleet, 2005; Gardner, Chamberlin, Heestand, & Stowe, 2002). Despite potential barriers, interprofessional education in health care is a necessary component that should be a part of every health professions student's education.

Recommendations found in the literature (Curran et al., 2005; Gardner et al., 2002; Thibault, 2011) suggest that admin-

istrators and faculty must make the commitment to the development and practice of interprofessional education programs.

CONCLUSION

It is evident from the literature review that students value the experiences gained through interprofessional education and learn how best to develop collaborative processes that will be useful to them when they become licensed professionals. I believe interprofessional programs should become the standard in health care education.

Nursing education is said to be continually evolving, yet many nursing programs continue to educate nursing students in the same manner that has been used for years. Nursing students are taught by educators who are nurses, practice skills taught by nurses, complete clinical rotations taught by nurses, and accomplish this alongside their nursing student peers. Clinical experiences vary among students, and many students may not have the opportunity to experience collaboration in practice. Anecdotal comments from nursing students suggest they lack the confidence to speak to physicians and other members of the health care team due to limited collaborative opportunities during their clinical experiences. This problem is compounded by the fact that nursing programs are under increasing pressure to admit more students to combat the nursing shortage at the same time they are handling decreasing numbers of nursing faculty. The same can be said of other health care disciplines. As noted in the literature, students value interprofessional education. The challenge to educators in health professions programs is in how to overcome the barriers that inevitably arise when trying to implement change.

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