
ARTICLE

The Impact of the Advances in Labour and Risk Management (ALARM) Course on Learners' Perceptions of their Own and Others' Professions

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ABSTRACT

Background: Simulation-based training in emergencies is beneficial for all professionals who work in obstetrics. However, managing obstetric emergencies requires both technical and non-technical skills such as teamwork. Interprofessional education (IPE) offers an effective strategy for learning competencies in collaboration and teamwork. The Advances in Labour and Risk Management (ALARM) course offers a platform for simulated training in obstetric emergencies and has been offered for learners in maternity care at our university for the past five years.

Objective: The aim of the project was to explore the impact of interprofessional learning during the ALARM course on the attitudes and perceptions of learners in maternity care.

Methods: A two-part questionnaire was administered to midwifery students and to family medicine and obstetric residents before and after the ALARM course. The questionnaire incorporated the Interdisciplinary Educational Perception Scale (IEPS) and open-ended qualitative responses.

Results: Despite openness to and awareness of the importance of collaboration for patient care demonstrated in the qualitative analysis, there was a statistically significant difference between learners' pre- and post-ALARM IEPS scores, indicating more negative perceptions of IPE following the intervention.

Conclusion: Learners in maternity care are aware of the need for collaboration in practice. More explicit attention to teamwork and collaboration as a component of the ALARM course would promote development of both technical skills and nontechnical collaborative competencies.

KEYWORDS

interprofessional education, emergency team training, ALARM

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Évaluation des effets du cours Gestion du travail et de l'accouchement (GESTA) sur les perceptions des apprenants envers leur propre profession et celle des autres

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RÉSUMÉ

Contexte : La formation fondée sur la simulation en ce qui concerne les urgences est bénéfique pour tous les professionnels qui travaillent dans le domaine de l'obstétrique. Cependant, la prise en charge des urgences obstétricales nécessite des compétences tant techniques que non techniques, comme le travail d'équipe. L'éducation interprofessionnelle (ÉIP) offre une stratégie efficace pour l'apprentissage de compétences en matière de collaboration et de travail d'équipe. Le cours Gestion du travail et de l'accouchement (GESTA) constitue une plateforme de formation fondée sur la simulation d'urgences obstétricales qui est offerte aux apprenants du domaine des soins de maternité de notre université depuis les cinq dernières années.

Objectif : Ce projet avait pour objectif d'explorer les effets de l'apprentissage interprofessionnel (dans le cadre du cours GESTA) sur les attitudes et les perceptions des apprenants du domaine des soins de maternité.

Méthodes : Un questionnaire en deux volets a été administré, avant et après le cours GESTA, à des étudiantes en pratique sage-femme et à des résidents en médecine familiale et en obstétrique. Ce questionnaire faisait appel à l'échelle Interdisciplinary Educational Perception Scale (IEPS) et à des questions ouvertes qualitatives.

Résultats : Bien que l'analyse qualitative ait révélé une certaine ouverture et prise de conscience envers l'importance de la collaboration pour l'offre de soins aux patientes, une différence significative sur le plan statistique entre les scores IEPS des apprenants avant et après la tenue du cours GESTA a été constatée, ce qui indiquait la présence de perceptions plus négatives de l'éducation interprofessionnelle à la suite de l'intervention.

Conclusion : Les apprenants du domaine des soins de maternité sont conscients de la nécessité de la collaboration dans la pratique de leur profession. S'il portait une attention plus explicite au travail d'équipe et à la collaboration, le cours GESTA favoriserait l'acquisition de compétences tant techniques que non techniques en matière de collaboration.

MOTS CLÉS

éducation interprofessionnelle; formation d'équipe en matière d'urgence; GESTA

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INTRODUCTION

Promoting patient safety through interprofessional collaboration is a growing need within obstetric care. The lack of teamwork and communication between professionals, the adherence to professional hierarchies, and differing approaches to care have posed challenges within maternity services, including challenges in perinatal and maternal mortality and morbidity.^{1,2} Data from the United Kingdom indicates that 50% of maternal deaths can be attributed to substandard care, poor teamwork, and poor communication.^{3,4} In the United States, it was estimated that 31% of the adverse events that were described in obstetric malpractice claims were due to poor communication.⁵

Critical incidents in obstetric emergency situations are sometimes managed inappropriately.⁶ Although most pregnancies and births remain uncomplicated and low in risk, obstetric emergencies require timely, coordinated management of complex situations by a multidisciplinary team.^{7,8}

A change in attitudes, especially negative stereotypes, was found to be a necessary first step in building a foundation for collaborative practice.

Simulation-based training in emergencies is recommended for all professionals who work in obstetrics.⁹ Simulation training programs in managing obstetric emergencies have been growing in popularity and offer a safe but realistic environment to practice skills and observe the consequences of actions.⁴ This experiential learning process was found to be more effective in changing behaviours than didactic training was.² A systematic review of training programs in obstetric emergencies indicated that participants felt more confident after such training programs and were more likely to remain working in the field of maternity care.⁶

Owing to the need for an interprofessional approach to managing emergencies, team training is critical.⁶ Further, managing obstetric emergencies requires both technical skills and nontechnical skills such as teamwork, situational awareness, and the ability to anticipate and prioritize actions. Interprofessional education is an effective strategy for learning these required nontechnical skills.⁴ Interprofessional education (IPE), defined as occurring “when two or more professions learn with, from and about each other to improve collaboration and the quality of care,” can foster competencies required for collaborative practice to promote patients’ safety.¹⁰ Accordingly, the central tenets of IPE and interprofessional care–collaboration and teamwork—are important for physicians and other health care providers.¹¹

Evidence of the value of IPE has increased over the last decade. Significant research has been devoted to understanding learners’ responses to IPE. One study determined that 86% of participants in an IPE project had high expectations that IPE would meet their learning needs better than would “uniprofessional” education.¹² In a 2008 systematic review, four of six studies demonstrated positive outcomes regarding how professionals work together and provide care following IPE interventions.¹³ For example, IPE resulted in a greater understanding of how one’s field of practice fit into the larger context of health care service and helped professionals to actively seek out the contributions of others when planning care.¹⁴ There was also evidence of positive reactions by learners and changes in attitudes following participation in interprofessional learning.^{15,16} A change in attitudes, especially negative stereotypes of other professionals, was found to be a necessary first step in building a foundation for collaborative practice.¹⁷ Furthermore, participants appeared to gain knowledge and skills required for collaboration, and patients also appeared to benefit from interprofessional teamwork.⁷

Most programs offering simulated training in obstetric emergencies use an approach that brings together individuals from different professional groups; typically, however, evaluations of these programs has not focused on teamwork. Research by Freeth et al. on the Multidisciplinary Obstetric Simulated Emergency Scenarios (MOSES) course

explored perceptions of the course, the degree of learning from it, and its application to clinical practice. The results indicated that participants enjoyed learning together, and that the course facilitated relationship building and allowed students an opportunity to question assumptions and clarify expectations of other professionals.⁴ Yet, Freeth et al. also found that the engagement in the course was influenced by each participant's openness to IPE. While cognizant of the fact that one intervention cannot be responsible for improvements in patients' safety, the MOSES group believe that the training, through improved teamwork, changed the participants' attitudes and behaviours.⁷

The aim of this research was to explore the impact of an obstetric emergencies training course on interprofessional attitudes and stereotypes. The hypothesis was that participation in the Advances in Labour and Risk Management [ALARM] course would result in improved attitudes toward the contributions of others.

METHODS

This project is one component of a larger mixed-methods research project evaluating IPE for learners in maternity care at our university. Ethical approval was obtained from the University Research Ethics Board. Data for this portion of the study was collected between April 2011 and May 2013.

Our urban, southwestern Ontario University provided an appropriate setting for this research, as IPE activities for learners in maternity care have been offered there for more than five years. Learners from midwifery, undergraduate medicine, and postgraduate medicine are involved in several IPE events, both mandatory and optional, as part of their training. The ALARM course has been offered since 2008 to midwifery students, family medicine residents, and obstetric residents. It includes an educational component and an individual Objective Structured Clinical Examination [OSCE] and is offered once a year. The ALARM course was developed by the Society of Obstetricians and Gynaecologists of Canada with the collaboration of family physicians, obstetricians, midwives, and nurses to improve the care provided to women and their families during labour. The two-day course uses didactic teaching, practical workshops, and an examination process,

aiming to teach best practice based on Canadian clinical practice guidelines (i.e., the ALARM manual). Participants were drawn from midwifery students in the third year of their studies and from first- and second-year postgraduate obstetric and family medicine residents. All learners enrolled in the ALARM course were eligible for participation in the study. Inclusion criteria required that participants be enrolled at the university, be at the appropriate stage of their training, and be present for the ALARM course.

Learners who enrolled in the course were sent an e-mail invitation to participate in the study. The e-mail invitation contained a web link to an online questionnaire that could be filled out prior to attending the course. Paper copies were also distributed on the first morning of the course. Those who consented and completed the initial questionnaire received an e-mail six weeks later with a link to the same anonymous questionnaire to be completed online.

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The questionnaire consisted of two components intended to explore participants' attitudes and beliefs about their own profession and about other professions. It incorporated a common scale, the Interdisciplinary Educational Perception Scale [IEPS], and an open-ended qualitative question developed to assess professional perceptions in the academic setting.¹⁸

Leucht et al. demonstrated the IEPS to be a sound measurement scale with good stability, reliability, and generalizability;¹⁸ internal consistency has been reported to have a Pearson correlation of $r = 0.51-0.87$.¹⁹ It has been effective in assessing the impact of IPE on student attitudes and continues to

Table 1. Mean [Standard Deviation] Pre- and Post-ALARM Course Total Weighted IEPS Scores and Domain Scores

	Preintervention	Postintervention	p-Values
Domain 1: Competency and autonomy	70.81 [6.7]	70.03 [7.1]	.21
Domain 2: Perceived need for cooperation	68.11 [4.5]	66.68 [5.9]	.08
Domain 3: Perceptions of actual cooperation	66.69 [7.1]	65.52 [6.6]	.17
Domain 4: Understanding of values of others	51.04 [10.3]	49.12 [1.1]	.14
Total IEPS score	254.20 (20.5)	248.70 (17.9)	.023

ALARM, Advances in Labour and Risk Management; IEPS, Interdisciplinary Education Perception Scale

be one of the most frequently used scales within the field of IPE.¹⁹⁻²⁵

The instrument uses a six-point Likert scale [1 =strongly disagree; 6 = strongly agree] for 18 items and is designed to assess an individual's perceptions and attitudinal changes following exposure to IPE. The instrument groups the 18 items into four subscales: [1] competence and autonomy, [2] perceived need for cooperation, [3] perceptions of actual cooperation, and [4] understanding others' values. Each subscale has a maximal score of from 72 to 96, and the maximum total score is 330. The scale has been tested for a number of professional groups, and the authors suggest that when two professional groups are involved, 17 participants would be needed in each group to detect a p value of .05.¹⁸ Data analysis for the questionnaire was done with SPSS 15.0 [SPSS Inc., Chicago, IL], and descriptive statistics were undertaken for the Likert scale measures.

An open-ended question was added to the end of the questionnaire, asking about the learner's views of learning and working with other professions. Responses from participants were analyzed using conventional content analysis as described by Hsieh and Shannon.²⁶ The answers were read and coded by hand to derive codes that captured the key concepts of the response. Similar codes that could be related or linked were clustered together to form categories.

Finally, the categories were clustered together into smaller themes that provided conceptual description of the findings.

RESULTS

Participants

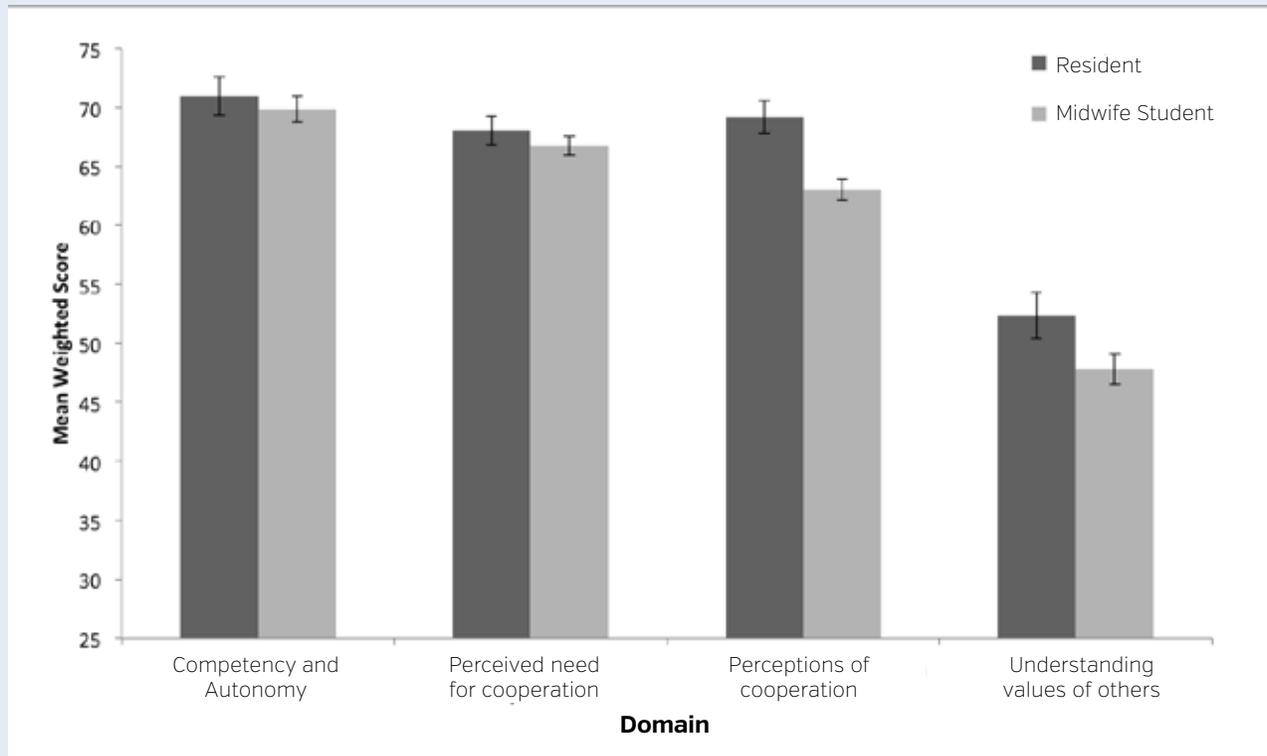
Ninety-two learners participated in the ALARM course during the 2011 and 2013 administrations. The 2011 cohort included 44 participants, comprising 28 midwifery students, 8 family medicine residents, and 8 obstetric residents. The 2013 cohort consisted of 48 participants: 32 midwifery students, 8 family medicine residents, and 8 obstetric residents. Of the 92 learners who participated in the ALARM course, 55% [n = 50] completed both pre- and post-IEPS questionnaires, and only these participants are included in the analyses. Data from one student were removed from the analyses, as that student's IEPS total score was more than three standard deviations below the mean IEPS total score for the group.

IEPS Scores

Pre- and postweighted mean IEPS scores were calculated for all participants [Table 1]. Overall, total mean IEPS scores were higher before the ALARM course than after it [mean scores, 254.2 versus 248.7, respectively; p = .023].

Similarly, when the total IEPS scores were separated into the four consistent domains, pre-

Figure 1. Mean weighted score for domains by profession



ALARM scores (mean across the domains, 64.2) were significantly higher than post-ALARM scores (mean, 62.8; $p = .004$). Additionally, significant differences emerged among the four IEPS domain scores. Performance was highest for the “competency and autonomy” domain (mean score, 70.2; $p > .031$), followed by the “perceived need for cooperation” domain (mean score, 68.1; $p > .031$), the “perceptions of actual cooperation” domain (mean score, 64.9; $p > .031$), and finally, the “understanding of others’ values” domain (mean score, 49.19; $p > .031$). Furthermore, regardless of IEPS domain, residents had higher IEPS scores than midwifery students had [65.1 versus 61.9, respectively; $p = .014$]. This difference in IEPS scores across the two student groups varied marginally as a function of the IEPS domain ($p = .06$). As illustrated in Figure 1, residents had higher mean weighted scores than midwifery students with respect to scores on “Perceptions of cooperation” [69.18 versus 63.03, $p = .001$], but the two groups performed similarly across the remaining three domains [all p -values $> .05$].

Qualitative Analyses

Qualitative analysis of the open-ended question highlighted three themes: [1] openness to IPE and interprofessional care, [2] awareness of collaborative competencies, and [3] barriers to effective collaboration [Table 2]. Overall, most learners appear to be positive about learning in an interprofessional context and believe that interprofessional collaboration in the workforce will benefit patients. The learners demonstrated awareness that valuing the contributions of all professionals and effective communication skills were required for collaboration. Several responses raised concern about previous negative interprofessional interactions and systemic factors within the health care system that may act as barriers to promoting collaboration in practice.

DISCUSSION

This study explored learners’ perceptions of their own and other’s professions before and after an IPE training event. The event brought together learners who practice primary care obstetrics: midwifery students, family medicine residents, and

Table 2. Sample Views on Interprofessional Working and Learning

Theme	Sample Comments
Openness to IPE and IPC	<p><i>"I really enjoy when we have the opportunity to work and learn with/from other professions...I always enjoy when we have interprofessional courses like ALARM."</i> –midwifery student</p> <p><i>"If the training is done in multidisciplinary teams, I think people are more likely to work closer together in the future."</i> –family medicine resident</p>
Awareness of collaborative competencies	<p><i>"Establishing a respectful relationship with good communication will allow these situations to run more smoothly."</i> –midwifery student</p> <p><i>"Very important to respect that while roles are different, so are experiences, which are all unique and valuable contributions to a group."</i> –family medicine resident</p>
Barriers to effective IPC	<p><i>"I find some midwives can assume that other professions think negatively of them. This leads to pre-emptive confrontation that may not have needed to happen."</i> –midwifery student</p> <p><i>"People who are doing the same job from various professional backgrounds have a lot to offer each other. It is just common sense and a sign of something wrong with the system and administration when it cannot happen effectively and supportively."</i> –family medicine resident</p>

ALARM, Advances in Labour and Risk Management; IPC, interprofessional care; IPE, interprofessional education.

obstetric residents.

Interactions between professions improve when there is equality between professional groups, when group members are perceived to be “typical” and not exceptions to the group, when there are positive expectations of all participants, and when there is an intention to understand group differences and similarities.^{27,28} Our findings in both the qualitative analysis and the initial IEPS scores for all participants showed positive expectations and openness toward interprofessional working and learning. Positive expectations and openness are useful prerequisites for IPE and can have a direct impact on promoting engagement with both interprofessional learning and the core content of obstetric emergency management.^{4,17,29,30}

Group composition and equality may have affected learners’ engagement with the ALARM

course. It is important to note that despite similar recruitment strategies, only three of the obstetric residents who participated in the course completed the questionnaire. This represents a lost opportunity to understand the perspectives of this professional group.⁴ It is difficult to ascertain why so few of these residents completed the questionnaire. The absence of representation from all professions is frequently cited as a barrier to effective IPE because the group composition does not reflect the reality of practice.^{31,32}

Despite the openness to IPE and interprofessional care and the awareness of the benefit for patients, the IPES scores for all participants were higher before participating in the ALARM course, indicating that participants were more negative in their perception of IPE following the experience. This may be because the ALARM course closely resembles

“multiprofessional” education more closely than it resembles “interprofessional” education. Multiprofessional learning brings together different professions to learn in parallel but does not include opportunities for participants to interact and to learn “with, from, and about” each other.³³ Our findings support previous research showing that contact between different professional groups is not sufficient to promote collaboration;³⁴ explicit, intentional interactions are needed.

At present, the focus of ALARM is on the development of individual skill and knowledge, and the ALARM course may not be an effective vehicle for promoting collaboration between professions. However, it provides an opportunity for shared learning among professions, which could be increasingly meaningful and relevant to clinical care if the course included a broader focus on teamwork.³⁵ Further, researchers have found that simulation of clinical care is more valuable if issues of hierarchy, power, and professional conflict are addressed.³⁶ A teamwork focus, which includes discussion of interprofessional relationships and their impact on patient care, would offer instruction in both technical and nontechnical skills. Despite the fact that one of the key nontechnical skills required during obstetric emergencies is teamwork, very few training courses address this. Nontechnical skills are just as complex as managing clinical care, and they require the integration of a range of skills, attitudes, and behaviours.³⁷

The ALARM course continues to be an important component of education for future maternity care providers. Obstetric emergency training can result in improved clinical management, confidence, communication, and knowledge by providing an opportunity to reflect on behaviour in a safe environment.^{4,36} However, a stronger focus on teamwork and collaboration in obstetric emergency training is critical and would be a useful addition to the ALARM course. Incorporating an explicit focus on collaboration as part of this training may improve team functioning and the safety of patients.² Previous studies, found that teamwork training for labour and delivery staff reduced the time from “decision to incision” for urgent cesarean sections by 12 minutes.³⁷

Future research efforts could focus on the

impact of explicit teamwork training as part of the ALARM course. These research efforts could also address the limitations of this study (such as the small sizes of the groups from each profession), which in turn limits its findings’ generalizability to all learners in maternity care.

The addition of more explicit teamwork training to the ALARM course could [1] create a positive IPE learning environment in which participants can learn with, from, and about each other while focusing on promoting the safety of patients and [2] would capitalize on the openness to collaboration that is present among learners before engaging in the course. In this way, the safety of patients can be the uniting goal among professional groups, thus minimizing the impact of the diverse professional philosophies that traditionally have posed challenges to collaboration.^{38,39}

CONCLUSION

Participation in the ALARM course for learners in maternity care appears to be a useful vehicle for raising awareness of the need for collaboration in practice. However, professional perceptions of teamwork, collaboration, and stereotypes of other professionals could be addressed in a more explicit way before and throughout the ALARM course as a strategy for improving collaboration and teamwork. With this addition to the curriculum, the ALARM course could provide an optimal learning strategy for attaining both technical clinical skills and nontechnical, collaborative competencies.

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