

ORIGINAL
ARTICLES

Perceptions of Interprofessional Education in the Australian Advanced Life Support in Obstetrics (ALSO) Course

Laura Walker, RN, RM, BM, MMid (Research); Catherine Fetherston, RN, RM, PhD;
Anne McMurray, AM, RN, PhD

BACKGROUND AND OBJECTIVES: Interprofessional education (IPE) was investigated in the context of an evaluation of the Advanced Life Support in Obstetrics (ALSO) course in Australia. Our objectives were to examine doctors' and midwives' perceptions regarding interprofessional learning and measure changes in self-reported confidence in specific interprofessional clinical situations.

METHODS: A prospective, mixed methods design was used to survey 165 ALSO course participants before the course and 6 weeks after the course (n=101). Quantitative data were analysed using the Wilcoxon signed rank test, and all P levels lower than .05 were considered significant. Qualitative data were analyzed using content analysis.

RESULTS: There were significant increases in midwives' confidence in all four aspects of interprofessional interaction measured 6 weeks following the course. However, the doctors only reported a significant increase in one aspect, the confidence that their clinical decisions were respected by the midwives with whom they worked. The qualitative data demonstrated an appreciation of different professional approaches to clinical situations and the importance of teamwork, communication, respect, and understanding. While most participants were positive about the advantages of IPE, just under half also believed there were some disadvantages, particularly due to the variable learning needs of individual professionals.

CONCLUSIONS: Both doctors and midwives reported various benefits from IPE, and many believed that IPE assisted maternity team collaboration and communication in the workplace. However, educators need to skillfully manage IPE sessions to ensure a similar distribution of learning and that opportunities for discussion are equivalent for all individuals and professional groups.

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Interprofessional education (IPE) supports an active learning paradigm based on a shared exchange of knowledge, the main aims of which are to advance professional collaboration and improve clinical

care.¹ This type of learning is not about different health professionals acquiring the same knowledge or clinical skill but aims to enhance practice and encourage professional groups to learn with, from, and

about each other while respecting each other's contribution and integrity.¹

Barr's framework of interprofessional competencies comprises several dimensions pertinent to IPE in postgraduate maternity care. These include common competencies that overlap roles within each professional's scope of practice, complementary competencies that reflect individual expertise and require awareness across professional boundaries, and collaborative competencies needed to work together with other health professionals, women, and their families.² However, the range of focus in the maternity care continuum, and the environment in which it is delivered, may vary across and within each profession.³

The potential benefits of IPE are gaining ground internationally. The World Health Organization asserts there is now "sufficient evidence to indicate that IPE enables effective collaborative practice which in turn optimizes health services, strengthens health systems, and improves health outcomes."⁴ In Australia,

From the School of Nursing and Midwifery, Curtin University, Perth, Western Australia (Ms Walker); School of Health Professions, Murdoch University, Perth, Western Australia (Associate Professor Fetherston); Emeritus Professor, School of Nursing and Midwifery, Menzies Health Institute, Griffith University, Gold Coast, Queensland (Professor McMurray).

interprofessional learning now underpins the Australian Core Competency Model and Educational Framework for Primary Maternity Services.⁵ Accordingly, IPE is recommended in continuing professional development⁶ as it is likely to foster the mutual trust and respect necessary for interprofessional collaboration⁷ that is vital to the provision of safe, high-quality maternity care.⁸ An essential ingredient of competent maternity team collaboration is effective communication between health professionals,⁹ which may require a cultural adjustment within some maternity services¹⁰ to ensure that interprofessional dissent does not obstruct effective team alliance.¹¹ Although entrenched views and attitudes from some team members can create barriers to collaborative care,^{12,13} IPE might strengthen relationships and foster cultural change as shared learning seems to have a positive impact on teamwork¹⁴ as well as potentially improving health care outcomes for mothers and their infants.^{15,16}

The effects of IPE on professional practice and clinical outcomes have been examined in two Cochrane Reviews.^{17,18} Although some studies reported mixed outcomes or no impact on professional practice or patient care, positive outcomes were found in diabetes care and aspects of domestic violence and mental health care, along with emergency department culture, patient satisfaction, and reduced clinical errors in emergency department teamwork. An improvement in collaborative team behavior was also found in emergency departments and operating rooms.^{17,18}

Teamwork and safety in maternity care are inextricably linked,¹⁹ and the evidence suggests that IPE may strengthen the effectiveness of these teams.²⁰⁻²² Maternity care inevitably involves managing unpredictable obstetric emergencies that require a coordinated response from an interprofessional team with varying degrees of clinical experience.²³ In these urgent situations, the importance of a collaborative, cohesive

team that communicates effectively and understands each other's roles cannot be overemphasized.

The Advanced Life Support in Obstetrics (ALSO) course is recognized internationally for excellence in obstetric education and is administered in Australia under license from the American Academy of Family Physicians. It is an evidence-based, interprofessional course that has been shown to have a positive effect on the confidence and/or knowledge of participants to manage obstetric emergencies.²⁴⁻²⁹ Additionally, Beasley and colleagues suggested in 2005 that future research into the effects of ALSO training should investigate whether the interprofessional nature of ALSO helps improve relationships between maternity care professionals.³⁰ However, notwithstanding the obvious interest of this issue to medical education, particularly to those doctors practicing family medicine and obstetrics, no published research regarding this topic has been identified. For this reason, the objectives of this study were threefold: to measure changes in ALSO course participants' confidence when working within an interprofessional team, to examine participants' beliefs regarding the advantages and disadvantages of IPE, and to ascertain whether participants perceived that the interprofessional aspects of the course subsequently affected their relationships with professional colleagues in the workplace. Potential study participants included doctors and midwives enrolled in ALSO courses but not obstetric nurses. In Australia, midwives assume responsibilities that would be undertaken in other countries by obstetric nurses. Doctors' clinical backgrounds differ, but most practice some obstetrics to a greater or lesser degree. Types of doctors include: registrars, specialists in training who have completed several years of study in that specialty; district medical officers (DMOs) or medical officers (MOs) who are usually salaried doctors working in regional hospitals and responsible for general medical care; and general

practitioners (GPs) who are similar to family physicians. GP training in Australia is a 3- or 4-year specialist postgraduate program that commonly includes 6 months of in-hospital obstetrics particularly for those GPs planning to practice in regional, rural, or remote Australia. All GPs generally provide some level of maternity care. This may be prenatal care up to 20 weeks gestation or, for GP obstetricians, all maternity care including labor and delivery or shared prenatal care (for higher risk women) with a specialist obstetrician.

Methods

A prospective repeated measures survey design was undertaken over two time periods: immediately before the course and 6 weeks after the course. The survey consisted of 5-point rank-ordered response Likert scale questions that measured perceptions of confidence related to the aims of the study. In the questionnaires, participants were asked to rate their level of confidence when working in an interprofessional team in the workplace. Scale items for levels of confidence can be seen in Table 1 and rating scale responses on the 1 to 5 rating scale for these items were 1=strongly disagree to 5=strongly agree. Both questionnaires asked the same questions and intended to establish the participant's perception of their confidence about each variable at that particular time, thereby allowing comparisons across the two time periods.

The questionnaire at the 6-week data collection point also included the following open-ended questions:

(1) What do you think were the advantages of having the group sessions with both doctors and midwives?

(2) What do you think were the disadvantages of having the group sessions with both doctors and midwives?

(3) Do you feel the interprofessional learning approach in the course has influenced your relationships with your medical/midwifery

Table 1: Changes in Perceived Confidence When Working Together for Doctors and Midwives From Before the Course to 6 Weeks After the Course

Workplace Interaction	Participants	Before Course Level of Confidence		6 Weeks After Course Level of Confidence		Significance (2-tailed)	Effect Size
		Mean* (SD)	Median (IQR)	Mean* (SD)	Median (IQR)		
Confidence interacting with the midwives with whom I work during an obstetric emergency.	All	4.12 (0.821)	4 (4,5)	4.40 (0.693)	4 (4,5)	<.001	.61
	Midwives	4.09 (0.907)	4 (4,5)	4.43 (0.756)	5 (4,5)	<.001	.66
	Doctors	4.15 (0.665)	4 (4,5)	4.35 (0.551)	4 (4,5)	.109	
Confidence interacting with the doctors with whom I work during an obstetric emergency.	All	4.16 (0.853)	4 (4,5)	4.44 (.813)	5 (4,5)	<.001	.65
	Midwives	3.99 (0.937)	4 (4,5)	4.39 (0.828)	5 (4,5)	<.001	.66
	Doctors	4.45 (0.594)	4.5 (4,5)	4.53 (0.788)	5 (4,5)	.052	
Clinical decisions are respected by the midwives with whom I work.	All	3.88 (0.803)	4 (3,4)	4.17 (0.749)	4 (4,5)	<.001	.46
	Midwives	3.93 (0.811)	4 (4,4)	4.14 (0.827)	4 (4,5)	<.001	.38
	Doctors	3.79 (0.789)	4 (3,4)	4.23 (0.560)	4 (4,5)	.016	.62
Clinical decisions are respected by the doctors with whom I work.	All	3.91 (0.840)	4 (3.75,4)	4.18 (0.747)	4 (4,5)	<.001	.60
	Midwives	3.74 (0.879)	4 (3,4)	4.15 (0.734)	4 (4,5)	<.001	.71
	Doctors	4.17 (0.693)	4 (4,5)	4.24 (0.781)	4 (4,5)	.439	

* Mean is also reported to emphasize any statistically significant measured change that is not clearly observable from the median.

colleagues in your workplace? If yes, please explain how.

Following permission to conduct the study by the Australian ALSO Executive Board and ethics approval by Murdoch University Human Research Ethics Committee, all participants attending one of four consecutive ALSO courses in Western Australia, New South Wales, Victoria, and Queensland from June to December 2010 were invited by email to participate. At the course registration, attendees who consented were given an envelope containing a coded consent form and coded pre-course questionnaire. Completed questionnaires were returned to the envelope, sealed and "posted" into a

submission box. This process was repeated immediately after the course to measure changes in perceived knowledge and confidence-related variables, the results of which are published elsewhere,²⁹ and the third questionnaire was posted to the participants 6 weeks after completion of the course.

Prior to the study a pilot (n=29) was undertaken to establish reliability and face and content validity of the questionnaires, resulting in a Cronbach's alpha of .92 for the perceived knowledge and confidence variables for the pre-course questionnaire. As no changes to the questionnaires were deemed necessary, the

data from the pilot study were included in the main study.

Analysis was conducted using SPSS 17[®] for Windows (2008) with descriptive data reporting frequencies, percentages, median and interquartile range (IQR) or mean and standard deviation (SD) according to normality. The Wilcoxon signed rank test was used to investigate differences in participants' confidence related to working in an interprofessional team in the workplace immediately before and 6 weeks after the ALSO course. Effect size (r) was calculated,³¹ and the size of the effect was described as small (r=.1), medium (r=.3), or large (r=.5).³² All

P levels lower than .05 were considered significant.

After analyzing the results for all the participants the sample was then split to investigate differences in the individual group findings for the doctors and midwives. The rationale for this decision was two-fold: the desire to confirm that the results for the sample as a whole were not being distorted or skewed by one of the professional groups and an interest in examining any differences in the data between professions.

Data from the open-ended questions were analyzed using content analysis whereby a detailed and systematic examination of the manifest content of the data was undertaken. Examples of manifest content were assembled into analogous groups from which content categories were constructed. Specific representative variables were then developed from these categories and ascribed labels prior to entering into SPSS 17.[®] Examples of these labels can be seen in Tables 2, 3, and 4. Variables were dichotomous depending on whether or not the participant had mentioned a particular category from which that variable had been developed: 1=category reported by participant or 2=category not reported by participant.

Results

The sampling frame consisted of 242 ALSO course attendees (98 doctors and 144 midwives) of whom 170 agreed to participate in the study, although five were subsequently excluded due to incomplete data. This resulted in an adequate sample size³² of 165 including 62 doctors (37.6%) and 102 midwives (61.8%). One participant's profession was not reported. Years of experience for doctors ranged from 1 to 32 with a median of 4 (IQR: 2, 10), whereas midwives' experience ranged from 1 to 38 years, median 15 (IQR: 5.75, 25). A total of 101 participants (61%) completed the 6 weeks post-course questionnaire including 65 (65%) midwives and 35 (35%) doctors. All of the midwives were female, with 14 male and 21 female doctors. Although the midwives

did not generally specify their professional status, Table 5 illustrates the doctors' professional positions at the different data collection times.

Pre-course data were unavailable for ALSO course attendees who chose not to participate in the study and therefore no demographic comparisons could be made between survey respondents and nonrespondents. However, sampling bias was minimized by the relatively high response rate.

Changes in Self-Reported Confidence in Specific Clinical Situations

Six weeks after the course the midwives reported significantly increased confidence (from before the course) when interacting with both their midwifery and medical colleagues during an obstetric emergency ($P<.001$, large effect size, $r=.66$). This group also perceived an increase in confidence that their clinical decisions were respected by the midwives ($P<.001$, medium effect size, $r=.38$) and doctors ($P<.001$, large effect size, $r=.71$) with whom they worked. On the other hand, doctors only reported a significant increase in confidence that their clinical decisions were respected by their midwifery colleagues ($P=.016$, large effect size, $r=.62$). These findings are presented in Table 1.

Advantages of IPE

Aggregated responses from the open-ended questions revealed that almost all participants were positive about the advantages of learning in interprofessional groups. Both professional groups commented that the opportunity to hear and share different professional perspectives toward clinical situations was highly valued (doctors 66%, midwives 55%). Different components of teamwork, particularly communication and collaborative care, were mentioned by 29% of midwives and 39% of doctors. Doctors cited the benefits of interaction and knowledge sharing in IPE more often than the midwives (26% and 18% respectively), but none of

the doctors believed this increased their learning opportunities. This perspective was unique to the doctors as over 16% of the midwives found IPE, particularly the opportunity to benefit from doctors' increased knowledge, to be a valuable learning tool. Approximately one third of both groups mentioned mutual respect and understanding and other examples of professional appreciation (doctors 39%, midwives 31%).

Comments from participants can be seen in the examples of manifest content in Table 2.

Disadvantages of IPE

Although over 50% of both professional groups stated that there were no disadvantages to IPE, 36% of doctors and 28% of midwives believed variable professional learning needs could hinder productive learning. A small proportion of midwives (10%) perceived that power imbalances arising from both dominant medical input in the groups and inherent differences between the professions, hampered midwifery participation, while doctors mentioned inequality between the groups less often (4%). Comments are presented in Table 3.

Perceptions of IPE on Subsequent Workplace Relationships

Participants were also asked if they felt that the IPE approach in the course had influenced their relationships with their medical and/or midwifery workplace colleagues, and if so, how. Fifty-five percent of doctors and 53% of midwives answered "yes" to this question. These responses were generally followed with positive explanations or comments, with examples detailed in Table 4. Among the 45% of doctors and 47% of midwives who responded "no" to this question, about a third of each professional group indicated that they already worked in a collaborative environment.

Discussion

Previous researchers have reported benefits associated with undertaking

Table 2. Content Categories and Variable Labels for Perceived Advantages of IPE Developed From Participants' Comments Regarding IPE Experiences at the ALSO Course

Variable Label	Content Categories	Examples of Manifest Content
Teamwork	Teamwork Collaboration Communication	Team environment. Essential we are all on same page. Fosters a team approach. Enhances teamwork and collaboration. Promotes communication. Working together in best interests of mother and baby. Optimize relationships in the workplace. Improve quality of team communication. Helps with team building.
Different professional perspectives	Different management practices Different ideas Different perspectives Different experience	Different aspects/care/models of care. Points to offer from all backgrounds. Draw from wider spectrum of personal experiences. Brings different perspectives/approaches to problems. Different emphasis that different practitioners place on clinical situations. Insight into other providers ways of practicing. Different knowledge, skills and attitudes. Hearing different opinions from experienced professionals.
Professional equality	Mutual respect and understanding Encouragement Breakdown of barriers Equality Improved relationships Valuing each profession Working to common goals	Understand each others' professional roles. Improves relationships of health professionals. Enhances mutual respect. Understanding attitudes. Different strengths and weaknesses. Makes for an "even playing field." Breaks down barriers. All equals working to common goals. Collegial understanding and respect. Doctors value midwives input, skills, and knowledge. Understanding where everyone is coming from and the difficulties others face. Bridges the gap between us and them. Encouraging each other. Everyone there to help each other. Reinforces doctors are human. Networking.
Interactive knowledge sharing	Brainstorming Interaction Knowledge sharing	Learn from different areas of expertise. Share the same knowledge base. Learn from each other. Always good to brainstorm. Sharing knowledge. Interacting with doctors and midwives from all different backgrounds. Better interaction with all members leading to more positive outcomes for our clients. Joint knowledge, combined experience. Enjoyed the interaction. Knowing we are learning the same systematic approaches and mnemonics. Knowledge passed on.

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Table 2 (continued)

Variable Label	Content Categories	Examples of Manifest Content
Increased learning opportunities	Increase in learning and knowledge Helped with learning Greater clinical understanding	Extends knowledge of midwives. Midwives learning valuable information from doctors in case groups/workstations. Working and learning together increased learning and knowledge. Watching experienced doctors helped with gaining confidence. Varied experience contributed to learning. A valuable learning tool. Opinions from medical staff can enhance midwives learning Different levels of prior knowledge and learning assisted with learning. Enthusiasm of some participants assisted learning. Doctors have a larger knowledge base so the information they shared was very interesting.

an ALSO course,²⁴⁻²⁹ yet there have been no reported studies of the merits or otherwise of the IPE aspects of the course. This current study has aimed to address recommendations that research into ALSO training should investigate whether the interprofessional nature of ALSO helps improve relationships between maternity care professionals.³⁰ Findings from this study indicate that it does, supporting previous research demonstrating that IPE can positively impact on professional roles and attitudes and therefore potentially improve health care outcomes.^{17,33}

At the 6-week interval, the midwives in this study reported a significantly greater overall increase in confidence when interacting with their medical and midwifery colleagues. Similarly, doctors at this time reported increased confidence when interacting with medical colleagues during an obstetric emergency, although the increase did not reach statistical significance. However, doctors did report that clinical decisions in the workplace were significantly more respected by their midwifery colleagues.

These findings corroborate earlier work by Fetherstone et al³⁴ who found that participants attending their inter-professional ALERT™ course felt more confident afterward when working in an interprofessional team, suggesting potential benefits in an emergency situation

where optimal communication and collaboration are vital. Our study showed improved levels of confidence among midwives and, to a lesser degree, doctors when working in clinical situations requiring integrated teamwork.

It can be seen in Table 1 that for all of the variables measured, there were significant changes in self-reported confidence for “all” the study participants. However, as midwives’ findings for three of the four variables measured skewed the results for the whole group, this underlines the importance of examining the data according to individual professional groups. The skewness could have been influenced by the overrepresentation of midwives in the survey, but the differences imply that one or other professional group can experience interprofessional learning in quite distinct ways.

The positive advantages of IPE reported by the participants indicated that they valued the opportunity to share different professional perspectives and approaches to clinical situations, and many mentioned aspects of mutual respect and understanding. Similar findings were also reported following the MOSES obstetric emergency course in England³⁵ where participants described acquiring new knowledge or insights, particularly into the role of communication and leadership during obstetric emergencies. Some

participants in the English study articulated a new understanding and appreciation of interprofessional differences and respect for the different roles and perspectives within the team.

In this current study, doctors cited the benefits of interaction and knowledge sharing more often than the midwives, while a proportion of midwives believed the doctors’ advanced knowledge had helped to increase their learning. The different components of teamwork, particularly communication and collaborative care, were referred to by both groups of participants, albeit these benefits were identified more often by doctors than midwives. Other constructive IPE characteristics included positive influences on workplace relationships. These findings concur with other studies that found IPE in obstetric training courses enhanced professional interaction, confidence, communication, teamwork, and understanding.^{7,34-36}

A recent Australian paper emphasized that collaboration in maternity care involved trust and respect,³⁷ and although the word “trust” was not mentioned by any of the participants in the current study, mutual respect and understanding were considered important. Mutual trust and respect are central to interprofessional collaboration, and concerns have been voiced in the literature that these qualities remain limited

Table 3: Content Categories and Variable Labels for Perceived Disadvantages of IPE Developed From Participants' Comments Regarding IPE Experiences at the ALSO Course

Variable Label	Content Categories	Examples of Manifest Content
No disadvantages	No disadvantages	Nil. None. No obvious disadvantages. I don't think there were any.
Variable learning needs	Diverse learning needs	Difficult to gear sessions at a particular level—basics to expert. Inclusion of topics not generally midwifery based. Not enough time spent on medical aspects of care because basics needed to be covered. Complex medical issues discussed beyond understanding of some participants. Too medically orientated. As a midwife some answers/discussions were above my knowledge base. Their learning needs differ from ours. As a doctor I would have liked more evidence-based literature and medically directed scenarios. Different expectations. Doctors practice with interventions in mind, midwives practice for a natural outcome. Inclusion of topics not clinically utilized by most midwives. Difficult to pitch level of teaching to both groups at once. Made it hard to tease out what was most applicable to own role. Some content skimmed over due to increased doctors knowledge.
	Variable levels of expertise and knowledge	Groups should be organized into experience. Most doctors in group very junior with little knowledge or experience. Course more useful practically to junior OB-GYNs. Unnerving to see how little some registrars and GPs knew about obstetric emergencies and neonatal resus—they're who we call on for assistance (but at least they were at course and learning). Differing levels of expertise/differing need for specific skills.
Power imbalances	Unequal power relationship between doctors and midwives Sense of inequality Intimidation	Intimidating. Occasionally doctors not respectful of midwives opinions. Most of groups stuck together with conflicting opinions. Medical staff can sometimes "take over." Difficult for midwives to participate sometimes as doctors very quick to be vocal. A heavy medical slant on some of the cases made some of the midwives feel inadequate. Medical staff can sometimes dominate discussions. When they bring in their "attitudes."

by inadequate opportunities for interprofessional dialogue in respective training regimes.³⁸ Many studies detail the encouraging effects of health professionals learning together and how this can have a positive impact on collaborative and effective maternity care teamwork and patient care.^{7,14,15,17,20,39}

While both professional groups in this study appear to gain from IPE in the course, the doctors consistently cited positive benefits more frequently than the midwives. The demographic data detailing the professional positions of the medical participants at the 6-week mark shows that many of the doctors were DMOs and MOs who are likely to

be older and more experienced than junior doctors early in training. The other consideration here is that these doctors may work in regional areas where interprofessional learning opportunities are less frequent, maybe even novel. Whether more experience, or being professionally or geographically isolated, will enhance a willingness to collaborate

Table 4: Content Categories and Variable Labels for Perceived Effects of IPE on Subsequent Workplace Relationships

Variable Label	Content Categories	Examples of Manifest Content
Already work in a collaborative interprofessional team	Good working relationship with medical colleagues. Good working relationship with midwifery colleagues. Work in collaborative environment.	Already have a good relationship with colleagues. Good professional respect in unit. Workplace already has a great feel with relationships between doctors and midwives. Always practiced in collaborative environment. Have always respected midwives' opinions.
Perceived positive influences of ALSO course on workplace relationships	Improved communication. Improved confidence. Improved understanding. Improved collaboration/teamwork.	Positive effect. Mutual respect. Better understanding of roles and skills. Reinforces/enhances teamwork and collaboration. Increased confidence. More understanding of each other's work. Less likely to feel threatened by others' knowledge/skills. Learning together increased my team confidence. Communication and confidence improved. Working together as a team. Importance of each other's roles in emergency situations. Importance of teamwork. Improved communication due to up-skilling.

Table 5: Professional Positions Held by Study Medical Participants

Occupation of Doctors	Pre- and Post-Course Participants n=62 (%)	6 Week Post-Course Participants n=35 (%)
O&G consultant	1 (2)	1 (3)
GP obstetrician	8 (13)	5 (14)
O&G registrar	2 (3)	2 (6)
O&G resident	21 (34)	7 (20)
Flight doctor	3 (5)	2 (6)
District medical officer/medical officer	17 (27)	15 (43)
GP/GP trainee	5 (8)	3 (8)
Consultant/senior registrar (non O&G)	4 (6)	0
Other	1 (2)	0

Reproduced from Walker et al, 2013:³²⁹

when given the opportunity is unknown. However, these findings are particularly encouraging as doctors do not always embrace and engage in IPE as readily as other health professionals, with some believing it might jeopardize their professional status.⁴⁰ As the literature shows that IPE can contribute to improved clinical outcomes,^{17,18} one could speculate that the renewed professional

respect and other benefits cited by these doctors and midwives could positively impact the clinical care they provide.

Although most participants in the current study did not identify any disadvantages to IPE, many commented that the variable learning needs associated with the different professions could be an impediment to productive learning. These

findings endorse suggestions from other researchers that IPE often needs a broader content to accommodate different professional groups, albeit with some specialized content sacrificed to satisfy the varying learning needs.⁴¹ A related issue is the disadvantage inherent in power imbalances that can sometimes obstruct effective teamwork.^{10,11} However, there are suggestions that IPE

can improve conflict resolution and problem-solving abilities,^{16,42} and may enhance mutual understanding of the roles of the professional groups.⁴³

This study's findings suggest that IPE facilitators in these types of programs need to develop strategies to manage potential dissatisfactions. For instance, IPE must promote effective communication and awareness of the differing roles of team members and should encourage the professional groups to value and recognize each others' knowledge and practice.¹⁵ Course organizers must ensure instructors are trained and supported to skillfully manage IPE sessions to provide an equal distribution of learning and that opportunities for discussion are equivalent for all individuals and professional groups. Regardless of where, and among whom, IPE is taught, it is important to include the principles of teamwork and communication because effective teamwork is associated with improved health outcomes.¹⁹

The findings from this current study confirm the merits of IPE and are also supported by other previously published results from the same research²⁹ where both professional groups experienced significantly increased confidence and perceptions of knowledge to manage obstetric emergency situations following an ALSO course. These experiences may also have improved participants' confidence when working with colleagues in the workplace. Nonetheless, it seems evident that many doctors and midwives believed the IPE elements of the course enhanced their understanding of each other's roles, their confidence and communication, collaboration, and teamwork.

Limitations

Resource constraints limited the sample size in this study. Ideally, this research would have been conducted over a longer time frame allowing for the recruitment of a larger sample, which may have resulted in a more even distribution of professional groups and gender. However,

in Australia, ALSO courses generally attract doctors and midwives in approximately a 1:2 distribution, which is reflected in the percentages of survey respondents. Most of the study respondents were female. This gender imbalance within the sample can be attributed to the high proportion of female midwives in Australia (99.5%),⁴⁴ and female doctors (77.6%) who are now undertaking obstetric postgraduate training in Australia.⁴⁵

Response bias is a possibility with any survey and, along with gender bias, may have influenced the self-reported data and subsequent findings in this study. We are circumspect as to why only a third of the O&G residents responded to the 6-week questionnaire. As these were reasonably junior doctors who generally work in large teaching hospitals, they may have been too busy to respond, or they could have moved location and therefore not received the posted questionnaire. However, undoubtedly the relatively high nonresponse bias here potentially affects the reliability and validity of this particular cohort's findings.

The professional positions of the medical participants at the 6-week mark shows that the majority of doctors were DMOs, MOs, and other senior doctors who are likely to be older than either GP trainees or O&G residents. This indicates that many of the medical respondents to the 6 weeks post-course questionnaire might have been older with, by definition, more experience than some of the nonrespondents at this time point. Years of experience, therefore, may be a confounding variable.

Conclusions

Interprofessional education in the Australian ALSO course is beneficial to both professional groups, although midwives appear to gain additional confidence in more areas, and the course might also help to improve relationships between maternity care professionals in the workplace. However, given the stated limitations of this study and the participants'

self-selection, the generalizability of these benefits to other ALSO populations is unknown. It is therefore important to observe findings from a larger study to expand our understanding of IPE within ALSO. In doing this, researchers should consider a combined approach incorporating in-depth interviews to yield richer information, along with methodologies capable of measuring the empirical outcomes related to IPE.⁴⁶ Given the underrepresentation of O&G residents in the 6-week follow-up in this study, another potentially appealing IPE area for researchers to contemplate would be related to junior obstetric trainees and midwives or obstetric nurses, as a recently published paper from England highlighted how newly qualified doctors learned informally from the more experienced nurses in their workplace.⁴⁷

This study adds to the current body of literature by contributing knowledge in areas related to IPE, ALSO, and interprofessional relationships in the workplace. The findings will also assist with current and future development of IPE courses for health care professionals and guide our understanding of each professional group's perspectives regarding learning and working together.

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CORRESPONDING AUTHOR: Address correspondence to Ms Walker, Curtin University, School of Nursing and Midwifery, GPO Box U1987, Perth, Western Australia 6845. +61-408942374. lwalker056@gmail.com.

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