Introductory Experiential IPE Student Teams: Concordance in Team Behavior Ratings by Students, Community Members, and Faculty

OLIVIA S. ANDERSON [ID]

VINOOTHNA BAVIREDDY

KAREN FARRIS [ID]

*Author affiliations can be found in the back matter of this article

ABSTRACT

Introduction: Introductory experiential interprofessional education (IPE) is necessary for health profession students to authentically engage with patients and develop team skills. Patients can also be a source of feedback about team performance. The objective of this work was to determine the agreement of student, community member, and faculty evaluations of team behavior skills after students engaged in an experiential IPE opportunity.

Methods: The Longitudinal Interprofessional Family-based Experience (LIFE) was an 11-week experiential module. Interprofessional student teams (n = 56 students, 10 teams) interviewed a community member with a chronic disease about their lived-experiences managing their condition, and interacting with healthcare providers and systems, and community organizations. Students conducted two team interviews. Students, community members, and faculty completed six items of the Interprofessional Collaborator Assessment Rubric (ICAR) inventory after each interview to assess communication, collaboration, roles/responsibilities, client-centered approach, and team functioning. Items were rated as 0 = not observable, 1 = minimal, 2 = developing, 3 = competent, and 4 = mastery.

Results: Faculty had lower average ratings for most student teams (n = 7 teams) compared to students' self-evaluation. Faculty had lower average ratings for three teams compared to community members' evaluations. The Intra-Class Correlation for community member-student ratings was 1.0, community member-faculty was 0.4 and student-faculty was 0.3.

Discussion: Community member ratings of interprofessional team performance were consistent with students', but faculty showed poor reliability with student and community member ratings. Training patients, faculty, and students to use ICAR will be necessary to increase reliability for its future use.

CORRESPONDING AUTHOR:
Olivia S. Anderson

University of Michigan School of Public Health, US

oliviasa@umich.edu

PRACTICE IMPLICATIONS

1. Authentic engagement with patients early in health profession training will allow students to experience as close to real-life scenarios as possible to understand the relevance of collaborative healthcare
2. Community members may provide feedback to improve student collaborative team performance, which may provide a mechanism to scale such IPE activities to include a source of immediate formative feedback for students
3. Appropriate trainings for the use of behavior tools, like ICAR, may be necessary when collecting multi-source feedback

INTRODUCTION

Introductory experiential interprofessional education (IPE) fosters collaborative skills within health profession students early in their training. Experiential learning provides authentic opportunities for health professional students through meaningful engagement with patients or clients. It is critical for health professional students to engage in experiential learning for them to experience as close to real-life scenarios as possible so they can understand the relevance of collaborative healthcare (Grace et al., 2017). Whether an experiential IPE learning environment is simulated or in a real-world setting, students that engage in such experiences are better prepared and more confident when faced with diverse patients and scenarios in the workforce (Knight et al., 2020; O'Shea et al., 2019).

Meaningful engagement with patients through experiential IPE allows an opportunity to provide feedback to IPE student teams about their performance. Intentional evaluation of IPE has been emphasized by Reeves et al. (2015) to contribute relevant evidence to students for professional development purposes and educators to understand how/if IPE results in behavior change (Reeves et al., 2015). Observational tools may be more useful to assess team behavior in experiential IPE than self-evaluation tools that measure knowledge of and attitudes towards IPE (Shrader et al., 2017).

Experiential IPE is integral to health profession training, but to scale these experiences for all students to engage in authentic experiential IPE, multiple sources of feedback will be required. For example, the Interprofessional Collaborator Assessment Rubric has shown feasibility and reliability in various experiential clinical settings to collect multiple sources (i.e., faculty, students, etc.) of formative feedback for trainees to improve collaborative skills (Hayward et al., 2014; Langlois et al., 2016). ICAR has even been translated to other languages (Andermo et al., 2022; Keshmiri et al., 2016) and further validated in a simulated learning context using medical students as evaluators and clinicians as expert raters (Keshmiri et al., 2016). Although ICAR has been integrated in diverse experiential learning environments there remains a lack of consistency in how or when ICAR is utilized as an evaluation tool. For instance, when students and faculty used ICAR to evaluate student IPE teams in clinical training, both raters found it "onerous" or that not all items were relevant for the given situation (Andermo et al., 2022). Further, few studies have utilized patients as raters using IPE observational tools to improve collaboration skills among interprofessional teams, especially assessing students in experiential IPE (Henry et al., 2014; Mercer et al., 2008). To illustrate, the Patient Jefferson Teamwork Observation Guide (JTOG) was successfully adapted for use of patients as a rater by exhibiting their ability to distinguish effective versus ineffective teamwork through watching video examples (LaNoue et al., 2019); this has yet to be implemented in an experiential setting.

Although several observational IPE tools exist to measure behavior, it can be unclear which tool is the most appropriate to use in various settings, and when observing behavior, who might be or who can be an appropriate evaluator. We aimed to determine the agreement of student, community members, and faculty evaluations of team behavior skills after students engaged in an experiential IPE opportunity. We used the Interprofessional Collaborative Assessment Rubric (ICAR) as an observational assessment tool. The research question raised by the investigators is whether different types of evaluators are in concordance when rating student behavior in experiential IPE settings? These analyses may provide insight into future training for ratings of team performance by varying sources.

METHODS

EXPERIENTIAL IPE OVERVIEW

The Longitudinal Interprofessional Family-Based Experience (LIFE) is an 11-week extracurricular, virtual experiential

interprofessional learning opportunity. LIFE was open to students in 11 health-related disciplines across three campuses. LIFE activities were framed around the Socio-Ecological Model (SEM) and Social Determinants of Health (SDH). Health profession students (N = 54) worked in interprofessional teams (N = 10 teams). The health professions that participated included public health, kinesiology, nursing, dentistry, social work, medicine, and pharmacy. Each team was assigned to a volunteer community member living with a chronic illness such as multiple sclerosis or spina bifida. Community members and their families (N = 10) were recruited from the health system's Office of Patient Experience. Student teams virtually interviewed their community member twice.

LIFE activities are reported elsewhere (Mattison et al., 2021). Briefly, students engaged in the following: 1) preparation work of readings about teamwork, 2) kick-off session including application of SEM, SDOH, and team norms through discussion and group work, 3) team preparation for interview #1 including team role assignments and development of interview questions, 4) community member interview #1 about lived experience of having a chronic illness, 5) team debrief #1 including students' reflections on roles and team functioning, 6) team preparation #2, 7) community member interview #2 about experiences with healthcare teams, systems, and community resources, 8) team debrief #2, and 9) closing session reinforcing SDOH and SEM concepts and allowing for reflections. The preparation, interviews, and debriefs were audio-video recorded. All activities occurred virtually via Zoom and LIFE resources were housed in a Canvas Learning Management System site.

OBSERVATIONAL EVALUATION

The Interprofessional Collaborator Assessment Rubric (ICAR) is an observational tool that includes five dimensions representing: 1) Communication, 2) Collaboration, 3) Roles/responsibilities, 4) Collaborative patient-centered approach, and 5) Team functioning (Hayward et al., 2014). Items within each dimension are rated as 0 = not observable (i.e., behavior not occurring); 1 = minimal (i.e., observed behavior unavailable); 2 = developing (i.e., occasionally observed behavior); 3 = competent (i.e., frequently observed behavior); 4 = mastery (i.e., consistently observed behavior). The ICAR was validated through a typological analysis of competency frameworks, a Delphi survey of experts, and interprofessional focus groups with students and faculty. Internal consistency, inter-rater reliability, inter-group differences and relationship between rater characteristics following multi-source feedback indicate ICAR to be feasible and reliable. Its development supports

face and content validity, with some evidence for construct validity.

We used ICAR to evaluate team behaviors through a multi-source feedback approach that utilized student self-evaluation of team behavior, community member evaluation of student team, and faculty (i.e., expert) evaluation of student team. The faculty were considered experts because they have five plus years of clinical, IPE educator, and/or IPE research experience. We chose six items from ICAR representing the five dimensions to reduce response burden. Students evaluated their team behavior via ICAR following each interview after the debrief. Through an online survey, students were directed to "reflect upon your team's pre-work, patient/family interview, and post-interview debrief. Now, complete these items to assess your team's performance." The community member evaluated their student team behavior following the second interview. Through an online survey, community members were prompted to "to evaluate the student team that you worked with, using a tool called the Interprofessional Collaborator Assessment Rubric (ICAR). This tool is used to assess interprofessional collaboration competencies. We have selected six areas on which we want you to evaluate your student team's behaviors and interactions with you." Three faculty observed audio-video recordings that included the prep, interview and debrief after each student team interview. For faculty ratings, three faculty were assigned six videos for different teams and two faculty rated one team. The faculty came together to discuss discrepancies in ratings until consensus was reached and the inter-rater reliability using intraclass correlation coefficient was acceptable. The remaining videos were split among the faculty to rate individually. The students and community members were not trained to use ICAR. The faculty were trained through an expert who had integrated its use for observational evaluation in simulations.

DATA ANALYSIS

We used descriptive statistics to summarize demographics including race/ethnicity, age, profession, discipline and graduate/undergraduate. Additionally, students were asked to provide their previous IPE experience, which was coded into either lots, some, and none. Students who work/ed in an interprofessional healthcare setting on a day-to-day basis were coded as lots, and if experience was exclusively through coursework or was for less than a year, the experience was coded as some.

Average team ratings on the six criteria from the students, community members, and faculty were compared and the inter-rater reliability using intraclass correlation coefficient

was calculated to evaluate agreement across the raters. All testing was done with R Statistical Software (v. 4.1.1), with the team analysis being done using the R emmeans package. This evaluation was exempt by the institutional review board.

RESULTS

The majority of students were white (Table 1). The average age and years in school were 24 and 4.7, respectively. About half of the students had no previous IPE experience. The majority of students were at the graduate-level. The community members were mostly female (n = 7/10, 70%) and nine respondents were the patient while one respondent was the parent of the patient.

The students and faculty provided ratings for all 10 teams. Six of the 10 community members provided ICAR ratings for their student team's performance. The average team ratings showed variability by raters (Table 2). Faculty had lower average ratings for most of the teams (n = 7 teams) compared to students' self-evaluation. Faculty had lower average ratings for half of the teams (n = 3 teams) compared to community members' evaluations. The rankings of two interprofessional teams were lower by faculty compared to students or community members. The ICC for community member-student ratings was 1.0, community member-faculty was 0.4 and student-faculty was 0.3.

DISCUSSION

The ICAR has been validated as a multi-source feedback observational tool. Our findings indicate that community ratings of interprofessional team collaborative performance were concordant with student ratings, but faculty ratings showed poor reliability with student and community member ratings. As integration of experiential IPE continues, it is of interest to discuss how these findings inform future observational evaluations.

Experts, such as faculty, providing lower ratings compared to students is consistent with other IPE literature using ICAR and multiple sources of feedback (Langlois et

DEMOGRAPHIC	N	PERCENT	MEAN	RANGE
Race/Ethnicity				
White	32	62	n/a	n/a
Asian	15	29	n/a	n/a
Black	3	6	n/a	n/a
Other	2	4	n/a	n/a
Latina member	0	0	n/a	n/a
Average Age in Years	n/a	n/a	24.03	18 to 61
Average Years in School	n/a	n/a	4.72	1 to 8
IPE Experience				
Some	19	35	n/a	n/a
Lots	9	17	n/a	n/a
None	26	48	n/a	n/a
University Level				
Grad	35	73	n/a	n/a
UnderGrad	13	27	n/a	n/a

Table 1 Demographic characteristics of the students.

*The N varies due to the number of students who provided an answer for the demographic.

TEAM	STUDENT ICAR SCORE	FACULTY ICAR SCORE	COMMUNITY MEMBER ICAR SCORE
Team 1	3.37	3.08	3.00
Team 2	3.78	2.33	4.00
Team 3	3.69	2.75	n/a
Team 4	3.65	3.42	4.00
Team 5	3.75	4.00	3.83
Team 6	3.51	3.00	3.50
Team 7	3.61	2.08	3.60
Team 8	3.49	3.75	n/a
Team 9	3.55	2.67	n/a
Team 10	3.81	2.58	n/a

Table 2 Average ICAR ratings of teams by students, faculty, and community members as the raters.

al., 2016). Also, in the previous use of ICAR, variance in ratings have occurred within the same level rater when the effect of gender as a variable was explored (Hayward et al., 2014). Such differences across different levels of learners or within the same level rater has been attributed to different expectations or competence level of a subject (Chaturvedi & Shweta, 2015). Our sample was too small to explore effects of individual variables, but it is a future direction as the LIFE program grows. Using observational ratings from different evaluators, students, community members, or faculty, may be feasible but additional analyses of criteria affecting inter-rater reliability is needed to develop appropriate ICAR training for specific types of raters (Andermo et al., 2022).

Training diverse types of evaluators can ensure that learners are assessed equitably and accurately for their growth in IPE competence. For example, a faculty might need to how the level of learning outcomes, expected competencies, and IPE activities are connected to rate a student using ICAR appropriately (Rogers et al., 2017). A student being evaluated by a faculty in a simulation setting versus a clinical setting will have different expectations of behavioral competence for a faculty member. Training materials to evaluate student outcomes for such scenarios should be considered with any new validated tool intended to measure IPE competencies. This can ensure that the formative feedback given to any student by any given evaluator is accurate for their level of education and practice experience.

Considering observational tools such as ICAR for experiential IPE is critical for various types of feedback. Observing changes in behavior can be used for program evaluation by informing IPE faculty of the success of IPE offerings (Reeves et al., 2015). Faculty, or other raters like patients, can potentially use these tools for formative evaluation to enable the learners with strategies for improving their collaborative skills and could be most effective when initiated in early learners (House et al., 2021).

LIMITATIONS

LIFE was not required, and students opted to enroll, thus, it is likely these students with strong IPE interest could contribute to positive findings. The results have limited generalizability because this work was done in one university with a small sample size. The IPE faculty and patient participants were not trained to use ICAR.

CONCLUSION

The collaborative behaviors of early learners who engaged in an introductory experiential learning involving two visits

with community members were rated by community members, faculty, and themselves (i.e., students). Community members ratings of interprofessional team collaborative performance were consistent with student ratings, but faculty ratings showed poor reliability with student and community member ratings. Although observational tools exist, their use are varied across experiential IPE in terms of setting and type of rater. Training patients, faculty, and possibly students, to use ICAR will be necessary to increase the reliability for its use in future evaluation of student performance in an interprofessional team.

DATA ACCESSIBILITY STATEMENT

The data that support the findings of this study are available from the corresponding author, OSA, upon reasonable request.

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COMPETING INTERESTS

The authors have no competing interests to declare.

AUTHOR CONTRIBUTIONS

OSA and KF were involved in the conceptualization and evaluation strategy with ICAR. OSA led the writing of the manuscript. VB was responsible for formal analysis of the data, wrote parts of the methods and results of the manuscript, and reviewed the final manuscript. KF wrote parts of the methods and results of the manuscript and did a critical review of the final manuscript.

AUTHOR AFFILIATIONS

Olivia S. Anderson orcid.org/0000-0001-8313-3682
University of Michigan School of Public Health, US

Vinoothna Bavireddy
University of Michigan Center for Interprofessional Education, US

Karen Farris orcid.org/0000-0002-5636-3009
University of Michigan College of Pharmacy, US

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