



Falls risk assessment: Developing the interprofessional collaborative competences of undergraduate health and social work students

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ABSTRACT

An interprofessional education intervention was designed to foster collaborative skills among undergraduate students from pharmacy, medicine, nursing, physiotherapy, social work and sports and exercise rehabilitation programmes through a simulated classroom-based falls risk assessment exercise. Working in multidisciplinary teams, students engaged with realistic patient scenarios, including history-taking, physical assessments, and the co-development of risk reduction plans. The session emphasised shared decision-making, understanding professional roles, and teamwork in managing fall risks. The intervention was assessed using the Interprofessional Collaborative Competencies Attainment Survey (ICCAS) which showed significant improvements in students' perceived interprofessional collaboration skills. The intervention was evaluated through focus groups in which students highlighted that they had gained an enhanced understanding of professional roles, patient-centred care, and the value of teamwork. While challenges such as uneven group dynamics and perceived professional hierarchies were noted, students reflected that this provided insight into the complexities of real-world practice. Overall, the intervention proved effective in advancing students' self-reported readiness for collaborative, multidisciplinary care in falls prevention.

Format: Interprofessional group work involving a simulated patient case in a classroom setting.

Target audience: Undergraduate pharmacy, medical, nursing, physiotherapy, sport and rehabilitation therapy, and social work students.

Objectives: The principal objective of the intervention was to promote interprofessional collaboration between health and social work students in conducting falls risk assessments and co-designing risk reduction strategies with patients. Specific objectives were:

- 1 To promote a collaborative approach to helping patients maintain independent living by co-developing strategies to reduce falls risk in the home.
- 2 To promote communication between members of the interprofessional team around falls risk assessment and risk reduction planning
- 3 To support health and social work students to understand their roles and responsibilities when working within a multidisciplinary team to support falls risk reduction
- 4 To support multidisciplinary teams of health and social work students to include patients and carers in decision making around their falls risk reduction
- 5 To support students to address and resolve any team conflict when co-developing falls risk reduction strategies
- 6 To support students in developing effective teamwork skills by collaboratively creating a falls risk reduction plan as a multidisciplinary team.

1. Background

Falls remain a major public health concern with 684,000 fatalities globally each year primarily affecting those over 60 years old.¹ The total annual cost of fragility fractures to the UK has been estimated at £4.4 billion which includes £1.1 billion for social care.² Falls can be preventable by identifying risk factors and implementing multifactorial interventions. Ensuring health and social work students are equipped with the skills to conduct comprehensive falls assessments and make evidence-based decisions around falls risk reduction is therefore essential to prepare them to enter the workforce. As falls prevention is a multidisciplinary task, undergraduate education that incorporates interprofessional education (IPE) has the potential to foster team-based problem solving, confidence in communicating across disciplines and understanding of complementary roles. Previous studies have described the benefits of delivering interprofessional teaching and learning around falls risk to healthcare students.^{3–5} This study evaluated whether

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delivering a large-scale interprofessional education intervention to cohorts of undergraduate health and social work students focused on falls risk assessment is feasible and effective in developing their interprofessional collaborative skills.

2. Design

2.1. Overview

A 1.5-h IPE session was designed by an interprofessional team of academic staff representing medicine, nursing, pharmacy, social work, physiotherapy, and sport and rehabilitation therapy (SRT). The session was delivered in January 2025 to second-year students from medicine, nursing, social work, physiotherapy, SRT, and fourth-year pharmacy students. It took place over one day and involved 257 students. The session ran concurrently across three large teaching rooms, each supported by two academic facilitators.

2.2. Student team structure

Within each classroom, students were organised into four interprofessional teams. Each team typically comprised two medical students, two pharmacy students, one nursing student, one physiotherapy or SRT student, and one social work student. To support authenticity and

enhance the patient-centred focus of the session, each team also worked closely with a patient representative, who was a member of the university's Patient, Carer and Public Involvement (PCPI) group. These individuals received training on the content of the session and contributed their lived experience to support learning and provide feedback on student performance.

2.3. Session structure

The session began with a 10-min pre-brief, during which facilitators introduced students to the structure and objectives of the session. The first task served as both an icebreaker and an opportunity for students to introduce themselves to their group members. As part of this task, students reflected on the barriers and enablers to effective interprofessional communication and teamwork. The intention was to encourage students to consider potential challenges that could undermine their collaboration during the session and explore strategies to mitigate these. During this initial activity, patient representatives observed group interactions in order to provide structured feedback later in the session.

Following the icebreaker, students were introduced to a case study developed by the academic team. The case centred on an older adult with multiple falls risk factors and a history of falling. It was informed by real-life clinical experience and reviewed by academics from all represented disciplines. Students were provided with simulated medical

SUMMARY CARE RECORD		
Patient Details		
Name:	Alex Higgins	
D.O.B:	1/2/1950	
Address:	19 Acacia Avenue	
Current Problems		
Hypertension		
Pain (had shingles six months ago and is left with facial pain)		
Past medical history		
Removal of appendix		
Medication (REPEAT)		
Medicine	Dose	Quantity
Lisinopril 10mg	1 daily	7
Codeine 30mg tablets	1 four times daily	28
Paracetamol 500mg tablets	2 four times daily	56
Amitriptyline 50mg	1 at night	28

Fig. 1. Patients medical record.

SUMMARY CARE RECORD	
Allergies Penicillin (reaction unknown)	
Recent Investigations	
Blood Pressure	135/85mmHg (no postural drop)
Creatinine	120mmol/mol
eGFR	85ml/min/1.73m2
Sodium, Potassium, Urate	Normal
LFT, FBC	Normal
T4/T3/TSH	In normal range
Most recent GP consultations	
6 months ago	Spoke to patient virtually, complaining of significant facial pain following shingles. Arranged to see in person, appointment booked for next week. Patient has been buying analgesia from the pharmacy.
6 months ago	Examined patient in the surgery, had shingles in facial area, mainly recovered but left with significant facial pain. Prescribed codeine, paracetamol and amitriptyline.
4 months ago	Telephone call from patient, describing issues with medication, getting mixed up, also struggling with some activities of daily living at home. Arranged for social services review of living arrangements and care needs
3 months ago	Social work care package has been put in place
2 weeks ago	Ongoing issues with social work care plan, problems with medical administration. To arrange multidisciplinary review of patient.
1 week ago	Patient has fallen at home, telephone consultation, no injury, patient would like to remain at home. Falls risk assessment needed.

Fig. 1. (continued).

(Fig. 1) and social care records. Working collaboratively, each team reviewed these documents to identify key information about the patient's health, social context, and risk factors. This task concluded with a brief debrief led by facilitators, who helped students consolidate their understanding and emphasised important findings.

Students were then prepared to meet the patient, who was role-played by the patient representative (Fig. 2). Teams were tasked with taking a full history to better understand the patient's fall history and associated risks. They were instructed to agree on who would lead the conversation, how to structure the interaction, and how to document the information using a falls risk assessment template. This template was designed by the academic team, drawing on commonly used NHS tools. Each team was given 20 min for this activity (Fig. 3).

After the history-taking exercise, physiotherapy and SRT students guided the teams through a gait and balance assessment. These students used assessment techniques from their professional programmes, including evidence-based tools in line with NICE recommendations.⁶ This provided a hands-on opportunity for students to assess physical risk factors related to falls.

Following these assessments, student teams worked together to synthesise the information they had gathered. They completed the falls risk assessment form, developed a tailored falls risk reduction plan, and considered how the original social care plan might be adapted to better meet the patient's needs. Students were encouraged to involve the patient role-player in this planning process to promote shared decision-making. This task was allocated a further 20 min.

The session concluded with a debrief on falls risk reduction, led by

facilitators. Each facilitator was provided with a detailed case summary, including expected history and assessment findings, as well as core components of an evidence-based falls risk reduction plan. This ensured consistency in feedback across all classrooms. Student teams were invited to present key elements of their care plans, fostering shared learning across the groups.

Finally, each patient representative offered feedback to the team they had supported. This feedback focused on how well students engaged with the tasks, demonstrated a patient-centred approach, communicated within their teams, and collaborated across professional boundaries. The session as a whole aimed to provide students with an authentic, collaborative learning experience grounded in real-world clinical practice and interprofessional teamwork.

3. Assessment

The Interprofessional Collaborative Competencies Attainment Survey (ICCAS) was chosen to assess the change in the interprofessional collaboration competencies of the students who undertook the IPE intervention. This tool was chosen both because of its well-established reliability and validity^{7,8} and how the competencies measured (communication, collaboration, roles and responsibilities, collaborative patient-family-centred approach, conflict management/resolution, and team functioning) align to the objectives of the intervention. The ICCAS is a 20-item, self-reporting tool which uses a retrospective pre-post approach where students rate their abilities against each item (Fig. 4) on a Likert scale where 1 = Poor and 5 = Excellent. Students completed

Name: Alex Higgins

Date of Birth: 1 February 1950

Address: 19 Acacia Avenue, Sunderland

Living situation: Lives alone with a small dog

Opening Statement

"I'm managing, but it's getting harder. The pain in my face never really goes away, and I'm getting frustrated because the help I'm meant to be getting isn't actually helping with what I need."

Tone: calm but clearly frustrated and tired of repeating yourself.

Medical History

- Diagnosed with high blood pressure for several years
- Had shingles 6 months ago, affecting the face
- Since then, you have ongoing nerve pain across your face (post-herpetic neuralgia)
- Pain makes it difficult to wash your hair and brush your teeth
- No history of fainting, blackouts, or seizures

Current Medications

- Lisinopril – for blood pressure
- Amitriptyline – for nerve pain (taken at night)
- Codeine – for pain
- Paracetamol – for pain

You:

- Struggle to remember doses and timings
- Get confused about which tablets to take and when
- Are worried about making a mistake
- Were told carers would help, but this is not happening

If asked about side effects:

- Amitriptyline makes you feel drowsy and a bit unsteady
- Codeine sometimes makes you constipated and light-headed

Care Worker Involvement

- You live alone and value your independence
- You are very attached to your dog
- You are anxious about:
 - Losing independence
 - Being forced into care you don't want
- You feel not listened to by services

Key phrase:

"I just want to stay in my own home and do things my way."

Patient Goals

- To remain living independently at home
- To get proper help with managing medication
- To reduce falls risk without losing control or dignity
- To avoid unnecessary personal care support

Emotional Tone to Maintain

- Frustrated but polite
- Defensive if personal care is pushed
- Relieved and more cooperative if someone listens and explains clearly

- Carers are meant to visit your home to help with medication
- They refuse to help because you do not have a pre-filled weekly medication pack
- You do not understand what this is or how to arrange it
- No one has explained this clearly to you

Instead:

- Carers try to give you a shower, which you strongly dislike
- You find this intrusive and upsetting
- There are different carers every day
- You do not want strangers helping with personal care

Very important line to repeat if needed:

"I don't want help with washing. I just want help with my tablets."

Falls History

- You have started tripping and falling at home
- Last fall was earlier this month
- Paramedics attended but you were not injured and stayed at home
- In the last 3 months, you have fallen about once per month
- Falls are usually due to:
 - Tripping over clutter
 - Feeling unsteady
- You do not lose consciousness and do not feel dizzy beforehand

If asked how you feel about falls:

"They worry me, but I don't want to end up in a (nursing) home."

Home Environment

- House is cluttered, with narrow walkways
- Small bathroom with a shower over the bath
- You find the bath hard to get in and out of
- You have not made any adaptations to the house

Social & Emotional Context

Fig. 2. Patient role-player information.

Parameter	Patient's condition
History of falls	No falls in previous 3 months
	1-2 falls in the previous 3 months
	3 or more falls in the previous 3 months
Ambulation/continence	Ambulatory/continent
	Wheelchair or ambulatory aid/continent
	Ambulatory/incontinent
	Wheelchair or ambulatory aid/incontinent
Medications	<i>Antihistamines, antihistamines, antihypertensives, antiseizures, benzodiazepines, diuretics, hypoglycaemics, psychotropics, sedatives, hypnotics</i> Currently takes none of these medications
	Currently takes 1-2 of these medications
	Currently takes 3-4 of these medications
Vision/Hearing	Adequate (with or without glasses/hearing aid)
	Poor (with or without glasses/hearing aid)
	Legally Blind or very hard of hearing/deaf
Predisposing diseases/conditions	<i>Hypotension, vertigo, CVA, Parkinson's, loss of limb(s), seizures, arthritis, osteoporosis, fractures, dementia, delirium, anaemia.</i> None present
	1-2 present
	3 or more present
Systolic Blood Pressure	No noted drop between lying and standing
	Drop less than 20mmHg between lying and standing
	Drop more than 20mmHg between lying and standing
Gait/Balance	To assess the patient's Gait/Balance, ask them to stand on both feet without holding onto anything, walk straight forward, walk through a doorway, and make a turn.
	Gait/balance normal
	Balance problem while standing
	Balance problem while walking
	Decreased muscular coordination
	Change in gait pattern when walking through doorway
	Jerking or unstable when making turns
	Requires use of assistive devices (i.e. cane, walker, furniture)
Home environment	Environment minimises the risk of falls
	Environment increases the risk of falls

Fig. 3. Falls risk assessment outline.

1	Promote effective communication among members of an interprofessional (IP) team
2	Actively listen to IP team members' ideas and concerns
3	Express my ideas and concerns without being judgmental
4	Provide constructive feedback to IP team members
5	Express my ideas and concerns in a clear, concise manner
6	Seek out IP team members to address issues
7	Work effectively with IP team members to enhance care
8	Learn with, from and about IP team members to enhance care
9	Identify and describe my abilities and contributions to the IP team
10	Be accountable for my contributions to the IP team
11	Understand the abilities and contributions of IP team members
12	Recognize how others' skills and knowledge complement and overlap with my own
13	Use an IP team approach with the patient to assess the health situation
14	Use an IP team approach with the patient to provide whole person care
15	Include the patient/family in decision-making
16	Actively listen to the perspectives of IP team members
17	Take into account the ideas of IP team members
18	Address team conflict in a respectful manner
19	Develop an effective care plan with IP team members
20	Negotiate responsibilities within overlapping scopes of practice

Fig. 4. Interprofessional Collaborative Competencies Attainment Survey (ICCAS) items.

the tool immediately after the IPE intervention and rated their abilities twice: once as they recall them prior to training, and again after the intervention. 229 students completed the ICCAS (response rate 89%) any incomplete ICCAS forms were discarded. Mean scores of all 20 items improved between the pre and post test scores for all professional groups. Changes across mean responses before and after IPE intervention were compared for each question using an independent sample *t*-test for each group. Results of mean scores before and after IPE intervention were statistically significant for overall response for all groups with $p < 0.001$ being observed for all groups independently (Fig. 5).

4. Evaluations

Following the IPE sessions, students were invited to participate in focus groups to evaluate the intervention. Focus groups were selected as the method of data collection due to their ability to encourage discussion, reflection, and clarification, enriching the quality of the data collected.⁹ An interview guide, developed by a research team with expertise in qualitative methods, was used to structure the discussions. The guide explored students' impressions of the IPE session, their experiences of interprofessional collaboration and learning, its relevance to real-world practice, and its impact on their professional identity.

Focus groups were facilitated by members of the evaluation team

(TM, JK, JC) who encouraged open and honest discussion. Participants were informed that the purpose of the focus group was to evaluate the session and support the development of future interprofessional learning. All participants provided informed consent before taking part in the 60-min session.

Focus groups were audio-recorded and transcribed verbatim for analysis. Initial coding was conducted by (JH, CP, JC) following familiarisation with the data. A codebook was developed inductively based on transcript content. Once coding was complete, key themes were identified and refined through individual and collaborative analysis by the evaluation team until final interpretations were agreed.

Eight students participated in two focus groups.

Respondent 1: Adult nursing student.

Respondent 2: Sports and exercise rehabilitation student.

Respondent 3: Social work student.

Respondent 4: Mental health nursing student.

Respondent 5: Sports and exercise rehabilitation student.

Respondent 6: Physiotherapy student.

Respondent 7: Physiotherapy student.

Respondent 8: Pharmacy student.

Four interrelated themes emerged following data analysis: *Understanding Professional Roles, Interprofessional Communication, Learning Experience and Impact, and Group Dynamics and Participation.*

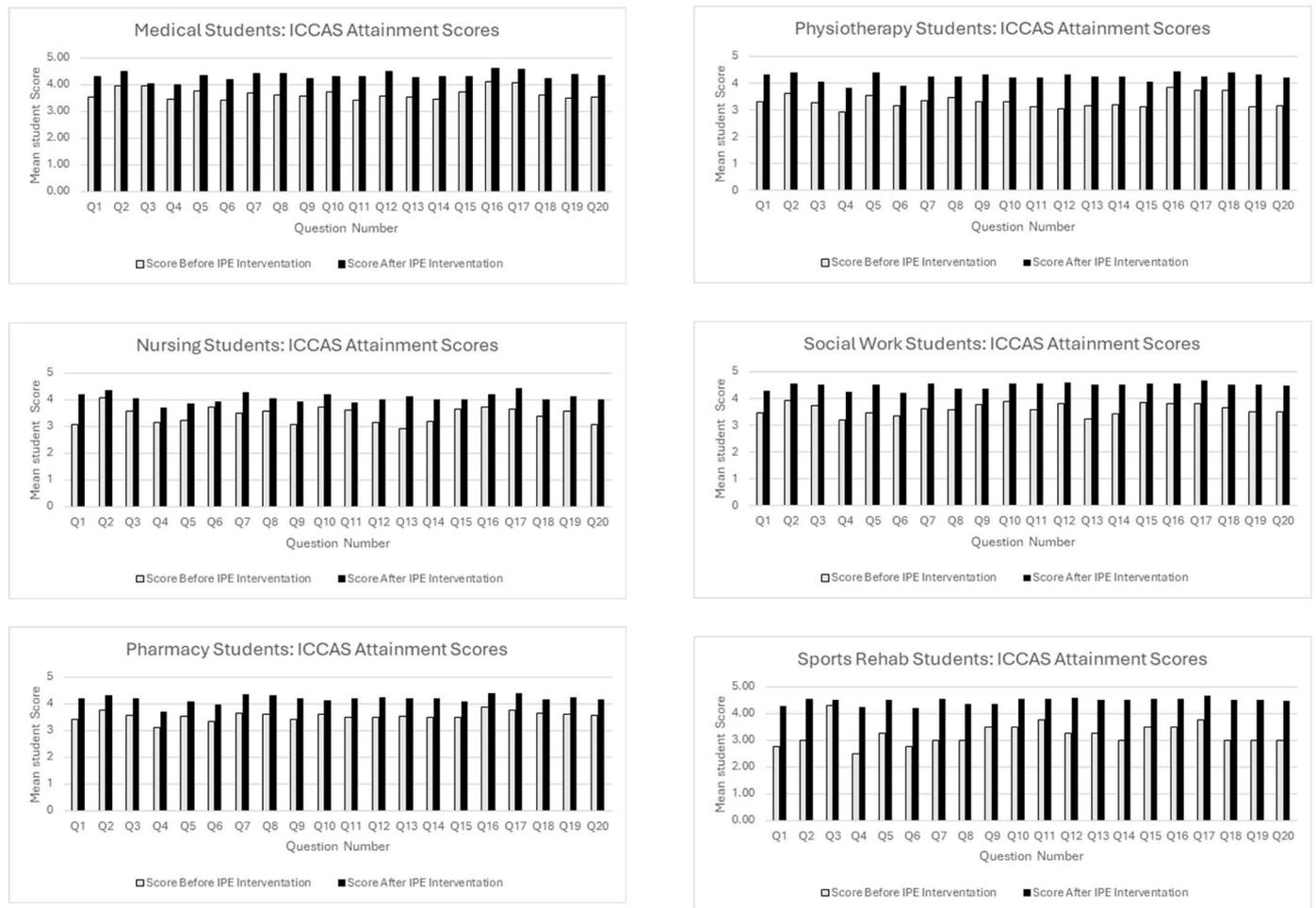


Fig. 5. Chart(s) illustrating the mean student scores for each of the 20 ICCAS (Interprofessional Collaborative Competency Attainment Survey) questions (Q1–Q20) administered before (Grey bars) and after (black bars) Interprofessional Education (IPE) intervention. Scores are plotted on the y-axis, ranging from 0 to 5, with higher values indicating greater self-assessed competency. ICCAS mean attainment data values are represented for each professional group a) medical students $n = 67$ (ICCAS combined mean scores before IPE = 3.66, after IPE = 4.33 $p < 0.001$), b) nursing students $n = 14$, (ICCAS combined mean scores before IPE = 3.43, after IPE = 4.07, $p < 0.001$), c) pharmacy students $n = 100$ (ICCAS combined mean scores before IPE = 3.55, after IPE = 4.19, $p < 0.001$), d) physiotherapy students $n = 19$ (ICCAS combined mean scores before IPE = 3.32, after IPE = 4.24, $p < 0.001$), e) social work students $n = 25$ (ICCAS combined mean scores before IPE = 3.61, after IPE = 4.48, $p < 0.001$), f) sports rehab students $n = 4$ (ICCAS combined mean scores before IPE = 3.23, after IPE = 4.18, $p < 0.001$).

4.1. Understanding professional roles

Participants reported that the IPE session enhanced their understanding of the roles, responsibilities, and unique contributions of other professions to patient care. Many valued the opportunity to challenge assumptions and gain insight into less familiar roles, such as social work or pharmacy. Students reported that the session helped them recognise the complementary nature of interprofessional contributions and encouraged reflection on their own professional boundaries and strengths, the scope of their practice, and how they might refer to other professions to provide holistic patient care. However, some students, particularly SRT students, perceived their roles to be less central to the case.

"It made me understand that we all have different roles to play for our patients ... I didn't know about [some things] and then I heard the physio and the students talk about it." Respondent 1

"I never really understood what [social workers'] role was ... it was interesting to work with them in that kind of sense." Respondent 5

4.2. Interprofessional Communication

Participants reported mixed experiences with regards to communication during the IPE session. While some felt supported and engaged in meaningful collaboration, others experienced exclusion or uneven dialogue. Reasons cited for this included the use of medical jargon, implied hierarchies and unclear group dynamics. Non-medical students, such as those in social work, sometimes struggled to contribute until their specific expertise was needed. Despite these challenges, many students gained confidence in communicating across professional boundaries and recognised the value of the opportunity to do this.

"It was good how everybody interacted together ... if you didn't understand something, my group would help you understand what was being said." Respondent 4

"... it reinforced that sometimes you really needed to fight to have your discipline's perspective heard." Respondent 3

4.3. Learning Experience and Impact

Participants found the IPE session educational and valuable, with many gaining insights beyond their usual curriculum. Students felt it exposed them to diverse professional perspectives and deepened their understanding of patient-centred care. Hands-on collaboration and realistic case elements, particularly around medication management, fall risk, and the legal aspects of care, were especially impactful.

"[It] was a really good opportunity ... being able to interpret [social workers'] perspective where it's not as medical." Respondent 5

"The pharmacist was giving her opinion ... trying to see if there were any contraindications ... that was very helpful." Respondent 1

4.4. Group Dynamics and Participation

Group dynamics significantly influenced the quality of the IPE experience, with participation and balance varying widely across groups. While some teams were cohesive and supportive, others were skewed by dominance from certain professions. In well-balanced groups with clear structure, inclusive participation led to meaningful interaction and better learning outcomes. However, where imbalance or lack of cohesion existed, some students felt isolated or marginalised, although some were able to see a positive impact of this negative experience.

"Everyone in the group just started focusing more on the paper and the numbers over talking to the patient ... Most of the way through the session, I felt pushed aside ... until I was invited to contribute." Respondent 2

"It actually gave you an insight to what clinical practise might actually be like and how to then deal with different characters and personalities and things like that." Respondent 6

Students highlighted the environmental impact of working in a room with other groups as something that could be challenging, due to the activity and noise levels in the room. However, they also highlighted the importance of having guidance from academic facilitators.

"[Academic staff] didn't tell you the direct answer which was good. They just sort of said, well, you've thought about this, what else could you think of?" Respondent 7

5. Impact

The IPE intervention described had a significant and positive impact on the self-reported interprofessional collaborative competencies of undergraduate health and social work students. Quantitative assessment using the Interprofessional Collaborative Competencies Attainment Survey (ICCAS) revealed statistically significant improvements across all 20 items measured, indicating enhanced skills in areas such as communication, role understanding, conflict resolution, and team functioning. Qualitative evaluation through focus groups reinforced these findings, with students reporting greater awareness of other professional roles, increased confidence in interprofessional communication, and improved ability to work collaboratively in multidisciplinary teams. The simulated, patient-centred nature of the intervention allowed students to experience real-world complexity, including navigating professional hierarchies and managing group dynamics. These findings are particularly relevant given the critical role that interprofessional collaboration plays in effective falls prevention which is a major public health concern. Other institutions may wish to implement similar IPE interventions in undergraduate curricula to foster these essential collaborative skills, especially in contexts where integrated, multidisciplinary approaches are key to managing complex, chronic, or preventable conditions like falls.

6. Required materials

The materials required to undertake this session are outlined in Figs. 1–3.

CRediT authorship contribution statement

Jessica Hardisty: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Resources, Supervision, Writing – original draft, Writing – review & editing. **Steven Darby:** Data curation, Formal analysis. **Jen Chesterton:** Conceptualization, Data curation, Formal analysis, Methodology, Writing – original draft, Writing – review & editing. **Ivan Whitfield:** Conceptualization, Data curation, Formal analysis, Writing – review & editing. **Jo Ann Kaye:** Conceptualization, Formal analysis, Writing – review & editing. **John Taylor:** Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. **Tressamarie McCabe:** Conceptualization, Project administration, Writing – review & editing. **Carrie Phillips:** Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing.

Ethics statement

Evaluation of an Interprofessional Learning intervention (falls risk assessment and reduction) 032,016.

Data availability statement

Data available on request.

Declaration of generative AI and AI-assisted technologies in the manuscript preparation process

During the preparation of this work the authors used MS Co-pilot and ChatGPT to review the draft manuscript. After using this tool/service, the authors reviewed and edited the content as needed and takes full responsibility for the content of the published article.

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Declaration of interest statement

The authors declare that there are no conflicts of interest.

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