CORA Cork Open Research Archive
Cartlann Taighde Oscailte Chorcaí

Title	“Understanding dementia together”: The design, delivery and evaluation of a collaborative, inter-professional dementia workshop for healthcare students
Authors	O'Sullivan, Trish;Moore, Niamh;McVeigh, Joseph G.;Timmons, Suzanne;Foley, Tony
Publication date	2025
Original Citation	O'Sullivan, T., Moore, N., McVeigh, J. G., Timmons, S. and Foley, T. (2024) '“Understanding dementia together”: The design, delivery and evaluation of a collaborative, inter-professional dementia workshop for healthcare students', Dementia, 24(4), pp.720-737. DOI: 10.1177/14713012241296173
Type of publication	Article (peer reviewed)
Link to publisher's version	10.1177/14713012241296173
Rights	© 2025, the Author(s). Open Access - https://creativecommons.org/licenses/by/4.0/
Download date	2026-10-31 00:52:35
Item downloaded from	https://hdl.handle.net/10468/17321

UCC
University College Cork, Ireland
Coláiste na hOllscoile Corcaigh

Check for updates

Article

Dementia
2025, Vol. 24(4) 720–737
© The Author(s) 2024

Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/14713012241296173
journals.sagepub.com/home/dem

"Understanding dementia together": The design, delivery and evaluation of a collaborative, inter-professional dementia workshop for healthcare students

Trish O'Sullivan
Discipline of Physiotherapy, School of Clinical Therapies, University College Cork, Ireland

Niamh Moore
Discipline of Medical Imaging and Radiation Therapy, School of Medicine, University College Cork, Ireland

Joseph G McVeigh
Discipline of Physiotherapy, School of Clinical Therapies, University College Cork, Ireland

Suzanne Timmons
Centre for Gerontology and Rehabilitation, School of Medicine, University College Cork, Ireland

Tony Foley
Department of General Practice, School of Medicine, University College Cork, Ireland

Abstract

Background: A collaborative, multi-disciplinary team input is crucial for the optimal management of the older adult with complex care needs such as dementia. Interprofessional learning (IPL) at

Corresponding author:
Trish O'Sullivan, Discipline of Physiotherapy, School of Clinical Therapies, University College Cork, College Road, Cork, Ireland.
Email: trish.osullivan@ucc.ie

undergraduate level can lead to improved collaborative knowledge and skills. The aim of this study was to develop, deliver and evaluate an IPL dementia workshop for healthcare students across 11 disciplines. A secondary aim was to determine whether there is a clinical application of learned knowledge in students who completed the workshop and subsequently underwent clinical placement.

Methods: The design of the IPL workshop aligned with Kern's map for the development of a curriculum in medical education. The Alzheimer's Disease Knowledge Scale (ADKS) was used to assess students' knowledge of dementia pre-and-post workshop, as well as opened-ended questions on role recognition and communication.

Results: A total of 102 students completed the workshop questionnaire, with a follow up of 47 students on clinical placement. There was a statistically significant increase in students' knowledge and confidence levels in communication with a person with dementia. Students reported positively on the workshop format, the collaborative nature of the workshop, as well as the role of the patient advocate. The follow up of students on clinical placement showed a perceived behavioural change in communication modification.

Conclusion: Our study demonstrates the benefits of an IPL initiative across multiple disciplines, with perceived behavioural change on clinical placement.

Keywords

interprofessional education, dementia, collaborative, healthcare students

Introduction

Dementia is a global healthcare concern and is one of the greatest healthcare challenges of the 21st century. Over 47 million people worldwide are currently living with dementia, with the number predicted to rise to 132 million by 2050 (World Health Organisation, 2017–2025). The economic cost of dementia for governments, communities, families as well as the person with dementia is enormous, estimated at US$818 billion and predicted to rise to US$2.3 trillion globally by 2030 (World Health Organisation, 2017–2025; World Health Organisation, 2018).

Dementia is a clinical syndrome, characterized by a cognitive decline, that leads to impairment in both physical and functional ability. The combination of multi-morbidity and increasing age means that people with dementia are frequent users of health and social care services and have a high risk of hospital admission (Phelan et al., 2012; Shepherd et al., 2019). A collaborative, multi-disciplinary team (MDT) input is crucial for the optimal management of the older adult with complex care needs such as dementia (Grand et al., 2011; Österholm, Nedlund, & Larsson Ranada, 2022). This proactive team approach enables health care professionals to come together and meet the needs of service users, thus ensuring that care is person centred, integrated and optimum (World Health Organisation, 2018).

It is essential that members of the MDT have the necessary skills and competencies to ensure that best patient care is delivered across multiple clinical settings, from acute to community care. Poor patient outcomes have been well documented, including delayed inpatient discharge and a higher risk of falls and delirium (Geriatric Medicine Research Collaborative, 2019; Timmons et al., 2016). Hospital admission for people with dementia is associated with cognitive and functional decline (Andrews, 2013), as well as higher mortality rates. A lack of awareness and understanding about dementia has led to policy directives and recommendations at both national and international level (World Health Organisation, 2017–2025; The Irish National Dementia Strategy, 2014) advocating for training and education of heath care professionals in dementia care.

Evidence suggests that interprofessional learning (IPL) has benefits at undergraduate level (Annear, Goldberg, et al., 2016; Davison et al., 2019). Definitions of IPL in dementia care vary, but for the purposes of this study, IPL occurs when two or more professionals learn about, from and with each other to enable effective collaboration and improve health outcomes (Barr et al., 2016). The benefits of workshop-based IPL have been documented, leading to improved collaborative knowledge and skills (Jackson et al., 2016; Williams & Daley, 2021). Within these workshops, involving people with dementia and/or their carers further increases learning, as well as confidence and attitudes (Williams & Daley, 2021). Allowing students to engage in IPL pre-qualification enables them to understand the value of a collaborative approach in improving patient care, and this insight may cultivate future collaboration (Davison et al., 2019). Quality interprofessional education that enables collaboration, both in the classroom and in practice, is key to efficient workforce development (Hean et al., 2012). One study, which piloted a five-day, protocol-based IPL initiative at undergraduate level among medical, nursing and paramedic students, found improvements in communication and interprofessional relationships (Annear, Eccleston, et al., 2016). Another study, which explored the efficacy of an online interprofessional dementia case study, found that many students aligned the values of interprofessional practice with the provision of high-quality dementia care (Cartwright et al., 2015). However, neither study had representation across a broad spectrum of healthcare professionals, with representation across three and five disciplines respectively. The provision of high-quality dementia care requires input from multiple disciplines in order to meet the chronic and often complex needs associated with this condition. Therefore, the evaluation of a workshop with student representation across a wide range of disciplines would align with this collaborative interprofessional patient care approach.

Despite the growing body of evidence that details the benefits of dementia IPL pre-qualification, no study so far has developed or evaluated a dementia IPL workshop across a broad range of healthcare professionals. Owing to the complex care needs of a person with dementia, many Health Care Professionals (HCP's) will be involved at different stages of care. General practitioners are frequently the first point of contact, nurses can offer advanced assessment and care co-ordination, including effective communication with carers and family. Physiotherapy, occupational therapy, and radiography are involved in falls, fractures, mobility assessment and diagnostics. Speech and language therapists play a vital role in communication, as well as audiology, given hearing loss in midlife is now a risk factor for dementia (Livingston et al., 2017). Pharmacists are well placed within the community to provide an important role in the pharmacological management of people with dementia, and dentists can enhance a supportive dental care programme to preserve a person with dementia's oral health. Finally, paramedics play an important role as first responders, for example to people with dementia who have fallen at home.

The aim of this study was to develop, deliver and evaluate an IPL dementia workshop for healthcare students across a broad range of relevant disciplines.

A secondary aim was to determine whether there was a clinical application of learned knowledge in students who completed the workshop and subsequently underwent clinical placement.

Methods

To achieve the study aims, a dementia IPL workshop was held with students from 11 HCP disciplines, which, to our knowledge, is the largest IPL dementia workshop that has been developed and evaluated to date. Disciplines represented included medicine, nursing, dentistry, physiotherapy, radiography, radiation therapy, audiology, speech and language therapy, pharmacy, occupational therapy, and paramedicine. Students were subsequently followed up on placement to evaluate the

extent to which learning from the workshop was applied in clinical practice. This follow up was via survey using the online survey platform Qualtrics XM, where students were asked specific questions on behavioural change on clinical placement.

This study adopted a social constructivist pedagogical approach. Constructivism is a theory of learning whereby individuals construct new knowledge through the interaction between what they already know and new knowledge (Virginia, 2003). This approach asserts that learning is a social process and involves much more than the acquisition of facts (Barak & Green, 2021). Hean et al. (2012), detailed theoretical insights into IPL and described how social constructivism, embedded within the context of adult learning, can scaffold collaborative IPL to negotiate meaning. A social constructivist approach may include case-based, collaborative and contextual learning (Barak & Green, 2020). The authors integrated these three components during the development of the educational intervention.

Development of the educational intervention

A steering group was formed in July 2022 which included faculty members from 11 healthcare disciplines within the College of Medicine and Health, at University College Cork, Ireland.

Kern's map for the development of a curriculum in medical education informed the development of the intervention (Thomas et al., 2022). This map is widely used in healthcare education and provides a practical approach to developing, delivering, and evaluating healthcare curricula. Figure 1 illustrates how this model was mapped to the design of the workshop.

Three steering group meetings were held between July 2022 and October 2022, whereby workshop curriculum content, format and mode of delivery was discussed and agreed upon. This was an iterative process, which included input from all 11 disciplines, to develop a practice-relevant case for all students attending, in line with the adult learning theory (Mukhalalati & Taylor, 2019). The curriculum was also guided by previous research on what constitutes effective dementia education and training, including direct patient/carer involvement and a multimodal approach to teaching and learning (Sullivan et al., 2023). Both these components were incorporated into this workshop. Finally, recommendations from an international association for health professions education (AMEE) guide on theoretical insights into interprofessional education ensured that the workshop adhered to the principles of social constructivism and the adult learning theory, by including a clinically relevant case study, enabling participants to adopt a problem-solving approach, and enabling interaction through group learning (Hean et al., 2012). Figure 2(a) gives an overview of the development of the educational intervention and Figure 2(b) gives an outline of the workshop format.

A dementia case study was created with input from each discipline represented in the steering group (Appendix 1), thus ensuring that learning was contextualised amongst the broad range of disciplines represented. A medical expert in dementia supervised the development of this case study, which followed a patient, from initial diagnosis to a crisis admission to hospital and finally to advanced illness. Thus, multiple clinical settings, from acute to community care and long-term care were represented, reflecting potential scenarios to which students could be exposed on clinical placement, and helping bridge the theory-practice gap. To enhance the fidelity of delivery of the workshop, a facilitators' guide was developed to accompany the case study, (Appendix 2). This ensured that the workshop was standardised, and could be replicated without reliance on facilitators' skills, thus reducing unintended variability (Rew et al., 2018). Each discipline contributed to this guide, where it was refined and edited until consensus was reached.

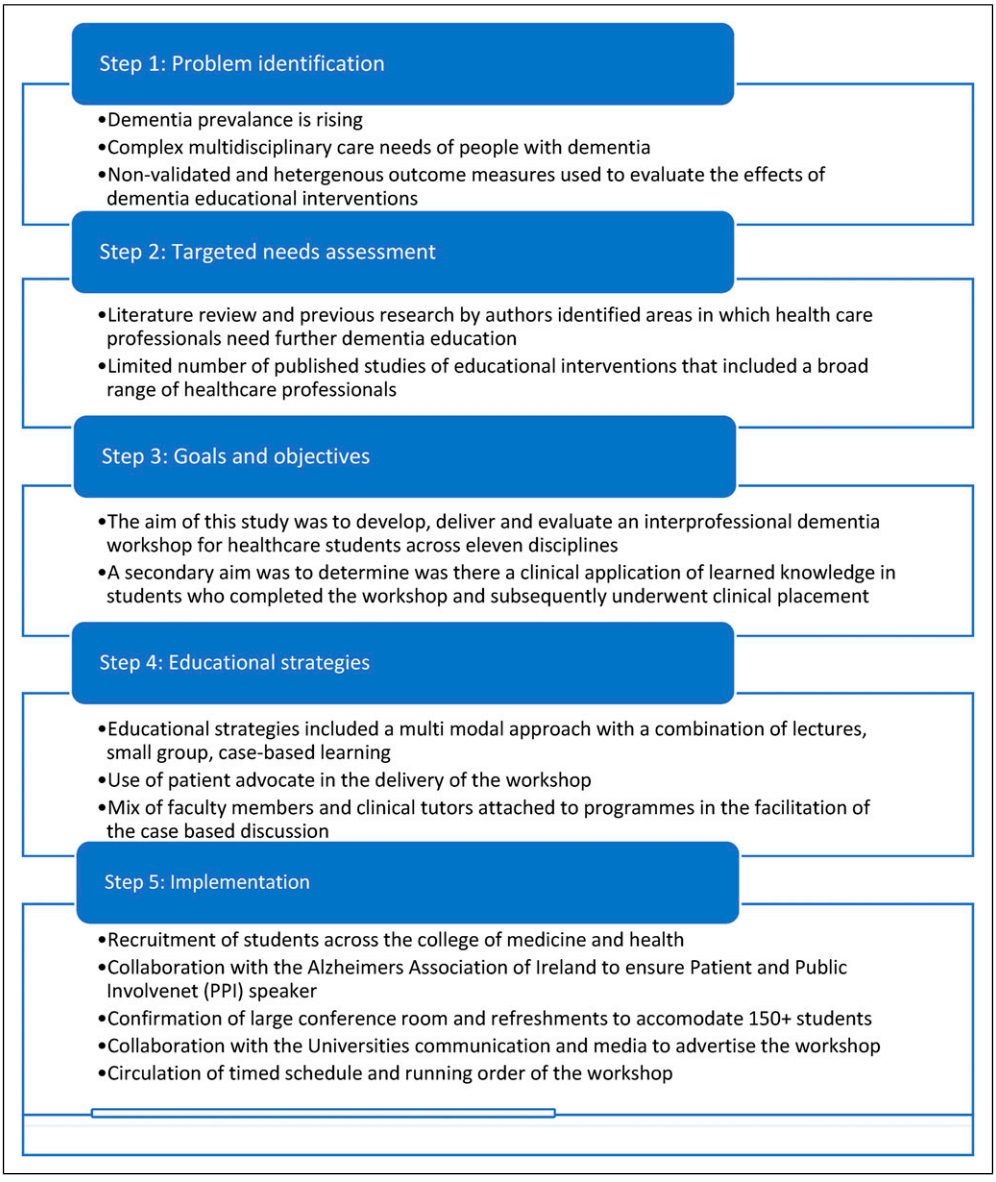

Figure 1. Mapping Kern's framework to workshop.

Ethical approval

The study was approved by the Social Research Ethics Committee, University College Cork (Log, 2020-047A2) and (Log, 2023–131). The participant information leaflet included a data protection notice which outlined where and how long the data was to be stored, how it was to be anonymised and who had access to the data.

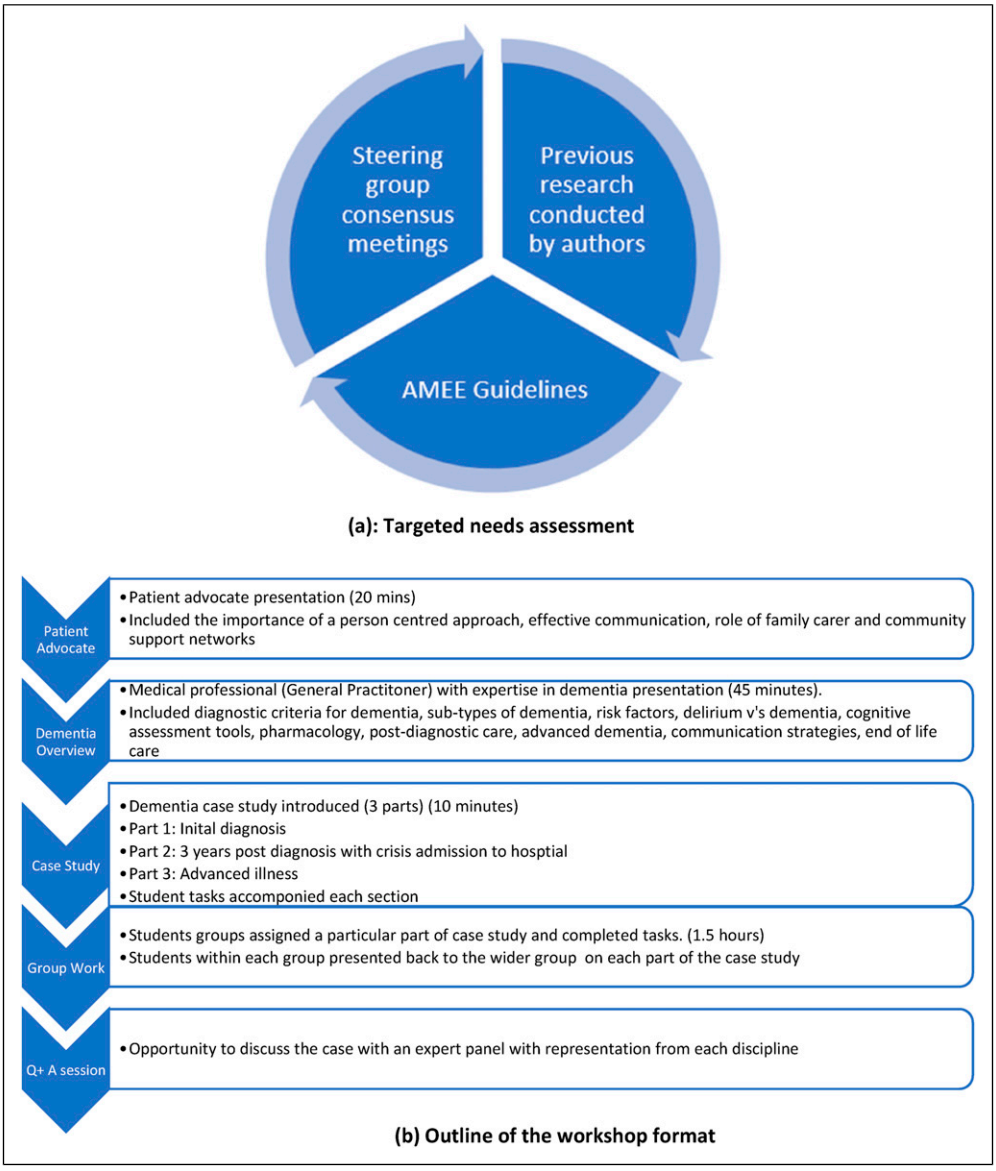

Figure 2. (a) Targeted needs assessment, (b) Outline of the workshop format.

Participants

Healthcare students from all 11 disciplines in the College of Medicine and Health, University College Cork were invited to the workshop. Participants included students from both undergraduate and Master of Science (MSc) (pre-registration) courses. All students were given the opportunity to partake in the voluntary workshop evaluation. In advance of attending the workshop, students were provided with a participant information leaflet informing them about

the study. Students used a unique identifier when completing the pre and post workshop questionnaires, thus ensuring anonymity. Table 1 provides a breakdown of disciplines in attendance.

Evaluation of the workshop

The 30-item Alzheimer's Disease Knowledge Scale (ADKS) questionnaire was used to assess students' knowledge (Garcia-Ribas et al., 2021). This is a widely used, validated instrument to assess knowledge of Alzheimer's disease. It measures knowledge across seven domains including risk factors, symptoms, assessment and diagnosis, disease trajectory, life impact, treatment, and caregiving (total possible score is 30). To capture qualitative data on role recognition and communication, a number of questions were included at the end of the ADKS. These questions were piloted by other members of the steering group and refined. Participants were also asked about the positive aspects of the workshop as well as ways improve the workshop.

Follow up of students on clinical placement

Students in MSc (entry level) Audiology, Radiography, Radiation Therapy and Physiotherapy, who completed the workshop and who were on clinical placement in July and August 2023 were asked to complete a follow up survey, to determine perceived clinical application of learned knowledge, with an aim to reach Kirkpatrick level 3. The Kirkpatrick model is a globally recognised method of evaluating the results of training programs, rating them against four levels of evaluation (Smidt et al., 2009). Level 1 refers to the learner's response to the training experience. Level 2 evaluates knowledge and/or skills the learner has acquired. Level 3 measures learner behaviour or performance post learning. Three members of the steering group analysed surveys in medical education that aimed to reach Kirkpatrick level three, piloted these questions, and refined them based on feedback, which included re-wording some questions to ensure perceived behavioural change was captured. A copy of this survey can be found in Appendix 3.

Table 1. Breakdown of disciplines.

Discipline	Number of students
Physiotherapy	29
Diagnostic radiography	15
Radiation therapy	8
Occupational therapy	19
Audiology	10
Medicine	8
Nursing	3
Speech and language therapy	28
Pharmacy	18
Dental hygiene	9
Paramedicine	5

Data analysis

The data from the questionnaire was coded and statistical analyses of paired pre- and post-workshop data for results was carried out using IBM SPSS 28.0 using descriptive and inferential statistics. A paired *t* test was used to determine the change in knowledge pre- and post-workshop. The Wilcoxon signed-rank test was used to determine changes in confidence in communicating with a person with dementia pre-and post-workshop. The significance level was set at 0.05.

Free text comments from the questionnaire were entered into Microsoft word and were independently thematically analysed by two researchers (TO'S and NM) using summative content analysis (Hsieh & Shannon, 2005). Firstly, the authors familiarised themselves with the data. Key features were coded and synthesised into categories. This coding process continued to be refined until consensus was reached between authors. The same method was used in the follow up survey of students who had completed the workshop and who were on clinical placement.

Results

One hundred and fifty-two students attended the workshop, and 102 students completed the pre-and post-workshop surveys, thereby giving a survey completion rate of 68% of workshop attendees. There was a small but statistically significant increase in students' knowledge scores post workshop (t (11) = -5.251, $p \leq .001$), noting a good baseline pre workshop knowledge score, (mean) 23.41, (SD = 2.57); the post workshop knowledge score was (mean) 24.78, (SD = 2.449).

The Wilcoxon signed rank test was performed to compare pre and post workshop confidence levels in communicating with people with dementia. When asked how students felt a person with dementia would understand their explanation of a procedure, the results indicated that students' median post workshop confidence levels were statistically significantly higher than pre workshop confidence levels $Z = -7.584$, $p \leq .001$. The Wilcoxon signed rank test was also performed to compare pre and post workshop confidence in communicating with a person with dementia. There was a statistically significant improvement in confidence post workshop $Z = -7.792$, $p \leq .001$.

Finally, 70% of students felt much more aware of the role of other healthcare professionals after the workshop (Figure 3).

Open-ended questions within the survey explored students' perceptions about the workshop. Three major themes were identified (Figure 4).

(1) Role recognition
(2) Interactive learning
(3) Value of patient/carer involvement

Within each major theme, one to two minor themes were identified

Role recognition

The over-arching theme that emerged from the open questions was the value of recognising each discipline's role in dementia care management. Over half ($n = 52$) cited this as the most positive aspect of the educational workshop. Table two gives an overview of the major and minor themes, with supporting quotes.

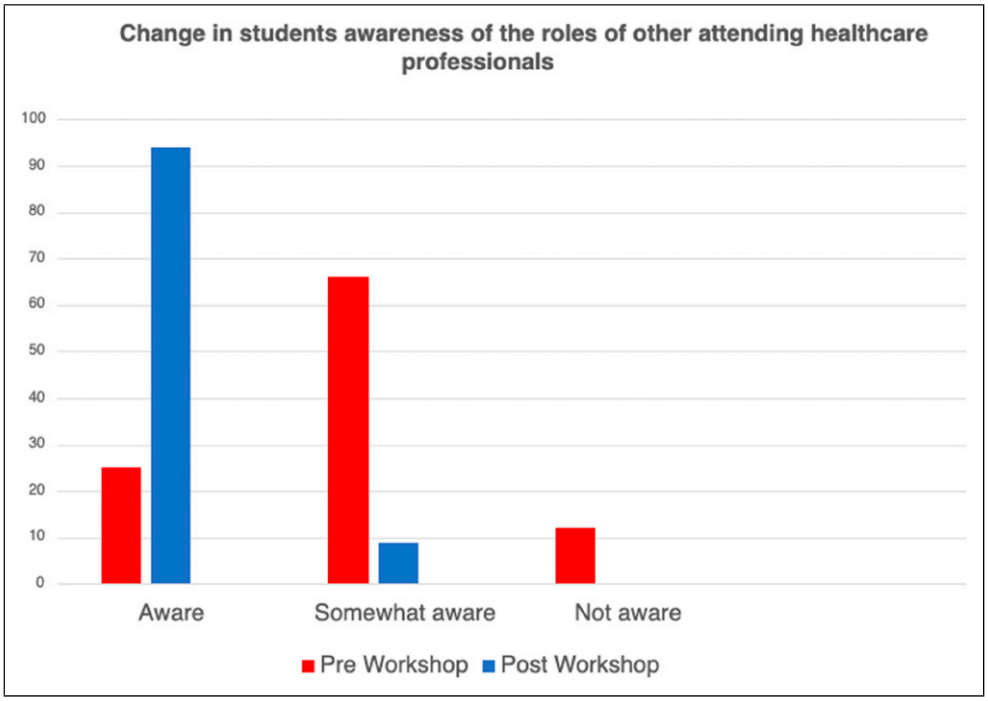

Figure 3. Difference in awareness of other health care professional's roles pre and post workshop.

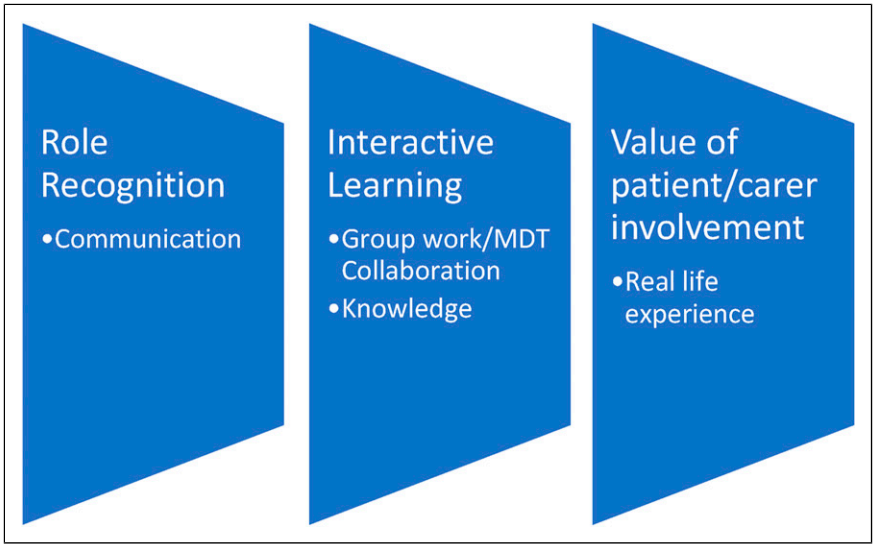

Figure 4. Overview of major and minor themes.

Communication

Students highlighted the value of interprofessional communication and how this platform gave them an opportunity to communicate with each other as well as discussing what communication strategies would be effective in the case scenario.

Interactive learning

Group work/MDT collaboration

Students highlighted the value of MDT collaboration and how working together through the case scenario as a team ensured role clarification. The breadth of disciplines represented was valued by students, as were the interesting and differing perspectives offered in discussions around the case study. Some students commented that this was their first experience of MDT collaboration.

Knowledge

Students outlined how they felt the workshop improved their overall knowledge in dementia. The lecture given by the General Practitioner at the beginning, as well as the case scenario and subsequent group discussion were factors that were perceived to enhance knowledge (Table 2, theme 2.2).

Value of patient and public involvement (PPI)

The involvement of a carer of a person with dementia in the workshop, sharing their real-life experience, was viewed by many students as a positive aspect of the workshop, which students reported supported their learning (Table 2, theme 3.1).

Follow up of students on clinical placement

Forty-seven students from the MSc Physiotherapy, Audiology, Radiation Therapy and Radiography programmes completed the follow up survey while on clinical placement, giving a response rate of

Table 2. Major and minor themes with supporting quotes.

Major theme	Minor Theme	Supporting quotes
1) Role recognition	(i) MDT collaboration	"The best part was learning the roles of other members within the MDT"
		"Interesting to see how other disciplines can contribute to the overall plan…integrated, informative and interesting"
	(ii) Communication	"Interprofessional communication to see how others deal with issues in care"
		"Hearing difference perspectives from different professions"
2) Interactive learning	(i) Group work	"Working as a group and hearing individuals' descriptions of their own role"
		"Discussing with other disciplines about the case"
	(ii) Knowledge	"Putting my knowledge into practice in a hypothetical case"
3) Value of PPI	(i) Real life experience	"Best thing was hearing real life experience, it sticks better"
		"Hearing the perspective of a family member and carer of someone with dementia and their struggle with healthcare"

72% (47/65). These students were the only students on clinical placement during July and August 2023, which was nine months after completion of the workshop. Table 3 provides an overview of discipline breakdown and placement clinical area.

Clinical caseload

Most students (91%, 42/46) encountered a person with dementia during their clinical placement, with 78% (32/41) stating that dementia care accounted for between 1%–10% of their caseload, 19% (8/41) stating it was between 11%–30%, and one student stating it was 31%–40%.

Perceived clinical application of learned knowledge

To capture the extent to which the dementia workshop influenced behaviour while on placement (Kirkpatrick level 3), students were asked three key questions: (1) have you changed the way you communicate with a person with dementia since attending the workshop? (2) have you changed the way you assess and manage a person with dementia? (3) did you learn anything from the workshop that you could confidently apply during your interaction with a person with dementia or their carers?

Communication. Most students (79% 31/39) stated that they have changed the way they communicate with a person with dementia since attending the workshop. Three main themes emerged from the open-ended responses: a: Use of simple commands; b. Effective body language; c. Validation.

The use of direct, one stage commands was cited by many students such as, *"I now use calm, short cues"; "Direct, short communication"; "Short, simple effective commands"*.

Concurrent with this change in communication style, was the effective use of body language, with students acknowledging that this is important in establishing a therapeutic relationship with the person with dementia, such as: "…*positive reassuring body language*" and "*I managed to maintain eye contact with the patient"*.

The importance of validation to support meaningful interaction was also highlighted, such as : *"Validating their reality and engaging in meaningful tasks"* and *"Relate to topics in their lives to make them feel more comfortable"*.

Table 3. Discipline breakdown and placement site.

Discipline	Number of students	Placement clinical area
Physiotherapy	22	Acute hospital 12 Private practice 7 Primary care 1 Private hospital 1 Voluntary organisation 1
Radiography	13	Acute hospital 13
Radiation therapy	8	Acute hospital 4 Private hospital 4
Audiology	4	Primary care 2 Not specified 2

Assessment and Management. In response to the question on assessment and management, (70%, 26/37) of students stated that they had changed the way they assess and manage a person with dementia since completing the workshop. The was mainly through altered communication, such as: *"Avoid assessments with complex instructions. Keep assessments brief", and "Simple instructions and valuing the therapeutic relationship over attaining objectives of examinations"*.

Application of Learning. In terms of application of learning, here again, the dominant theme was communication. Many students cited modification of their communication strategies as something they have been able to confidently apply during their interaction with a person with dementia during clinical placement, such as: *"Communication skills in order to keep people with dementia at ease and comfortable"; "Speaking slowly, clearly and openly is important";* and *"How to speak to both the person and their carers and to demonstrate what you want the patient to do"*.

Discussion

The primary aim of this study was to develop, deliver and evaluate an IPL dementia workshop for healthcare students across eleven disciplines. There was a statistically significant increase in both students' knowledge of dementia care post workshop, and their confidence in communicating with a person with dementia. The value of role recognition between disciplines, as well as the impact of PPI on learning were predominant themes of the qualitative evaluation. Students also believed that their clinical behaviour had been influenced by the workshop, where students on clinical placement nine months after completion of the workshop felt they had modified their communication and better understood the person with dementia.

Knowledge change from IPL in dementia is commonly assessed, with a range of both validated and non-validated scales used across studies (Dressel et al., 2023; Elvish et al., 2018; Mastel-Smith et al., 2020). In the current study the ADKS was used, which is validated and reliable (Sullivan & Mullan, 2017), but it is not an exhaustive assessment tool (Carpenter et al., 2009). Rather, it contains items that reflect a person's overall general knowledge on dementia, and it may have a ceiling effect in more specialised groups (Carpenter et al., 2009). An increase in knowledge in dementia is directly correlated with more positive attitudes towards working in dementia care (Hunter & Divine, 2021; Scerri & Scerri, 2013). This was also evident in the follow up survey of students on clinical placement, with students aligning an increase in knowledge with more confidence in dementia care. The improved knowledge of each other's roles was also evident in both the quantitative and qualitative evaluation of the workshop. This is seen as a positive implication for future collaborative clinical practice.

There was a statistically significant increase in students' perceived confidence in communicating with a person with dementia following the workshop. Aligned with this, the dominant theme that emerged from the follow up survey of students on clinical placement was the importance of communication modification. Students gave clear examples of how they altered their communication style when engaging with a person with dementia, using simple and unambiguous one stage commands. This illustrates perceived behavioural change, reaching Kirkpatrick Level 3. It is uncommon in healthcare educational literature to evaluate this level, with most studies evaluating to Kirkpatrick Level 1 (reaction) and 2 (knowledge, attitudes, and confidence) (Elvish et al., 2018; Galvin et al., 2010), as found in a systematic review by Surr et al. (2017). A review by Alushi et al. (2015), which evaluated dementia education programs for pre-registration healthcare students, found that no study specifically addressed the need to improve communication skills. Communication deficits such as aphasia, loss of verbal fluency and expression are common in people with dementia (Banovic et al., 2018). Therefore, advanced communication skills training, which encompasses person centred communication strategies, should be an integral component of any dementia educational program.

A dominant theme that emerged from the qualitative evaluation data was the value of PPI. The inclusion of a family carer, who not only gave an insightful presentation of the struggles and challenges of caring for their parent, but also actively facilitated the smaller case-based discussion component of the workshop, was highlighted by many students as a positive aspect of the workshop. The benefits of involving patients within dementia education has been well recognised (Williams & Daley, 2021). Including the direct patient voice and experiences of family caregivers can help in understanding the perspective of the person with dementia, which is a key component in person-centred care (Baille, Sillis, & Thomas, 2106; Surr and Gates., 2017). The 'patient voice' is considered a powerful strategy for learning, whereby the learner looks beyond the diagnosis and focuses on the person. The involvement of PPI in dementia education continues to gain momentum, and collaboration between academic institutions and charitable/voluntary organisations are increasing in popularity (Banerjee et al., 2017).

The broad range of disciplines represented in this study is unique, and the value of MDT collaboration was a dominant result in both the qualitative and quantitative evaluation. The inclusion of disciplines such as paramedicine, audiology and dentistry has not been previously evaluated together in the context of dementia IPL before. A systematic review by Jackson et al. (2016), which aimed to identify, describe, and evaluate the impact of dementia IPL, found a maximum of 6 disciplines come together for any one IPL intervention. Thus, the inclusion of 11 disciplines enhanced MDT collaboration across all stages of the case study.

Implications for future IPL initiatives

The findings of this study provide insight into the optimum modes of design and delivery of an IPL dementia workshop, state of knowledge, confidence, and role recognition across a broad spectrum of healthcare students. The longitudinal follow up of students on clinical placement established perceived behavioural change due to the training, reaching Kirkpatrick Level 3. These findings have the potential to inform future dementia IPL initiatives for a broad spectrum of student healthcare professionals. Each of the 11 discipline representatives on the steering group contributed to the case study. The IPL workshop provided students with clear tasks relating to the case study; students were pre-briefed, and a de-brief session followed the case-based discussion. Pre-allocated student groups were conveyed to the students before the workshop, and students worked predominantly on the case without facilitator input. All these factors have been identified as enablers of student psychological safety, where students feel they can share their thoughts without a fear of rejection, and there is a respect for each other's capabilities (Lackie et al., 2023).

Limitations

The generalisability of this study is limited since it was conducted in a single institution. However, the ability to capture such a broad range of disciplines would not have been possible across multiple institutions. Secondly, the follow up of students on clinical placement focused on perceived behavioural change. While self-report can provide some useful information, it can be open to potential bias and effort justification resulting in more positive survey responses. However, owing to the difficulty in quantifying Kirkpatrick level 3, it is usual for studies evaluating medical educational interventions to accept perceived behavioural change as reaching level 3. There was a small, yet statistically significant change in the ADKS, which highlights the ceiling effect of this scale. The dementia knowledge assessment scale (DKAS) has been shown to have less ceiling effect than the ADKS (Annear, Eccleston, et al., 2016) and should be considered in future research. Finally, this workshop was mandatory for some disciplines and not for others, which led to under-representation of some disciplines such as nursing.

Conclusion

As the number of people diagnosed with dementia each year continues to rise, the provision of high-quality IPL in dementia is a key requirement for the healthcare workforce. Higher educational institutes have a vital role in prioritising collaborative dementia care education and training in undergraduate curricula. Our study demonstrates the benefits of an IPL initiative across multiple disciplines. Continued prioritisation of dementia IPL in HEI's will ensure that healthcare graduates are equipped to work collaboratively, with appropriate knowledge, confidence and attitudes to ensure the delivery of optimum care of people with dementia.

Acknowledgements

The authors would like to sincerely thank the wider University College Cork (UCC) dementia interprofessional steering group for their ongoing support and commitment to this rolling initiative: Professor Nicole Muller (Head of School of Clinical Therapies, UCC), Professor Mark McEntee (Head of Discipline of Medical Imaging and Radiation Therapy, UCC), Dr. Aoife Fleming (Vice Dean of Interprofessional Learning, UCC) Teresa O'Rourke and Ellie Sweeney (Audiology, UCC), Rena Young (Diagnostic Radiography, UCC), Dr. Irene Hartigan (Nursing, UCC), Yvonne Pennisi and Dr. Ruth Usher (Occupational Therapy, UCC), Kieran Henry (Paramedicine, UCC), Dr. William Hutch (General Practice), Aoife Sheehy and Kerrie O Grady (Speech and Language Therapy, UCC), Niamh Sheehan (Speech and Language Therapy, UCC), Fiona Coulter (School of Pharmacy, UCC), Ann Marie Devine (Radiation Therapy, UCC), Aaron Cole (Physiotherapy, UCC), Niamh Coveney (Physiotherapy, UCC), Ursula Wedel (Physiotherapy, UCC), Caroline Horgan and Marina Collins (Dentistry, UCC).

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Ethical statement

Ethical approval

Ethical approval was received from the Social Research Ethics Committee of University College Cork (Log, 2020-047A2 and Log, 2023–131).

ORCID iDs

Trish O'Sullivan https://orcid.org/0000-0002-9363-1877
Niamh Moore https://orcid.org/0000-0003-2099-2222
Joseph G McVeigh https://orcid.org/0000-0003-0789-1419
Suzanne Timmons https://orcid.org/0000-0001-7790-9552
Tony Foley https://orcid.org/0000-0003-3205-3871

Data availability statement

In the ethics application, the authors stated that the data would not be shared with anybody outside the research team. Therefore, data will not be uploaded to a repository unless an ethics amendment application is submitted.

Supplemental Material

Supplemental material for this article is available online.

References

Alushi, L., Hammond, J. A., & Wood, J. H. (2015). Evaluation of dementia education programs for pre registration healthcare students-A review of the literature. *Nurse Education Today*, *35*(9), 992–998. DOI: 10.1016/j.nedt.2015.04.006.

Andrews, J. (2013). A guide to creating a dementia-friendly ward. *Nursing Times*, *109*(8), 20–21.

Annear, M. J., Eccleston, C. E., McInerney, F. J., Elliott, K.-E., Toye, C. M., Tranter, B. K., & Robinson, A. L. (2016). A new standard in dementia knowledge measurement: Comparative validation of the dementia knowledge assessment scale and the alzheimer's disease knowledge scale. *Journal of the American Geriatrics Society*, *64*(6), 1329–1334. DOI: 10.1111/jgs.14142.

Annear, M. J., Goldberg, L. R., Lo, A., & Robinson, A. (2016). Interprofessional curriculum development achieves results: Initial evidence from a dementia-care protocol. *Journal of Interprofessional Care*, *30*(3), 391–393. DOI: 10.3109/13561820.2015.1117061.

Baille, L. J., Sillis, E., & Thomas, N. M. (2106). Educating a healthcare workforce about dementia: A qualitative study.*Quality in Ageing and Older Adults*. *17*(2): 119-130. DOI: 10.1108/QAOA-11-2015-00511.

Banerjee, S., Farina, N., Daley, S., Grosvenor, W., Hughes, L., Hebditch, M., Mackrell, S., Nilforooshan, R., Wyatt, C., de Vries, K., Haq, I., & Wright, J. (2017). How do we enhance undergraduate healthcare education in dementia? A review of the role of innovative approaches and development of the time for dementia programme. *International Journal of Geriatric Psychiatry*, *32*(1), 68–75. DOI: 10.1002/gps.4602.

Banovic, S., Zunic, L. J., & Sinanovic, O. (2018). Communication difficulties as a result of dementia. *Mater Sociomed*, *30*(3), 221–224. DOI: 10.5455/msm.2018.30.221-224.

Barak, M., & Green, G. (2020). Novice researchers' views about online ethics education and the instructional design components that may foster ethical practice. *Science and Engineering Ethics*, *26*(3), 1403–1421. DOI: 10.1007/s11948-019-00169-1.

Barak, M., & Green, G. (2021). Applying a social constructivist approach to an online course on ethics of research. *Science and Engineering Ethics*, *27*(1), 8. DOI: 10.1007/s11948-021-00280-2.

Barr, H., Gray, R., Helme, M., Low, H., & Reeves, S. (2016). Steering the development of interprofessional education. *Journal of Interprofessional Care*, *30*(5), 549–552. DOI: 10.1080/13561820.2016.1217686.

Carpenter, B. D., Balsis, S., Otilingam, P. G., Hanson, P. K., & Gatz, M. (2009). The alzheimer's disease knowledge scale: Development and psychometric properties. *The Gerontologist*, *49*(2), 236–247. DOI: 10.1093/geront/gnp023.

Cartwright, J., Franklin, D., Forman, D., & Freegard, H. (2015). Promoting collaborative dementia care via online interprofessional education. *Australasian Journal on Ageing*, *34*(2), 88–94. DOI: 10.1111/ajag.12106.

Davison, E., Housden, S., & Lindqvist, S. (2019). Using interprofessional dementia learning opportunities to prepare the future healthcare workforce: Findings from a pilot study. *Journal of Interprofessional Care*, *33*(6), 816–819. DOI: 10.1080/13561820.2018.1551863.

Department of Health. (2014). *The Irish national dementia strategy*. Department of Health. Available at: https://hdl.handle.net/10147/558608.

Dressel, K., Ablinger, I., Lauer, A. A., Grimm, H. S., Hartmann, T., Hermanns, C., Schwarz, M., Taddey, T., & Grimm, M. O. W. (2023). Interprofessional education: A necessity in alzheimer's dementia care-a pilot study. *Frontiers of Medicine*, *10*, Article 1235642. DOI: 10.3389/fmed.2023.1235642.

Elvish, R., Burrow, S., Cawley, R., Harney, K., Pilling, M., Gregory, J., & &Keady, J. (2018). Getting to Know Me': The second phase roll-out of a staff training programme for supporting people with dementia in general hospitals. *Dementia*, *17*(1), 96–109. DOI: 10.1177/1471301216634926.

Garcia-Ribas, G., Garacia-Arcelay, E., Montoya, A., Maurino, J., & Ballesteros, J. (2021). Quantifying knowledge of alzheimer's disease: An analysis of the psychometric properties of the alzheimer's disease knowledge scale. *Neurol Ther*, *10*(1), 213–224. DOI: 10.1007/s40120-021-00230-x.

Galvin, J. E., Kuntemeier, B., Al-Hammadi, N., Germino, J., Murphy-White, M., & McGillick, J. (2010). "Dementia-friendly hospitals: Care not crisis": An educational program designed to improve the care of the hospitalized patient with dementia. *Alzheimer Disease and Associated Disorders*, *24*(4), 372–379. DOI: 10.1097/WAD.0b013e3181e9f829.

Geriatric Medicine Research Collaborative. (2019). Delirium is prevalent in older hospital inpatients and associated with adverse outcomes: Results of a prospective multi-centre study on world delirium awareness day. *BMC Medicine*, *17*(1), 229. DOI: 10.1186/s12916-019-1458-7.

Grand, J. H., Caspar, S., & Macdonald, S. W. (2011). Clinical features and multidisciplinary approaches to dementia care. *Journal of Multidisciplinary Healthcare*, *4*(1), 125–147. DOI: 10.2147/JMDH.S17773.

Hean, S., Craddock, D., & Hammick, M. (2012). Theoretical insights into interprofessional education: AMEE guide No. 62. *Medical Teacher*, *34*(2), e78–e101. DOI: 10.3109/0142159X.2012.643263.

Hsieh, H. F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research*, *15*(9), 1277–1288. DOI: 10.1177/1049732305276687.

Hunter, S. W., & Divine, A. (2021). Understanding the factors influencing physiotherapists' attitudes towards working with people living with dementia. *Physiotherapy Theory and Practice*, *37*(12), 1448–1455. DOI: 10.1080/09593985.2019.1710883.

Jackson, M., Pelone, F., Reeves, S., Hassenkamp, A. M., Emery, C., Titmarsh, K., & Greenwood, N. (2016). Interprofessional education in the care of people diagnosed with dementia and their carers: A systematic review. *BMJ Open*. *6*(8), Article e010948. doi: DOI: 10.1136/bmjopen-2015-010948.

Lackie, K., Hayward, K., Ayn, C., Stilwell, P., Lane, J., Andrews, C., Dutton, T., Ferkol, D., Harris, J., Houk, S., Pendergast, N., Persaud, D., Thillaye, J., Mills, J., Grant, S., & Munroe, A. (2023). Creating psychological safety in interprofessional simulation for health professional learners: A scoping review of the barriers and enablers. *Journal of Interprofessional Care*, *37*(2), 187–202. DOI: 10.1080/13561820.2022.2052269.

Livingston, G., Sommerlad, A., Orgeta, V., Costafreda, S. G., Huntley, J., Ames, D., Ballard, C., Banerjee, S., Burns, A., Cohen-Mansfield, J., Cooper, C., Fox, N., Gitlin, L. N., Howard, R., Kales, H. C., Larson, E. B., Ritchie, K., Rockwood, K., Sampson, E. L., & Mukadam, N. (2017). Dementia prevention, intervention, and care. *Lancet*, *390*(10113), 2673–2734. DOI: 10.1016/S0140-6736(17)31363-6.

Mastel-Smith, B., Kimzey, M., Garner, J., Shoair, O. A., Stocks, E., & Wallace, T. (2020). Dementia care boot camp: Interprofessional education for healthcare students. *Journal of Interprofessional Care*, *34*(6), 799–811. DOI: 10.1080/13561820.2019.1696287.

Mukhalalati, B. A., & Taylor, A. (2019). Adult learning theories in context: A quick guide for healthcare professional educators. *J Med Educ Curric Dev*, *6*(1), Article 2382120519840332. DOI: 10.1177/2382120519840332.

Österholm, J., Nedlund, A. C., & Larsson Ranada, Å. (2022). Collaboration and coordination of health and care services for older people with dementia by multidisciplinary health and care providers: A scoping review protocol. *BMJ Open*, *12*(12), Article e066578. DOI: 10.1136/bmjopen-2022-066578.

Phelan, E. A., Borson, S., Grothaus, L., Balch, S., & Larson, E. B. (2012). Association of incident dementia with hospitalizations. *JAMA*, *307*(2), 165–172. DOI: 10.1001/jama.2011.1964.

Rew, L., Banner, M., Johnson, K., & Slesnick, N. (2018). Intervention fidelity and facilitator training. *Western Journal of Nursing Research*, *40*(12), 1843–1860. DOI: 10.1177/0193945917752092.

Scerri, A., & Scerri, C. (2013). Nursing students' knowledge and attitudes towards dementia – a questionnaire survey. *Nurse Education Today*, *33*(9), 962–968. DOI: 10.1016/j.nedt.2012.11.001.

Shepherd, H., Livingston, G., Chan, J., & Sommerlad, A. (2019). Hospitalisation rates and predictors in people with dementia: A systematic review and meta-analysis. *BMC Medicine*, *17*(1), 130. DOI: 10.1186/s12916-019-1369-7.

Smidt, A., Balandin, S., Sigafoos, J., & Reed, V. A. (2009). The Kirkpatrick model: A useful tool for evaluating training outcomes. *Journal of Intellectual and Developmental Disability*, *34*(3), 266–274. DOI: 10.1080/13668250903093125.

Sullivan, K. A., & Mullan, M. A. (2017). Comparison of the psychometric properties of four dementia knowledge measures: Which test should be used with dementia care staff? *Australasian Journal on Ageing*, *36*(1), 38–45. DOI: 10.1111/ajag.12299.

Sullivan, T. O., McVeigh, J. G., Timmons, S., & Foley, T. (2023). Education and training interventions for physiotherapists working in dementia care: A scoping review. *Physiotherapy*, *119*(1), 89–99. DOI: 10.1016/j.physio.2022.11.002.

Surr, C. A., & Gates, C. (2017). What works well in delivering dementia educaiton or training to hospital staff? A critical synthesis of the evidence. *International Journal of Nursing Studies*, *75*(9), 172–188. DOI: 10.1016/j.ijnurstu.2017.08.002.

Surr, C. A., Gates, C., Irving, D., Oyebode, J., Smith, S. J., Parveen, S., Drury, M., & Dennison, A. (2017). Effective dementia education and training for the health and social care workforce: A systematic review of the literature. *Review of Educational Research*, *87*(5), 966–1002. DOI: 10.3102/0034654317723305.

Thomas, P. A., Kern, D. E., Hughes, M. T., Tackett, S. A., & Chen, B. Y. (2022). *Curriculum development for medical education* (4th ed.). J.H.U. Press.

Timmons, S., O'Shea, E., O'Neill, D., Gallagher, P., De Siun, A., McArdle, D., Gibbons, P., & Kennelly, S. (2016). Acute hospital dementia care: Results from a national audit. *BMC Geriatrics*, *16*(1), 113. DOI: 10.1186/s12877-016-0293-3.

Virginia, R. (2003). Constructivist pedagogy. *Teachers College Record*, *105*(9), 1623–1640.

Williams, M., & Daley, S. (2021). Innovation in dementia education within undergraduate healthcare programmes: A scoping review. *Nurse Educ Today*, *98*, Article 104742. DOI: 10.1016/j.nedt.2020.104742.

World Health Organisation. (2017-2025). *Global action plan on the public health response to dementia 2017-2025*. World Health Organisation.

World Health Organisation. (2018). Continuity and coordination of care. In *A practice brief to support implementaion of the WHO framework on inergrated people-centred helath services*.

Author Biography

Trish O'Sullivan Trish O Sullivan is currently in her fourth year of a PhD and is a member of the physiotherapy practice education team at University College Cork. She also teaches across the Neuro-rehabilitation modules. Prior to this, Trish worked clinically for 13 years in both the acute and primary care settings, predominately in the area of neurological rehabilitation. She also has a keen interest in interprofessional learning and is a member of the UCC interprofessional learning college committee.

Niamh Moore Niamh has worked for over 20 years as a clinical radiographer and was a CT Clinical Specialist for over 7 years. Throughout her career she has evidenced her commitment to Continuous Professional Development undertaking a post graduate Certificate in CT (University of Bradford) an MSc in CT (University College Dublin), a Certificate in Teaching and Learning (UCC) and is currently undertaking a PhD in Radiography in UCC. Niamh has also demonstrated a keen interest in radiography education in Ireland, having developed and run IV courses in UCC and was instrumental in the development of the diagnostic radiography programme at UCC where she is currently working as a lecturer. Niamh is actively engaged in research and her research interests include low dose imaging in CT and health care professionals' education with many publications and presentations at local, national and international conferences.

Dr. Joseph G McVeigh Dr. McVeigh is Head of Discipline of Physiotherapy and Research Lead for the School of Clinical Therapies, University College Cork, Ireland. Dr. McVeigh's research interests are in the area of non-pharmacological management of long-term conditions, particularly behaviour

change, self-management and physical activity. More recently, Dr. McVeigh is exploring the impact of virtual reality as an adjunct to rehabilitation. Dr. McVeigh is a founding member of the XR4REHAB Collaboration & Innovation Network. XR4REHAB is a forum to facilitate research collaboration and improve rehabilitation and healthcare by exploiting XR technology. Dr. McVeigh was Editor-in-Chief of *Physiotherapy Practice and Research*, the Journal of the Irish Society of Chartered Physiotherapists (2008 – 2019) and is a Founding Editorial Board Member and Section Editor of *Archives of Rehabilitation Research and Clinical Translation, an Official Journal of the American Congress of Rehabilitation Medicine.*

Suzanne Timmons Prof. Suzanne Timmons is a clinical geriatrician, Professor of Geriatric Medicine, and Programme Director for the MSc in Older Person Rehabilitation and MSc in Dementia programmes in University College Cork. She was the Clinical Lead for dementia health services in Ireland from 2017–2021. Her research in dementia includes health service provision, palliative care, psychotropic prescribing and dementia-delirium overlaps. She has particular expertise in complex, non-pharmacological and clinical staff-focussed intervention studies.

Tony Foley Tony is Professor of General Practice in University College Cork and works as a GP in Kinsale, Co. Cork. He has a clinical and research interest in dementia care. He is a member of the Scientific Advisory Panel of the Alzheimer Society of Ireland and is a member of the Irish Health Service Executive's National Dementia Strategy Programme Implementation Board. He also leads the Irish College of General Practitioners dementia e-learning programme.