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Interprofessional Approach to Educate Health Care Students About Intellectual and Developmental Disabilities: Adaptive Communication and Physical Activity Planning

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Abstract

Introduction: People with intellectual and/or developmental disabilities (IDD) are a historically marginalized population and often require complex team-based health care services. Health care students receive little, if any, training about caring for this population. Improving training at the student level can improve health care quality for this population. **Methods:** We developed a two-part interprofessional seminar series to increase students' knowledge, attitudes, and skills regarding caring for patients with IDD. The seminars were taught over Zoom and utilized presentation slides, prerecorded mock video interviews, and breakout room discussions focused on adaptive communication and developing adaptive physical activity plans for people with IDD. Participants comprised undergraduate and graduate students from various health care professional programs, including occupational therapy, medicine, and nursing. **Results:** Part 1 had 208 participants, and part 2 had 107 participants. Both seminars were assessed using pre- and postsurveys that demonstrated increased participant comfort and confidence with the respective subjects. Competence of learned skills was not assessed. Participants in both seminars felt they would benefit from more direct interaction with people with IDD to practice learned skills. **Discussion:** The results are encouraging for continued implementation at Quinnipiac University, with potential for use in other programs. Further iterations may include people with IDD serving as seminar cofacilitators, opportunities for students to directly interact with people with IDD, and use of an assessment approach evaluating learned skills competence. Curriculum expansion should cover the unique health care inequities faced by people with IDD who also belong to other marginalized groups.

Keywords:
Intellectual Disability, Developmental Disability, Clinical/Procedural Skills Training, Disabilities, Health Disparities, Health Equity, Diversity, Equity, Inclusion, Interprofessional Education

Educational Objectives

By the end of this activity, learners will be able to:

1. Identify that communication is a barrier to health care in this population.
2. Utilize adaptive communication strategies for the general patient interview and in sensitive topics like sexual assault.
3. Compare the roles of different health care professions in the care of people with intellectual and/or developmental disabilities (IDD).
4. Compare the roles of each member of the interprofessional team in the care of an individual with IDD.
5. Differentiate common barriers and facilitators for exercise for people with IDD.
6. Design and adapt a health promotion treatment plan that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health.
7. Outline components of the patient interview for assessing physical activity.
8. Design an individualized and adaptive exercise plan based on a video example.

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Introduction

In the United States, around one in every six children ages 3-17 has intellectual and/or developmental disabilities (IDD).[1] The total population of individuals with IDD has continued to

grow as changes in legislation, attitudes, and treatment have contributed to longer life expectancies.[2,3] Providing medical care to individuals with IDD poses unique challenges, and as a result, this is a historically marginalized population. Improving the quality of health care for these individuals can be done in part by increasing health care students' knowledge, attitudes, and skills for caring for this community. Through education at the preprofessional student level, these skills can be established at a uniform baseline to be developed over time for future use in a variety of disciplines and specialties. The health care needs of individuals with IDD can be complex and require coordination within a team of health care professionals who have different expertise, including physicians, nurses, physical therapists, and occupational therapists.[4] For this reason, it is important that students learn how to share their expertise and effectively utilize the interprofessional team.

A significant barrier to equitable health care in this population is a multifactorial communication gap.[5] Knowledge of adaptive communication strategies such as communicating using augmentative communication devices or knowing how to interview a patient when a support team member is present can help health care students feel more confident when interviewing a patient with IDD. Furthermore, because people with IDD are seven times more likely to experience sexual assault than their neurotypical counterparts,[6] it is important that health care providers be able to utilize adaptive communication for this sensitive topic.

Another important aspect of holistic health care to address within this population is physical activity. Individuals with IDD are more likely to lead sedentary lifestyles than their neurotypical counterparts and between 58% and 89% of adults with IDD currently do not meet physical activity recommendations.[6] This population experiences unique barriers to meeting these recommendations, including transportation, perceived self-efficacy, and lack of recommendation by health care professsionals.[7-9] Some of these barriers can be addressed by educating health care students about the importance of physical activity in this population and how to develop an adaptive exercise plan.

This project sought to design, implement, and evaluate a two-part interprofessional education seminar series in order to educate health care students on how to care for individuals with IDD within an interprofessional health care team. The series is innovative because health care providers receive limited training and education regarding IDD, despite people with IDD often requiring access to diverse health care services.[10] A number of *MedEdPORTAL* publications have addressed the broader topic of disability in health care education[11,12]; however, there is no current publication specifically pertaining to IDD. Aspects of general disability curricula such as recognizing health care barriers and biases can apply to this population. However, it is imperative that students learn specifically about IDD because this population faces a unique set of barriers to health care.[5]

Methods

Two distinct seminars were designed as a two-part series: Part 1 was called Communicating With Patients With IDD, and part 2 was named Designing an Adaptive Exercise Plan for People With IDD. The series was conducted through Quinnipiac University's Center for Interprofessional Healthcare Education. The series was part of a larger educational effort at the university to teach medical students about IDD through a grant received from the American Academy of Developmental Medicine and Dentistry's National Curriculum Initiative in Developmental Medicine. This project was granted complete institutional review board exemption approval (protocol #04020).

General curriculum topics were decided upon in the initial grant proposal. The materials for each seminar consisted of a prework video presentation, presentation slides, and mock video interviews with people with IDD. The content for these materials was developed through review of relevant literature and preexisting trainings, notably those offered by the Nisonger Center at Ohio State University.[5,13]

Experts in the fields of occupational therapy, medicine, and social work, as well as people with IDD and their families, reviewed content and provided feedback. The plan was vetted by the Advisory Board of Best Buddies Connecticut, an organization promoting inclusivity for people with IDD. This board consisted of professionals and parents of people with IDD; they provided a list of individuals with IDD to include in the curriculum design, which was curated to represent diversity across gender identity, ethnic background (Asian American, African American, Caucasian), family background (raised by adoptive parents, biological parents, and extended family members), area lived in (rural, suburban, urban), and socioeconomic background.

Each part was a 2-hour seminar held over Zoom. There were multiple iterations of each part throughout the academic year; participants could attend one or both and in no order. Preprofessional health care students at Quinnipiac University were required to attend interprofessional education events, selecting them from a list including this series. Participation in this specific series was voluntary. The series was facilitated by

the primary author, who did the background research and primary curriculum design. Support was available during the seminars from the second author, who was both director of the Center for Interprofessional Healthcare Education and an occupational therapist whose doctoral work was in the field.

Part 1: Communicating With Patients With IDD

Preseminar work: We asked participants to spend 20 minutes completing a preseminar survey (Appendix A), watching a short introductory video presentation (Appendix B), and taking the Harvard Implicit Association Test on disability.[14]

Seminar structure: We provided participants with a syllabus to be used during the seminar (Appendix C). We delivered a presentation (Appendix D) that introduced interprofessional education, followed by discussion of adaptive communication strategies and how to use them in specific situations such as the physical exam and with patients with anxiety. We played previously recorded video segments of a mock primary care interview conducted with four local community members with IDD (Appendix D). Participants were placed in Zoom breakout rooms of five to six people for 15 minutes and asked to discuss questions related to the interviews and adaptive communication. We requested each group to share key points when back in the main Zoom room.

The seminar transitioned to adaptive communication for the sensitive topic of sexual assault. We informed participants that they could turn cameras off or take a break due to the nature of this topic and we also provided pertinent local and national resources. We discussed the prevalence of sexual assault in the IDD community and mandated reporting in the state of Connecticut, where this curriculum took place. We played another mock interview video segment (Appendix D), which included a sexual history with disclosure of prior sexual assault. Participants were placed back in their same breakout rooms and asked to answer discussion questions. After 15 minutes, they returned to the main Zoom room, and each group shared key points.

We concluded the seminar by reinforcing key points and providing an opportunity for final questions.

Postseminar work: We asked participants to complete a postseminar survey (Appendix A).

Part 2: Designing an Adaptive Exercise Plan for People With IDD

Preseminar work: We asked participants to spend 20 minutes completing a preseminar survey (Appendix E), watching a short introductory video presentation (Appendix B), and taking the Harvard Implicit Association Test on disability.[14] Note that participants may have already watched the video presentation by completing part 1.

Seminar structure: We provided participants with a syllabus to be used during the seminar (Appendix F). We delivered a presentation (Appendix G) that introduced interprofessional education and outlined the importance of promoting physical activity in people with IDD. The presentation detailed how to ask about physical activity, assess barriers and facilitators, and develop adaptive exercise options.

We played a mock video interview (Appendix G) about physical activity that was conducted with a local community member with IDD. We asked participants to consider the patient's likes/dislikes and barriers and facilitators to exercise. Participants were placed in Zoom breakout rooms of five to six people for 15 minutes and asked to develop an individualized adaptive physical activity plan for the patient in the video. Then they returned to the main Zoom room, and each group shared its plan.

We concluded the seminar by reinforcing key points and providing an opportunity for final questions.

Postseminar work: Participants were asked to complete a postseminar survey (Appendix E).

Data Analysis

Descriptive statistics included frequencies and percentages. To assess for differences in pre- and postsurvey responses, we used the Pearson chi-square to test for qualitative variables and the chi-square test for trend when a variable was measured at the ordinal level. Statistical significance was set at $\alpha = .05$. Additional models were run with an interaction term between profession and pre- and postsurvey responses, but no significant effects were found.

Results

Part 1: Communicating With Patients With IDD

This seminar was held three times, with a total of 208 participants from a variety of health care professions (Table 1). Presurvey completion rate was 96%, and postsurvey completion rate was 85%, with similar representation of professions (Table 1).

The following data are presented in Table 2. There was a significant increase from pre- to postsurvey in feeling more comfortable interviewing a patient with IDD in the clinical setting (from 40% to 84%, $p < .001$). Of the reasons for not feeling comfortable, the seminar decreased selection of the following: lack of training in different communication styles (from

Table 1. Part 1 Participants' Professions

Profession	No. (%)	
	Presurvey	Postsurvey
Medicine (MD)	35 (18)	35 (20)
Nursing	38 (19)	34 (19)
Occupational therapy	59 (30)	55 (31)
Pharmacy	5 (2)	4 (2)
Physical therapy	20 (10)	17 (10)
Physician assistant	31 (16)	24 (14)
Social work	11 (6)	8 (4)

83% to 26%, $p < .001$), lack of understanding about medical implications of disability (from 64% to 20%, $p < .001$), and lack of understanding about social implications of disability (from 47% to 4%, $p < .001$).

There was a significant change after the seminar in feeling more confident in obtaining necessary clinical information from patients with IDD (from 41% to 88%, $p < .001$).

There was no significant change in feeling that the interprofessional team was somewhat important or very important in the care of people with IDD (from 93% to 97%, $p = .16$).

Several themes were noted within free-text answer opportunities. When asked why they might not feel confident in obtaining necessary clinical information from patients with IDD, participants indicated that direct interaction with people with IDD would be helpful. Other respondents were concerned about time constraints during a clinical encounter. General seminar feedback was overwhelmingly positive. The following is a representative quote: "I... felt that the videos and discussion points worked well to show me what those communication skills looked like and made them less daunting." Two participants shared similar thoughts in their comparison of interviewing people with IDD and their neurotypical counterparts: "really a very helpful thing to see that it is not so different than a neurotypical interview" and "showed me that it's not really all that different from a visit with a neurotypical patient."

Part 2: Designing an Adaptive Exercise Plan for People With IDD
This seminar was held two times, with a total of 107 participants from a variety of health care professions (Table 3). Presurvey completion rate was 107%, likely from participants who completed the survey but were not able to attend, and postsurvey completion rate was 76%, with similar representation of professions (Table 3).

The following data are presented in Table 4. Two knowledge-based questions with single correct answers were included. One question addressed the likelihood of sedentary lifestyles in people with IDD; there was a significant change in choosing the correct answer after the seminar (from 51% to 73%, $p = .003$). The other question addressed recommended exercise guidelines for people with IDD; choosing the correct answer after the seminar did not reach statistical significance (from 68% to 78%, $p = .11$).

Pearson's chi-square test was used to assess differences in additional pre- and postsurvey responses, with $\alpha = .05$. The following data are presented in Table 4. Using a 5-point Likert scale (1 = *very unimportant,* 5 = *very important*), the seminar increased selection of 4 or 5 for how important it was to prioritize questions about physical activity when interviewing patients with IDD (from 81% to 90%, $p = .002$). Using a 5-point Likert scale (1 = *very unconfident,* 5 = *very confident*), the seminar increased selection of 4 or 5 for confidence in interviewing a patient with IDD about physical activity (from 24% to 83%, $p < .001$). Of the reasons for not feeling confident interviewing patients with IDD about physical activity, the seminar decreased selection of the following: unsure which questions to ask the patient (from 68% to 6%, $p < .001$) and lack of training in different communication

Table 2. Chi-Square Analysis of Part 1 Pre- and Postsurvey Responses

Survey Response	Presurvey %	Postsurvey %	*p*
Somewhat comfortable or very comfortable interviewing a patient with IDD in clinical setting[a]	40	84	<.001
Reasons for not feeling comfortable			
Lack of training in different communication styles	83	26	<.001
Lack of experience interacting with people with IDD	63	60	.69
Lack of understanding about medical implications of disability	64	20	<.001
Lack of understanding about social implications of disability	47	4	<.001
Somewhat confident or very confident obtaining necessary clinical information from patients with IDD[b]	41	88	<.001
Feeling that the interprofessional team was somewhat important or very important in care of people with IDD[c]	93	97	.16

Abbreviation: IDD, intellectual and/or developmental disabilities.
[a]Answer selections included very uncomfortable, somewhat uncomfortable, neutral, somewhat comfortable, and very comfortable.
[b]Answer selections included very unconfident, somewhat unconfident, neutral, somewhat confident, and very confident.
[c]Answer selections included very unimportant, somewhat unimportant, neutral, somewhat important, and very important.

Table 3. Part 2 Participants' Professions

Profession	No. (%)	
	Presurvey	Postsurvey
Athletic training	5 (5)	4 (5)
Health science studies	4 (4)	4 (5)
Medicine (MD)	9 (8)	9 (12)
Nursing	11 (10)	8 (10)
Occupational therapy	27 (25)	18 (23)
Pathologists' assistant	1 (1)	1 (1)
Pharmacy	2 (2)	1 (1)
Physical therapy	26 (24)	16 (20)
Physician assistant	19 (17)	14 (18)
Social work	1 (1)	0 (0)
Therapeutic recreation/recreational therapy	4 (4)	3 (4)

styles (from 68% to 41%, $p = .001$). The seminar did not change selection of lack of clinical exposure interviewing patients with IDD (from 84% to 82%, $p = .86$).

The seminar increased selection of 4 or 5 for confidence in developing an individualized adaptive exercise plan for patients with IDD (from 7% to 70%, $p < .001$). Of the reasons for not feeling confident developing such a plan, the seminar decreased selection of the following: lack of knowledge about adaptive exercise opportunities (from 80% to 53%, $p < .001$), lack of knowledge about physical activity guidelines for people with IDD (from 85% to 38%, $p < .001$), unsure how to assess individual exercise barriers (from 60% to 16%, $p < .001$), unsure how to assess what would motivate an individual to exercise (from 50% to 20%, $p < .001$), and unsure which members of the health care team to involve (from 32% to 16%, $p = .04$).

There was no significant relationship between seminar attendance and participants' selecting 4 or 5 for how important the interprofessional team was in the care of people with IDD (from 100% to 95%, $p = .06$).

Several themes were noted within free-text answer opportunities. When asked why they might not feel confident interviewing patients with IDD about physical activity, participants said they needed more hands-on practice. General feedback indicated that the mock video interview was helpful in developing participants' confidence. One participant remarked, "Before the seminar... I was not confident in how to address exercise with individuals with IDD, but after the seminar and watching the interview... I feel much more confident in how I will approach those questions with future clients."

Discussion

The goal of this series was to increase health care students' knowledge, attitudes, and skills for caring for patients with IDD. Part 1 addressed communication, a main barrier to health care in this population.[5] Part 2 focused on physical activity, an area of health care maintenance often overlooked to a greater degree in people with IDD and having consequences to overall health.[6-9]

Part 1 was assessed through questions regarding participants' comfort interviewing patients with IDD and confidence in obtaining necessary clinical information. Based on data analysis, participants became more knowledgeable about adaptive communication skills as well as social and medical implications of disability. Although the surveys assessed participants' knowledge of adaptive communication skills, competence in utilizing these skills was not assessed. The original intent was to have people with IDD present during the seminars to serve as mock patients

Table 4. Chi-Square Analysis of Part 2 Pre- and Postsurvey Responses

Survey Response	Presurvey %	Postsurvey %	*p*
Correct answer for question addressing the likelihood of people with IDD to live sedentary lifestyles	51	73	.003
Correct answer for question addressing the recommended exercise guidelines for people with IDD	68	78	.11
4 or 5 for how important it is to prioritize questions about physical activity when interviewing patients with IDD[a]	81	90	.002
4 or 5 for confidence in interviewing a patient with IDD about physical activity[b]	24	83	<.001
Reasons for not feeling confident interviewing about physical activity			
Unsure which questions to ask the patient	68	6	<.001
Lack of training in different communication styles	68	41	.001
Lack of clinical exposure interviewing patients with IDD	84	82	.86
4 or 5 for confidence in ability to develop an individualized and adaptive exercise plan for a patient with IDD[b]	7	70	<.001
Reasons for not feeling confident developing adaptive exercise plan			
Lack of knowledge about adaptive exercise opportunities	80	53	<.001
Lack of knowledge about physical activity guidelines for people with IDD	85	38	<.001
Unsure how to assess an individual's barriers to exercise	60	16	<.001
Unsure how to assess what would encourage/motivate an individual to exercise	51	20	<.001
Unsure which members of the health care team to involve	32	16	.04
4 or 5 for how important the interprofessional team is in the care of people with IDD[a]	100	95	.06

Abbreviation: IDD, intellectual and/or developmental disabilities.
[a]Rated on a 5-point Likert scale (1 = *very unimportant*, 5 = *very important*).
[b]Rated on a 5-point Likert scale (1 = *very unconfident*, 5 = *very confident*).

for practice of learned skills; however, this aspect was removed due to COVID-19 restrictions.

Part 2 was assessed through questions regarding confidence interviewing people with IDD about physical activity and developing an adaptive exercise plan. Based on data analysis, participants became more knowledgeable about which questions to ask, adaptive communication skills, adaptive exercise opportunities, physical activity guidelines, and how to assess individual barriers and motivational factors. Participants were asked to design a specific exercise plan but not formally assessed on their plans. Doing so may have provided better information about the seminar's effectiveness.

The data presented here do not separately assess participants from different professions. This was done intentionally because of our interprofessional educational approach and a desire to assess how the curriculum impacted the knowledge of the interprofessional team as a whole. The curriculum was designed knowing that participants of different backgrounds would learn together to level the playing field of knowledge. However, participants from certain fields may have had significantly more experience with people with IDD than others. Additional statistical models indicated no significant differences in responses between professions.

There were several strengths. The curriculum reached a large number of students: Part 1 reached 208 students from seven health care professions, and part 2 reached 107 students from 11 health care professions. Both parts included videos with community members with IDD, which served the dual purpose of empowering people with IDD in educating future health care professionals about their own health care needs and increasing exposure of participants to individuals they may encounter in practice. Finally, this curriculum addressed both general skills and those needed for specific topics like sexual assault and physical activity.

There were several limitations. People with IDD were not present during the seminars to cofacilitate and provide their perspectives. The mock video interviews in each part did, however, include open-ended questions that gave opportunities for people with IDD to share their views. The series did not address the intersection of disability with other aspects of identity such as gender identity or race and ethnicity. It is important to acknowledge that individuals with IDD who are also members of other marginalized groups experience unique inequities and barriers to health care.[15] Further curriculum development should focus specifically on this area. Additional limitations included that our evaluation approach centered on surveys not designed to assess competence of learned skills. A limitation specific to part 1 was that videos demonstrated verbal communication only with individuals with mild intellectual disability, which did not allow participants to observe the full range of communication skills they may need.

Through development and implementation of this curriculum, we learned the following. Students and faculty are interested in this topic. Collaboration with people with IDD is critical to center their perspectives and provide their authentic, unrehearsed answers to primary care interview questions. Additionally, health care providers should screen for possible sexual assault due to higher incidence in people with IDD.

The results are encouraging for continued implementation at Quinnipiac University, with potential for use in other health care programs. We recommend that instructors consider the following when using this curriculum. Whenever possible, direct interaction between health care students and people with IDD should be planned. Local community members with IDD and professionals who work with this population should aid in the design and implementation of the curriculum. Further curriculum development might expand upon additional communication adaptations, such as sign language and augmentative communication devices. Finally, the curriculum should be further developed to include education about intersectionality.

Appendices

A. IDD Surveys.docx

B. Intro to IDD.mp4

C. IDD Syllabus.docx

D. IDD Presentation.pptx

E. Adaptive Exercise Plan Surveys.docx

F. Adaptive Exercise Plan Syllabus.docx

G. Adaptive Exercise Plan Presentation.pptx

All appendices are peer reviewed as integral parts of the Original Publication.

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Disclosures

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Prior Presentations

Haugland M, Marquis-Eydman T, Hartmann K. Curriculum to improve health professional students' communication skills with people with intellectual and/or developmental disabilities. Poster presented virtually at: One Voice for Inclusive Health Conference, American Academy of Developmental Medicine and Dentistry; June 2021.

Haugland M, Marquis-Eydman T, Hartmann K. Curriculum to improve health professional students' communication skills with people with intellectual and/or developmental disabilities. Poster presented virtually at: Thomas Jefferson University Interprofessional Care for the 21st Century Conference; April 2021.

Haugland M, Marquis-Eydman T, Hartmann K. An interprofessional approach to incorporate disability into medical education. Poster presented at: Frank H. Netter MD School of Medicine Summer Research Conference; October 2020; North Haven, CT.

Ethical Approval

The Quinnipiac University Human Experimentation Committee/Institutional Review Board deemed further review of this project not necessary.

Disclaimer

The views expressed in this article are the views of the authors and not an official position of the institution or funder.

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