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Are Medical Students Adequately Trained to Care for Persons With Disabilities?

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Abstract

Background and Objectives: Insufficient provider training contributes to health care disparities for 61 million Americans with disabilities.[2,4] This study examines medical students' perceptions of their disability training and the perceived effect training has on students' preparedness to care for people with disabilities (PWD) in future practice.

Methods: Principles of the *Core Competencies on Disability for Health Care Education*[5] generated 10 questions. The questions were included in a survey conducted by the Council of Academic Family Medicine Educational Research Alliance (CERA) and sent to medical student members of the American Academy of Family Physicians (AAFP). We compared responses using unadjusted χ^2 tests.

Results: One hundred forty-seven surveys were returned, with 126 used for this analysis; 36% of students reported that their medical training provided them with the knowledge necessary to provide high-quality, comprehensive health care for PWD in their future practice and 97.6% agreed or strongly agreed that they needed to learn more. Six of the curricular exposures demonstrating variations of the health care needs of PWD were associated with higher percentages of medical students agreeing they are trained to perform high-quality health care for PWD in future practice.

Conclusion: Medical students continue to report deficiencies in training, knowledge, and preparedness to care for PWD. Based on the *Core Competencies* framework, we have identified six curricular exposures that increase readiness to care for PWD. Therefore, we recommend the Liaison Committee on Medical Education formally integrate requirements for disability training in the standards of accreditation.[7]

Introduction

The 1990 Americans With Disabilities Act requires health care entities to provide equal access to care for those with disabilities.[1] But 30 years later, only 40.7% of practicing physicians feel confident in doing so.[2] Section 5307 of the Patient Protection and Affordable Care Act acknowledges the necessity but does not mandate curricula teaching health care professionals aptitude in caring for people with disabilities (PWD).[3] Insufficient disability training for providers is a recognized gap contributing to health care disparities for 61 million Americans.[2,4] To address this deficiency, in 2019, the Alliance for Disability in Health Care Education developed a set of *Core Competencies on Disability for Health Care Education* for all practitioners.[5]

Our study examines medical students' perceptions of their disability training and the perceived effect training has on students' preparedness to care for PWD in future practice.

Methods

The *Core Competencies*[5] generated 10 survey questions assessing whether current disability training in medical school meets the established standard (Table 3). We included the questions in an omnibus survey conducted by the Council of Academic Family Medicine Educational Research Alliance (CERA). The methodology of CERA surveys has previously been described.[6] The survey population was a convenience sample of medical student members of the American Academy of Family Physicians (AAFP). The AAFP Institutional Review Board approved the study in October 2020. The AAFP delivered the survey via email, sending follow-up emails to encourage participation 11 and 18 days after the initial invitation. CERA collected data from November 3, 2020 through November 30, 2020.

Two survey questions used yes/no dichotomous answers, and eight of the 10 questions used a 4-point Likert scale. We collapsed Likert-scale answers to agree vs disagree for bivariate analyses. We used unadjusted χ^2 tests to compare responses and Stata 15.0 (StataCorp, LLP) with a two-sided α value of 0.05 for all analyses.

Results

One hundred forty-seven students responded to the survey, with 126 (85%) answering the disability-related questions, making them eligible for inclusion in the analysis. Most respondents were under 30 years of age, White, female, single, in the last 2 years of medical school, receiving an MD degree, and without a self-disclosed disability (Table 1). The minority of students felt that their medical school training provided the necessary knowledge to provide high-quality, comprehensive health care for PWD (36% vs 64%, *P*<.001, Table 2), and the majority agreed that they need to learn more (97.8% vs 2.4%, *P*<.001, Table 2).

Four curricular elements were absent from most students' disability education (Table 2). Students reported no simulation training with a PWD (*P*<.001), reported not learning how to make accommodations to complete a physical exam, including the sensitive parts, for PWD (*P*<.001); reported not learning about resources available for PWD to increase physical activity (*P*<.001); and reported not having exposure to a faculty member with a disability (*P*<.001).

Notably, offering students the above curricular experiences leads to positive results. Including PWD in simulated patient encounters (Figure 2) is associated with greater skills in making accommodations during physical exams (*P*=.005) and greater confidence in preparedness for the future care of PWD (*P*<.001). The students who reported other forms of interactive learning opportunities with PWD were more likely to report that their medical training prepared them to provide high-quality care for PWD in future practice than those without such opportunities (*P*=.001) and were more likely to be aware of community resources (*P*=.010), as well as resources for patients with physical disabilities who want or need more activity (*P*<.001).

The 36% of students who agreed that their medical school training provided them with the knowledge necessary to provide comprehensive health care for PWD experienced six different educational exposures during medical school that they shared (Figure 1).The common exposures include (1) "learned cultural competency," including person-centered communication skills for PWD (*P*<.001); (2) "interactive learning with PWD" through family/home visits or small group sessions (*P*<.001); (3) "practice encounters with PWD through patient simulations" (*P*<0.001); (4) learning about "the impact of social determinants of health on PWD" (*P*<.001); (5) learning about "resources for PWD for physical activity" (*P*<.001); and finally (6) learning about "community resources to support PWD," such as social services or caregiver support (*P*<.001). Importantly, all

six of the curricular exposures demonstrating variations of the health care needs of PWD were associated with higher percentages of medical students agreeing they are trained to perform high-quality health care for PWD in practice.

Discussion

Medical students continue to report deficiencies in training, knowledge, and preparedness to care for PWD. Based on the *Core Competencies* framework, we have identified six curricular exposures that increase readiness to care for PWD. All six of these curricular exposures can be taught via interactive learning opportunities by including people with disabilities and/or their caregivers/families. Future hypotheses about whether interactive learning opportunities are the best way to integrate the above-mentioned six educational exposures, or one of many to be named, must be studied.

Strengths of the study include alignment with the *Core Competencies*[5] and illustrate a reflection of current training practices. Limitations include the use of a convenience sample of medical students interested in family medicine. As such, the results are not generalizable to a greater population and may not be reproducible in a future survey. However, the results support other prior studies and indicate a need for more specific disability training in medical school.[2,4] Our results do not illustrate what type of learning experience is most effective in teaching the *Core Competencies.*[5] Medical students' perceptions of preparedness to care for PWD do not necessarily correlate with improved patient outcomes, and future research is needed in this area as well.

Previous research suggests the most effective approach to disability competence recognizes disability as an aspect of population diversity akin to race or ethnicity.[2,4] We suggest using the *Core Competencies* as a guide to include formal discussions of health equity, patient-centered care, social determinants of health, intersectionality, and cultural competence around PWD in all medical school curricula, and recommend the Liaison Committee on Medical Education formally integrate requirements for disability training in the standards of accreditation.[7]

Tables and Figures

Table 1: Demographic Data of Analytic Sample, N=126

Demographic	Value
Age in Years, n (%)	
22-26	54 (44.6)
27-30	49 (40.5)
31-40	13 (10.7)
41+	5 (4.1)
Missing	5
Age Entering Medical School, Mean (SD)	**25.3 (4.3)**
Race, n (%)	
NH White	65 (51.6)
NH Black	12 (9.5)
Asian	11 (8.7)
Hispanic	12 (9.5)
Other (includes multiracial)*	24 (19.1_
Unknown	2
Gender, n (%)	
Male	42 (34.7)
Female	79 (62.7)
Declined/unknown	5
Marital Status, n (%)	
Single	82 (65.1)
Married	43 (34.1)
Unknown	1 (0.8)
Population Size of Community in High School, n (%)	
<30,000	28 (22.2)
30,000-74,999	25 (29.8)
75,000-149,999	23 (18.3)
150,000-499,999	17 (13.5)
500,000-1 million	15 (11.9)
>1 million	17 (13.5)
Unknown	1 (0.8)
How did you pay for undergraduate education? n (%)**	
Scholarship	93 (73.8)
Federal student loan	57 (45.2)
Private student loan	14 (11.1)
Grant	36 (28.6)
Self-financed	45 (35.7)
Family contribution	79 (62.7)
Other	5 (4.0)

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Table 1: Continued

Demographic	Value
Current Medical School Year, n (%)	
MS1	1 (0.8)
MS2	11 (8.7)
MS3	40 (31.8)
MS4	73 (57.9)
Class Size, Mean (SD)	**154.2 (65.8)**
School Location (Region), n (%)	
West	24 (19.5)
Midwest	37 (30.1)
South	39 (31.7)
Northeast	23 (18.7)
Degree, n (%)**	
MD	107 (84.9)
DO	19 (15.1)
PhD	0 (0.0)
MPH	5 (4.0)
MBA	1 (0.8)
Do you have a disability? n (%)	
No	110 (87.3)
Yes	10 (7.9)
Prefer not to answer	6 (4.8)

*Other race includes selections of Middle Eastern, Native Hawaiian/PI, South Asian/Indian American, and Other.
**Percents do not add up to 100 as respondents could choose multiple responses.

Table 2: Responses to Disability Survey Questions

Survey Questions and Response Options	n	%	*P* Value
My medical school training has provided me with the knowledge necessary to provide high-quality, comprehensive health care for people with disabilities in my future practice.	125	100	
Strongly disagree/disagree	80	64	<.001
Agree/strongly agree	45	36	
In standardized patient simulations, I have had practice encounters with an individual with a disability.	125	100	
None	83	66.4	<.001
Yes, physical disability	12	9.6	
Yes, cognitive disability	3	2.4	
Yes, other forms of disability (eg, sensory, behavioral)	8	6.4	
Yes, multiple forms of disabilities	19	15.2	
In medical school, I learned how to make accommodations to complete a physical exam appropriately, including sensitive exams (eg, Pap smear, pelvic exam, rectal exam) for people with disabilities).	126	100	
Strongly disagree/disagree	87	69	<.001
Agree/strongly agree	39	31	
In medical school, I learned about resources available for people with physical disabilities who want or need more physical activity.	126	100	
Strongly disagree/disagree	81	64.3	<.001
Agree/strongly agree	45	35.7	
During medical school, I learned from a faculty member with a disability.	126	100	
No	97	77	<.001
Yes	29	23	
In medical school, I learned about cultural competency, including person-centered communication skills for persons with disabilities and, when appropriate, their caregivers.	126	100	
Strongly disagree/disagree	44	34.9	<.001
Agree/strongly agree	82	65.1	
In medical school, the curriculum included information about how social determinants of health (eg, access to health care, discrimination, employment, education, transportation, housing, poverty) directly impact people with disabilities.	126	100	
Strongly disagree/disagree	34	27	<.001
Agree/strongly agree	92	73	
I need to learn more about how to provide high-quality, comprehensive health care for people with disabilities in my future practice.	125	100	
No	3	2.4	<.001
Yes	122	97.6	
In medical school, I learned about other community resources to support people with disabilities (ie, social services, financial resources, home care support, caregiver support).	126	100	
Strongly disagree/disagree	65	51.5	NS
Agree/strongly agree	61	48.5	
In medical school, the curriculum included interactive learning with people with disabilities (ie, volunteer opportunities, family/home visits, small group sessions).	126	100	
Strongly disagree/disagree	64	51.2	NS
Agree/strongly agree	61	48.8	

Blue highlights are curricular items.
Green highlights are perceptions.

Table 3: Association Between Survey Questions and Core Competencies

CERA Survey Question	Core Competency (CC)
1) In standardized patient simulations, I have had practice encounters with an individual with a disability (Yes, physical disability, yes, cognitive disability, yes other forms of disability such as sensory or behavioral, yes, multiple forms of disability, or none)	CC 1.1 Discuss the diversity and range of disabilities in terms of disability types (eg, mobility, sensory, cognitive, and behavioral). CC: 2.3 Demonstrate communication strategies to best meet the needs/abilities of the patient. CC 4.4 Demonstrate skills in teamwork including flexibility, adaptability, open communication, assertiveness, conflict management, referral, use of evidence-based practice to support decision-making, and mutual goal setting with patients with disabilities and other team members. CC 5.3 Integrate information on the functional status of people with disabilities, including both functional strengths and limitations, in clinical decision-making. CC 5.6 Recognize that people with disabilities experience the same common health conditions as people without disabilities and that a disability may impact the presenting signs and symptoms. CC 5.7 Identify health issues that are often associated with primary disability diagnoses (eg, congenital heart defect, urinary tract infections in patients with spinal cord injuries, etc). CC 5.10 Recognize that mental health conditions can be the primary disabling condition. People with disabilities are also at increased risk for co-occurring mental health conditions. Recognize the risk of misdiagnosing mental health concerns in patients with disabilities.
2) In medical school, I learned how to make accommodations to complete a physical exam appropriately, including sensitive exams (eg, Pap test, pelvic exam, rectal exam) for people with disabilities.	CC 2.9 Understand that people with disabilities may consider their devices and equipment to be an extension of their person. Consult patients before interacting with such equipment (eg, wheelchair, assistive communication device, crutches, service animal, etc). CC 3.2 Identify the physical access requirements (eg, accessible exam table, mammography equipment, etc) of the ADA, Rehabilitation Act, and related laws and policies that apply to health and the provision of health care. CC 3.6 Ensure that healthcare providers and support staff members are trained to provide services that meet the needs of the patient with a disability (eg, knowing how to appropriately transfer a patient with a mobility limitation to an exam table). CC 5.5 Apply strategies or supports that could be used in a healthcare setting to accommodate patients with functional limitations (mobility, sensory, cognitive, behavioral) associated with disabilities. CC 5.9 When applicable to the scope of practice of the learner's profession, demonstrate skill in performing a history and physical exam (PE), modifying it as needed to provide equally effective care while accommodating for mobility, sensory, cognitive, and/or behavioral issues. CC 6.3 Recognize that people with disabilities need access to age-appropriate preventative screenings, assessments, and health education including reproductive health, family planning, and sexuality.

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Table 3: Continued

CERA Survey Question	Core Competency (CC)
3) In medical school, I learned about cultural competency, including person-centered communication skills for persons with disabilities and, when appropriate, their caregivers.	CC 1.6 Describe disability as an aspect of diversity/cultural identity and contrast this with historical views of disability as merely a negative health outcome. CC: 2.3: Demonstrate communication strategies to best meet the needs/abilities of the patient. CC: 2.6 Recognize that some patients with disabilities may benefit from supported decision-making. Demonstrate skill in engaging the patient and caregivers in the supported decision-making process. CC 2.7 People with disabilities have many cultural identities including race, ethnicity, primary language, sexual orientation, gender identity, geographic residence (urban versus rural), and values and beliefs about health, well-being, and function. Describe health care practices that demonstrate sensitivity and respect for diverse cultural backgrounds. 3.3 Plan for accessible communication in all aspects of the healthcare encounter including scheduling, intake, responding to and asking questions, and follow-up care. Avoid technical jargon. 3.4 Provide documents in alternate formats to be accessible for patients with disabilities (eg, large print, Braille, audio versioning, accessible color text). CC 3.8 Recognize issues related to legal guardianship (eg, consent to treatment, HIPAA, privacy) in the health care system. CC 4.5 List systems of community-based services and supports that may be useful for patients with disabilities outside of the clinical care system. Be prepared to consider cultural factors and interact with these systems and make relevant referrals to ensure comprehensive care coordination, particularly during times of transition. CC 5.1 Understand that the patient with disabilities should be the primary source of information regarding their care. CC 5.2 Discuss situations where the caregiver(s) can be helpful to inform or enhance assessments and interventions and the importance of securing patient permission before engaging caregivers. CC 5.4 The capacity to respond competently to a patient's language, race, ethnicity, sexual orientation, gender, gender identity and expression, health literacy, and other cultural factors is essential to clinical assessment. Demonstrate awareness of the impact of intersecting marginalized social identities, such as race, ethnicity, and disability, in the context of healthcare. 5.12 Recognize that children and adults with disabilities are vulnerable to abuse. The nature of abuse may be verbal, financial, physical, and/or sexual. Abuse often goes unreported because the person with a disability may depend on the abuser for activities of daily living or social support. CC 6.4 Tailor recommended supports and interventions to the patient's cultural beliefs and values, time, resources, and preferences. Be prepared to propose constructive solutions to possible conflicts between patient, caregivers, and other professionals about goals and treatments.
4) In medical school, I learned about resources available for people with physical disabilities who want or need more physical activity. 5) In medical school, I learned about other community resources to support people with disabilities (eg, social services, financial resources, home care support, caregiver support).	CC 4.5 List systems of community-based services and supports that may be useful for patients with disabilities outside of the clinical care system. Be prepared to consider cultural factors and interact with these systems and make relevant referrals to ensure comprehensive care coordination, particularly during times of transition. CC 5.5 Apply strategies or supports that could be used in a healthcare setting to accommodate patients with functional limitations (mobility, sensory, cognitive, behavioral) associated with disabilities. CC 6.5 Demonstrate skill in identifying, coordinating, referring and advocating for access to community and health care resources needed to support treatment plan objectives. CC 6.7 Recognize the role of interprofessional health care providers in encouraging healthy behaviors (eg, weight management, exercise, diet, smoking cessation, etc.) to promote the health and function of patients with disabilities.

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Table 3: Continued

CERA Survey Question	Core Competency (CC)
3) In medical school, I learned about cultural competency, including person-centered communication skills for persons with disabilities and, when appropriate, their caregivers.	CC 1.6 Describe disability as an aspect of diversity/cultural identity and contrast this with historical views of disability as merely a negative health outcome. CC: 2.3: Demonstrate communication strategies to best meet the needs/abilities of the patient. CC: 2.6 Recognize that some patients with disabilities may benefit from supported decision-making. Demonstrate skill in engaging the patient and caregivers in the supported decision-making process. CC 2.7 People with disabilities have many cultural identities including race, ethnicity, primary language, sexual orientation, gender identity, geographic residence (urban versus rural), and values and beliefs about health, well-being, and function. Describe health care practices that demonstrate sensitivity and respect for diverse cultural backgrounds. 3.3 Plan for accessible communication in all aspects of the healthcare encounter including scheduling, intake, responding to and asking questions, and follow-up care. Avoid technical jargon. 3.4 Provide documents in alternate formats to be accessible for patients with disabilities (eg, large print, Braille, audio versioning, accessible color text). CC 3.8 Recognize issues related to legal guardianship (eg, consent to treatment, HIPAA, privacy) in the health care system. CC 4.5 List systems of community-based services and supports that may be useful for patients with disabilities outside of the clinical care system. Be prepared to consider cultural factors and interact with these systems and make relevant referrals to ensure comprehensive care coordination, particularly during times of transition. CC 5.1 Understand that the patient with disabilities should be the primary source of information regarding their care. CC 5.2 Discuss situations where the caregiver(s) can be helpful to inform or enhance assessments and interventions and the importance of securing patient permission before engaging caregivers. CC 5.4 The capacity to respond competently to a patient's language, race, ethnicity, sexual orientation, gender, gender identity and expression, health literacy, and other cultural factors is essential to clinical assessment. Demonstrate awareness of the impact of intersecting marginalized social identities, such as race, ethnicity, and disability, in the context of healthcare. 5.12 Recognize that children and adults with disabilities are vulnerable to abuse. The nature of abuse may be verbal, financial, physical, and/or sexual. Abuse often goes unreported because the person with a disability may depend on the abuser for activities of daily living or social support. CC 6.4 Tailor recommended supports and interventions to the patient's cultural beliefs and values, time, resources, and preferences. Be prepared to propose constructive solutions to possible conflicts between patient, caregivers, and other professionals about goals and treatments.
4) In medical school, I learned about resources available for people with physical disabilities who want or need more physical activity. 5) In medical school, I learned about other community resources to support people with disabilities (eg, social services, financial resources, home care support, caregiver support).	CC 4.5 List systems of community-based services and supports that may be useful for patients with disabilities outside of the clinical care system. Be prepared to consider cultural factors and interact with these systems and make relevant referrals to ensure comprehensive care coordination, particularly during times of transition. CC 5.5 Apply strategies or supports that could be used in a healthcare setting to accommodate patients with functional limitations (mobility, sensory, cognitive, behavioral) associated with disabilities. CC 6.5 Demonstrate skill in identifying, coordinating, referring and advocating for access to community and health care resources needed to support treatment plan objectives. CC 6.7 Recognize the role of interprofessional health care providers in encouraging healthy behaviors (eg, weight management, exercise, diet, smoking cessation, etc.) to promote the health and function of patients with disabilities.

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Table 3: Continued

CERA Survey Question	Core Competency (CC)
8) My medical school training has provided me with the knowledge necessary to provide high-quality, comprehensive health care for people with disabilities in my future practice.	CC 3.7 Providers recognize their own need for further training and/or skill development in caring for patients with disabilities and take action to address those needs based on current best practices.
9) I need to learn more about how to provide high-quality, comprehensive health care for people with disabilities in my future practice.	CC 3.7 Providers recognize their own need for further training and/or skill development in caring for patients with disabilities and take action to address those needs based on current best practices. CC 6.6 Identify policy, practice, and systems changes essential to providing optimal health supports and services for people with disabilities.
10) During medical school, I learned from a faculty member with a disability.	CC 2.1 Explore and mitigate one's own implicit biases and avoid making assumptions about a person's abilities or lack of abilities and lifestyle. CC 2.2 Treat all patients, regardless of disability and functional status, with respect and humility. CC 2.7 People with disabilities have many cultural identities including race, ethnicity, primary language, sexual orientation, gender identity, geographic residence (urban versus rural), and values and beliefs about health, well-being, and function. Describe healthcare practices that demonstrate sensitivity and respect for diverse cultural backgrounds. CC 2.9 Understand that people with disabilities may consider their devices and equipment to be an extension of their person. Consult patients before interacting with such equipment (eg, wheelchair, assistive communication device, crutches, service animal, etc). CC 5.1 Understand that the patient with disabilities should be the primary source of information regarding their care.

Core Competencies on Disability for Health Care Education, developed by the Alliance for Disability in Health Care Education[5]
Competency 1: Contextual and Conceptual Frameworks on Disability
Competency 2: Professionalism and Patient-Centered Care
Competency 3: Legal Obligations and Responsibilities for Caring for Patients With Disabilities
Competency 4: Teams and Systems-Based Practice
Competency 5: Clinical Assessment
Competency 6: Clinical Care Over the Lifespan and During Transitions
CC=subcategories of each core competency.

Figure 1: Percentage of Students Who Agreed Medical Training Prepared Them to Deliver High-Quality Health Care for People With Disabilities

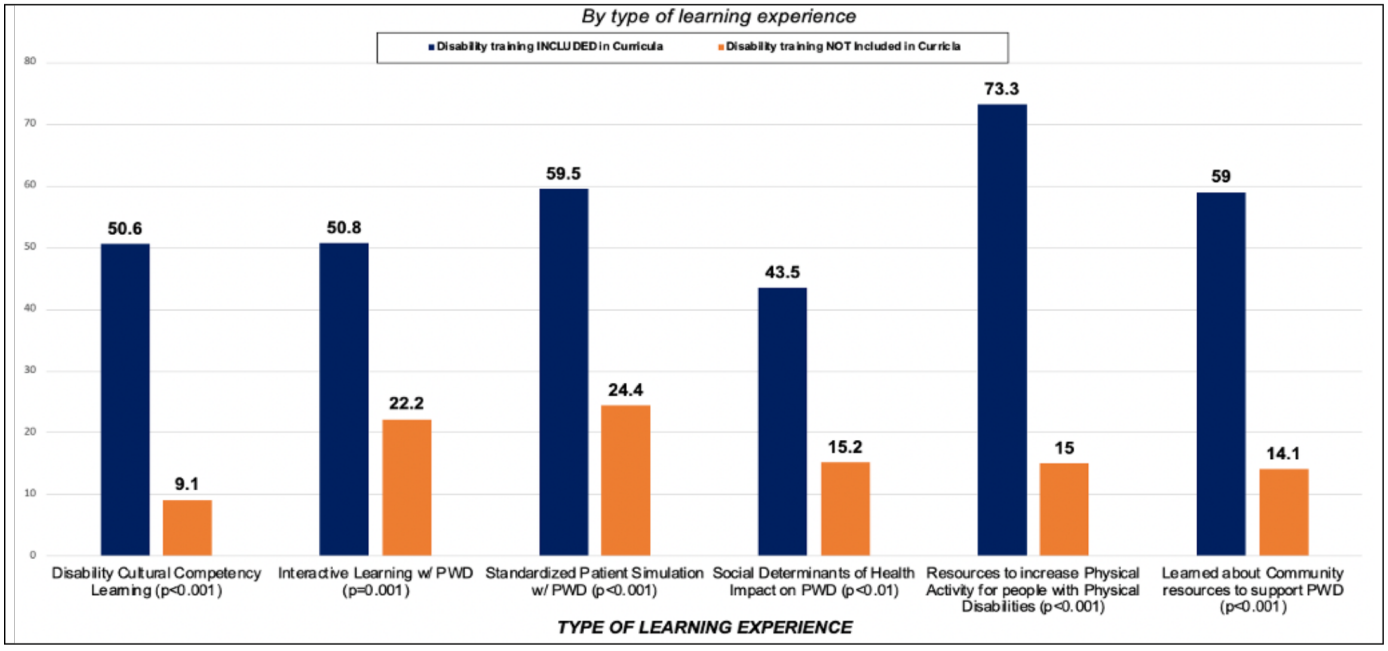
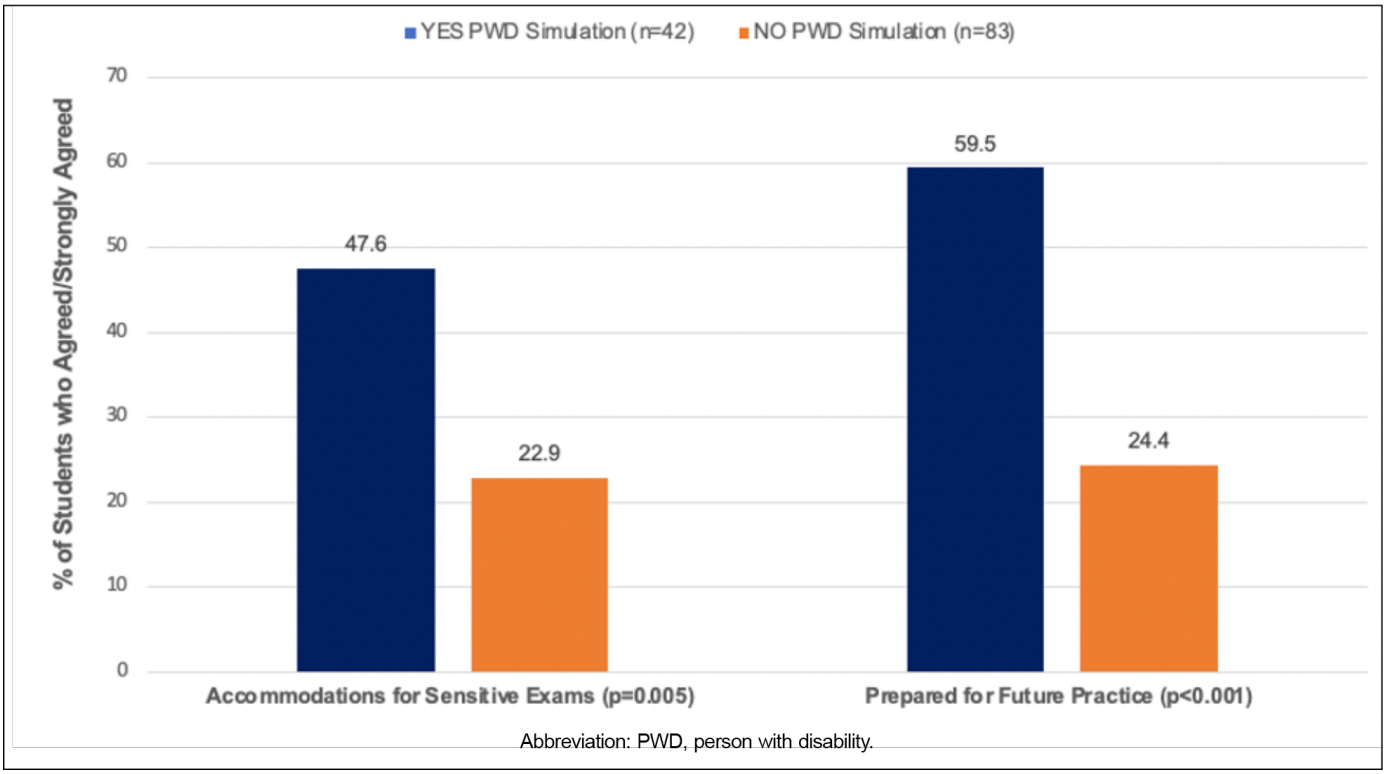


Figure 2: Outcomes of Having Standardized Person With Disability in Simulation Training Within Medical School



Abbreviation: PWD, person with disability.

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- Poster presentation, 2021 Society of Teachers of Family Medicine Annual Spring Conference, May 2021 (virtual).
- Poster presentation, 43rd Annual Michigan Family Medicine Research Day, May 27, 2021 (virtual).
- Poster presentation, NAPCRG 49th Annual Conference, November 19, 2021 (virtual), and abstract published in *Annals of Family Medicine*.

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