

Research

The Impact of Occupational Therapy Education
on Students' Disability Attitudes: A Longitudinal
Study



OT EDUCATION AND DISABILITY ATTITUDES

The Impact of Occupational Therapy Education on Students' Disability Attitudes: A Longitudinal Study

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Abstract

Importance: Discrimination based on disability – ableism – is pervasive and impacts the opportunities of people with disability to fully engage in society.

Objective: The aim of this study was to explore the impact of occupational therapy graduate education on students' explicit and implicit disability attitudes throughout their graduate education.

Design and Measures: Participants completed the Symbolic Ableism Scale (explicit disability attitudes), and Disability Attitude Implicit Association Test (implicit disability attitudes) on an annual basis, starting from when they entered their OT program, to when they graduated.

Setting: Three midwestern graduate occupational therapy programs.

Participants: Occupational therapy students ($n = 67$).

Results: The students' explicit attitudes decreased – became more favorable – throughout their education; however, their implicit attitudes did not change. In fact, the majority of students (68%) were implicitly ableist at graduation.

Conclusion: OT education programs have an important role to play in terms of intervening those beliefs and students' preconceived assumptions about disability. Our finding suggests that occupational therapy programs may not only fail to intervene with students' ableist attitudes.

What This Article Adds: There is little longitudinal research examining how students' implicit disability bias may be impacted by their academic experience. Our findings about ableism of occupational therapy students should open the door for further dialogue on the existence of ableism in program content, its potential impact on future client interactions, and development of approaches to address it.

Keywords: attitude; attitude of health personnel; curriculum; education; education, graduate; longitudinal studies; quantitative research; students

Occupational therapy (OT) is defined in its United States (US) practice framework as “the therapeutic use of everyday life occupations with persons, groups, or populations (i.e., the client) for the purpose of enhancing or enabling participation” (American Occupational Therapy Association (AOTA), 2020b, p. 1). OT often works with biomedical and rehabilitative models (Cole & Tufano, 2008) to address client factors stemming from impairments during person-level direct service delivery. These approaches see disability as located within the individual, requiring the therapist to fix or cure the person. However, over the last two decades OT has acknowledged critiques from the disability community of the negative impact of interventions driven by locating disability solely within the individual (Kielhofner, 2005; Phelan et al., 2014). Literature from Disability Studies, often seen as the academic arm of the disability rights movement, provides a counterpoint to the medicalized perspectives on disabilities emanating from the applied fields, such as rehabilitative medicine (Linton, 1998). OT practitioner’s commitment to client-centered practice, and increasing attention to the profession’s social justice roots (Frank, 2012) align well with concepts from the social model of disability, a prominent model within the field of Disability Studies. This model locates the creation of disability in the presence of social barriers that impact occupational participation and performance (Kielhofner, 2005; Magasi & Hammel, 2009).

Practitioners and educators are challenged to focus on optimizing individual capacity and independence while evaluating the “larger world in which the person lives” (Magasi, 2008b, p. 613) that may demand embracing social interdependence as a valued outcome of clinical intervention (AOTA, 2020b). This exposes the dualistic influences of the medical and social approaches to disability within OT. While this reflects the foundation that has been laid since the beginning of the century and the need for continued growth, the strongly embedded medical

approaches also drive reimbursement in hospitals and clinical settings where a majority of OTs work (AOTA, 2015; Howard, 1991). As a result, discourses that permeate much of the classic OT literature and found in curriculum syllabi perpetuate the more medical model view of disability (Phelan et al., 2014).

Disability Attitudes and Occupational Therapy Education

OT curricula can influence attitudes and behaviors that inform how students think about disability, interactions with clients, and the focus of the interventions. People's attitudes operate on two different levels, explicit and implicit (Amodio & Mendoza, 2011). Explicit attitudes are conscious attitudes, while implicit attitudes are unconscious attitudes. Explicit measures do not capture all attitudes because people may be unaware that they hold biased attitudes, or they may feel pressure to conceal their biases because of social desirability (Amodio & Mendoza, 2011). In contrast, implicit attitudes can be useful in order to examine learned associations, and internalization of society's prejudice (Amodio & Mendoza, 2011). Because of the differences in how they operate as well as because of response bias (whether intentional or not), it is common for people's explicit and implicit attitudes to not align.

Despite the differences between explicit and implicit biases, most research about OT students' disability attitudes has focused exclusively on explicit attitudes. In fact, there is a dearth of research on OT and other allied health professional and implicit bias measures across disenfranchised groups. The research on explicit bias that does exist has also often resulted in conflicting findings. For example, Sullivan and Mendonca (2017) found Level 2 fieldwork, compared to two-years of coursework, significantly improved students explicit attitudes toward people with intellectual disability. Meanwhile, Penny et al. (2001) found coursework lowered OT students' explicit bias toward people with mental illness, however, following a Level 1

fieldwork, students' negative attitudes toward mental illness significantly increased. Lee et al. (1994) found participation in professional education across years in a curriculum had a positive impact on reducing students' biased disability attitudes that were maintained during fieldwork experience. In a systematic review of the literature on attitudes of healthcare students – including OT – toward people with disabilities (PWD), student attitudes became more favorable from year 1 to year 4 of professional education (Satchidanand et al., 2012). Lee et al. (1994), Tervo et al. (2004), White and Olson (1998), and Satchidanand et al. (2012) found OT students' explicit biases were lower than those in other professional programs, but Lyons (1991) found OT students' explicit biases did not significantly differ from business students' disability attitudes. Taken together, the findings from these studies offer conflicting evidence on how professional education impacts explicit bias of students, and even less evidence regarding implicit bias.

Exploring OT education programs' influence on attitudes provides invaluable information to the profession during a paradigm shift from traditional deficit-based models to biopsychosocial models and strengths-based methods of interventions for clients and changes with educational standards (AOTA, 2018). There is a gap in the literature with little research exploring OT students' implicit disability bias. For this reason, the aim of this study was to explore the impact of OT graduate education on OT students' disability attitudes, specifically how OT students' disability attitudes change throughout their graduate education. We had two research questions: (1.) how do OT students' explicit disability attitudes change throughout their graduate OT education?; and, (2.) how do OT students' implicit disability attitudes change throughout their graduate OT education? To explore these research questions, we conducted a longitudinal analysis of OT students' ($n = 67$) disability attitudes just prior to beginning and throughout their OT graduate education. Answering these questions will help us to better

understand if, and how, OT curricula impact students' implicit bias as they move through their professional education.

Methods

Participants

Following approval by the Institutional Review Board, participants were recruited from three entry-level graduate OT programs in the Midwest. All three programs were accredited by the Accreditation Council for Occupational Therapy Education (AOTA, 2018) attending to core professional educational standards including Level 1 and 2 Fieldwork and credit requirements for the degree being attained. Program A was an OTD program (160 credits), Program B a MS (72 credits) and an OTD program (68 credits), and Program C an OTD program (110 credits).

Data collection occurred over four years: August 2017 – June 2020. Students volunteered to participate – it was a convenience sample. A total of 67 students participated in this study (Program A: 28 students; Program B: 23 students; Program C: 16 students). There was slight attrition over the years of the study; 67 students participated in the initial data collection (before they began their graduate program), 59 (88.06%) after the first year of their graduate program, 48 (71.64%) after the second year of their graduate program, and 53 (79.10%) at their graduation. The mean age of participants when they entered their graduate program was 24.79 and 27.34 upon graduation (Table 1). The majority of participants were White, straight, nondisabled, and women. Most participants had at least one significant relationship (e.g., family, partner, friends) with a PWD. Family socioeconomic status was relatively evenly distributed. The mean political orientation (self-report; measured on a sliding scale from very liberal (1) to very conservative (100)) entering was 31.57 years and 24.64 years upon graduation.

Measures

We used the Symbolic Ableism Scale (Friedman & Awsumb, 2019) to measure participants' explicit disability attitudes. The Symbolic Ableism Scale presents statements about disability on a Likert scale from strongly disagree to strongly agree. For example, one item is "discrimination against disabled people is no longer a problem in the US." The Symbolic Ableism Scale, which has been administered to a variety of populations, including undergraduate and graduate students, and professionals from health services and other fields, and siblings of PWD, is a valid and reliable tool (Friedman & Awsumb, 2019).

We used the Disability Attitudes Implicit Association Test (DA-IAT) to measure participants' implicit disability attitudes (Greenwald et al., 1998). The DA-IAT presents participants with 'disabled persons' and 'abled persons' categories and requires them to sort word and symbol stimuli in ways that congruent and incongruent with stereotypes (e.g., disability and good, and disability and bad). The DA-IAT examines differences in participants reaction times when items are congruent and incongruent stereotypes – the quicker the reaction time, the stronger the association. Participants' response latencies are measured throughout the rounds. IATs, including the DA-IAT, have been administered to millions of people from the general public; they have also been used to test the attitudes of healthcare professionals and under/graduate students from healthcare and other fields. Much literature has noted that the IAT is internally consistent, valid, and has high test-retest reliability (Greenwald & Nosek, 2001). In addition, studies have shown the DA-IAT in particular has construct validity, discriminant validity, and reliability (Aaberg, 2012; Thomas et al., 2013; White et al., 2006).

Procedure

Prior to beginning their OT programs, incoming students from all three programs were forwarded recruitment emails from the research team. (No data was shared with department

administrators.) The recruitment emails, which were approved by IRB, described the longitudinal study and directed those who wanted to volunteer to participate to access the study website (hosted by Inquisit 5 Web by Millisecond). Once they accessed the website, students completed the informed consent and eligibility criteria. Participants were then presented with instructions and then completed the DA-IAT, Symbolic Ableism Scale, and then demographic questions, including their email address so we could contact them about future years of the study and they could be provided with compensation (\$25 gift card/year). In the second through fourth years of the study, when their Spring semesters had finished, participants were emailed a new hyperlink and asked to again complete the DA-IAT, Symbolic Ableism Scale, and demographic questions.

Analysis

Raw data from the Inquisit 5 platform were imported into SPSS 27. To determine participants' scores on the Symbolic Ableism Scale, after applicable items were first reverse keyed, and then participants' answers to each item on the scale are recoded to a scale from zero to one. Next, participants' answers were aggregated to represent their explicit disability attitude. Scores of less than 0.24 indicate no explicit preference, 0.24 to 0.31 slight explicit preference for nondisabled people, 0.32 to 0.40 moderate explicit preference for nondisabled people, and 0.41 and higher strong explicit preference for nondisabled people (Friedman & Awsumb, 2019).

To calculate participants' scores on the DA-IAT, Greenwald et al.'s (2003) updated IAT scoring protocol was used; Inquisit 5 applied the protocol to convert participants' response latencies into an aggregate D score for each participant. Scores of -0.14 to 0.14 reveal no preference for nondisabled people (no implicit bias), scores of 0.15 to 0.34 a slight implicit preference for nondisabled people, 0.35 to 0.64 a moderate implicit preference for nondisabled

people, and 0.65 and higher a strong implicit preference for nondisabled people (Greenwald et al., 2003). Negative values of the same ranges reveal preferences for disabled people.

We analyzed descriptive statistics, and then explored our research questions. Our first research question was: how do OT students' explicit disability attitudes change throughout their graduate OT education? To explore this research question, we utilized a repeated-measures analyses of variance (ANOVA) to examine difference in explicit attitudes at four timepoints: (1). before they began their graduate program; (2). after they completed the first year of their graduate program; (3). after they completed the second year of their graduate program; and, (4). upon graduation from their OT program. Mauchly's Test of Sphericity, which tests the assumption that variances of differences are equal, indicated the assumption of sphericity was met. A post hoc analysis with Bonferroni correction ($p = 0.02$) was then conducted.

Our second research question was: how do OT students' implicit disability attitudes change throughout their graduate OT education? To explore this research question, we utilized a repeated-measures ANOVA to examine differences in implicit attitudes at the four timepoints mentioned above. Mauchly's Test of Sphericity indicated the assumption of sphericity was met.

Results

Across the years of the study, participants' explicit disability attitudes ranged from 0.05 (no explicit bias) to 0.58 (strongly explicitly favor nondisabled people). Participants' implicit disability attitudes across the years ranged from -0.91 (strongly implicitly favor PWD) to 1.39 (strong implicitly favor nondisabled people). Table 2 outlines the students' explicit and implicit attitudes at the four timepoints of their education.

Explicit Attitudes

A repeated-measures ANOVA was conducted to determine if there was a difference in OT students' explicit disability attitudes throughout their education. Mauchly's Test of Sphericity indicated that the assumption of sphericity was met, $\chi^2(5) = 3.24, p = 0.66$. The analysis determined there were statistically significant differences in the OT students' explicit attitudes at the four time points, $F(3, 108) = 7.27, p < 0.001, \eta_p^2 = 0.17$ (large effect). Post hoc analyses (Bonferroni correction ($p = 0.02$)) revealed a reduction in explicit disability attitudes from when students began their OT program (0.35 ± 0.08 (moderate explicit bias)) to when students graduated their OT program (0.29 ± 0.09 (slight explicit bias); $p < 0.001$; Table 3; Figure 1).

Implicit Attitudes

A repeated-measures ANOVA was conducted to determine if there was a difference in OT students' implicit disability attitudes throughout their education. Mauchly's Test of Sphericity indicated that the assumption of sphericity was met, $\chi^2(5) = 1.05, p = 0.96$. The analysis did not find statistically significant differences in the OT students' implicit attitudes at the four time points, $F(3, 108) = 0.90, p = 0.45, \eta_p^2 = 0.02$ (small effect; Table 3 and Figure 1).

Discussion

AOTA (2020a) recently acknowledged discrimination, stigma, and implicit biases can negatively impact provision of OT services. To reduce biases in therapists, it is necessary to assess how organizational policies and procedures might reinforce or reduce prejudices, including appraisal of OT educational programs impact on OT students' attitudes. In response to concerns regarding bias, OT education programs are being called upon by professional organizations to incorporate cultural competence and humility into educational curricula as a means to reduce bias and a means to develop empathetic, client-centered practitioners (Agner, 2020; Tyminski et al., 2019).

For this reason, and to better understand the attitudes of students the aim of this study was to explore OT students' explicit and implicit attitudes throughout their graduate OT education.

Our findings revealed OT students' explicit disability attitudes significantly decreased between entering their OT program, and their graduation, becoming more positive overall. As responses to explicit measures may be motivated by concerns with the consequences of being seen as prejudiced, the students' reduction in explicit attitudes may be a result of students becoming more aware of socially-political appropriate concepts during their educational program, or culturally competent on issues pertaining to disability (Suarez-Balcazar et al., 2009).

Despite OT students' explicit prejudice decreasing, the students' implicit disability attitudes did not significantly change throughout their education. In fact, 68% of students were implicitly biased at graduation, 40% of which were *strongly* implicitly prejudiced (across the students, the mean implicit score at graduation was 0.42). (For contrast, Nosek et al.'s (2007) study of 39,000 people from the general public found a mean DA-IAT score of 0.45 and VanPuymbrouck et al.'s (2020) study of 25,000 healthcare providers found a mean DA-IAT score of 0.54.) Our findings suggest OT programs may fail to intervene with students' ableist attitudes and may actually reinforce ableist attitudes. As a result of the prevalence of ableism in society (Friedman, 2019), OT students likely enter OT with preconceived attitudes that disability is negative similar to attitudes of larger society (Daruwalla & Darcy, 2005), and these concepts may be strengthened as a result of medical or impairment based models of intervention being entrenched in practice framework, educational standards, and reimbursement mechanisms (Gupta & Taff, 2015). Biased ideas about disability problematically impact clinical decision-making, and lead to reduced healthcare access for PWD (Harrington et al., 2009).

Although many of the OT students in our study had low levels of explicit prejudice, they are likely still participating in prejudice as a result of their implicit attitudes. While implicit prejudice often is more subtle, it can be just as harmful as overt forms, resulting in maintaining unjust social, political, and economic structures, and restricting the opportunities of PWD (Dovidio & Gaertner, 2008). Implicit attitudes may also result in biased people trivializing the experiences of, and discrimination that, PWD face (Keller & Galgay, 2010). The miss-match between OT students' explicit and implicit disability attitudes may be particularly challenging as they are likely to believe they feel positively about PWD and that they are not prejudiced, yet still participate in prejudiced thought and behavior without realizing it.

Implications for Occupational Therapy Education

OT education programs have an important role to play in terms of intervening to minimize prejudicial attitudes and assumptions about disability, and in the process address students' ableist thinking. OT education continues to attend to client factors such as body structures and body function – focus on impairment – as a target for intervention design (AOTA, 2020b), there is a growing recognition of the interactional role of environments to disability. Additionally, there is growing discourse that the unique value we contribute to interdisciplinary rehabilitation teams is a holistic approach to achieving meaningful engagement in client identified occupations (Cohn, 2019). In fact, there have been criticisms, including from within the profession, that OT students often enter practice with little understanding of how to develop interventions targeting the social barriers that prohibit PWD from participating in occupation (Fisher, 2018). In order to not only reduce OT students – future practitioners – ableism, but also to give them a richer and more accurate understanding of the lived experiences of PWD, OT education programs should work to better align with social and occupational justice (Aldrich et al., 2017). In particular, Disability

Studies concepts which reframe traditional OT understandings of disability and impairment, particularly in relation to social-political environmental barriers, interdependence, and lived-experience, have been increasingly incorporated in OT literature, research, and education (Magasi, 2008a; McCormack & Collins, 2010). As such, implications of our findings include:

- To reduce bias, key concepts that support disability as a social construction (Oliver, 2013) should be introduced early and reinforced throughout students' education.
- As there is evidence specific holistic OT models of practice have a mediating impact on students' biases (e.g., individualizing disability was associated with higher implicit ableism (VanPuymbrouck & Friedman, 2019); students who identified with the CMOP and MOHO frameworks had less anti-fat bias (Friedman & VanPuymbrouck, 2019)), these models should be embraced by education programs.
- The differences between explicit and implicit outcomes point to the need for future OT assessment of bias to include, if not exclusively use, implicit assessments.
- This study can be used to lay the groundwork for future OT research to explore other biases in order to inform the development of methods for mitigating bias in future clinicians.

Limitations

A number of limitations should be considered when interpreting our findings. Participants came from three different OT graduate programs in the Midwest and do not necessarily reflect OT education as a whole. Although they were compensated for their time, OT students volunteered to participate in this study; as such, there is a possibility of self-selection bias. In addition, there was a slight attrition throughout the years which may have impacted the findings.

Conclusion

Research indicates a lack of practitioner knowledge about working with PWD results in disparities in healthcare access and outcomes for PWD (Peacock et al., 2015). When we examined the explicit and implicit disability attitudes of OT students throughout their education, we found that while their explicit attitudes decreased – became more favorable – their implicit attitudes did not; in fact, the majority of students were implicitly ableist at graduation. These findings not only have problematic implications for practice and clinical decision-making, and emphasize the goals of our educational standards (AOTA, 2018) to produce empathetic non-biased clinicians may not be met as the majority of our clients are PWD.

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Table 1
Demographics of Sample

Characteristic	Entering OT program (<i>n</i> = 67)				Graduating OT program (<i>n</i> = 53)			
	%	<i>n</i>	<i>M</i>	<i>SD</i>	%	<i>n</i>	<i>M</i>	<i>SD</i>
Age			24.79	4.81			27.34	4.80
Disability								
No	97.01	65			92.45	49		
Yes	0.00	0			1.89	1		
Prefer not to say	2.99	2			5.66	3		
Family socioeconomic status								
Less than \$20,000	1.49	1			3.77	2		
\$20,000 to \$39,999	10.45	7			11.32	6		
\$40,000 to \$59,999	20.90	14			13.21	7		
\$60,000 to \$79,999	13.43	9			9.43	5		
\$80,000 to \$99,999	10.45	7			11.32	6		
\$100,000 to \$149,999	19.40	13			20.75	11		
\$150,000 or more	14.93	10			13.21	7		
Prefer not to say	8.96	6			16.98	9		
Gender								
Woman	89.55	60			90.57	48		
Man	10.45	7			9.43	5		
Political orientation (1: very liberal to 100: very conservative)			31.57	22.04			24.64	19.30
Race								
White	83.58	56			79.25	42		
Asian or Pacific Islander	7.46	5			7.55	4		
Latinx	4.48	3			5.66	3		
Black	2.99	2			3.77	2		
Middle Eastern	2.99	2			1.89	1		
Other	1.49	1			1.89	1		
Sexual orientation								
Straight	98.51	66			92.45	49		
Bisexual	0.00	0			3.77	2		
Gay	0.00	0			1.89	1		
Prefer not to say	1.49	1			1.89	1		
Significant relationship with person with disabilities								
Yes	52.24	35			62.26	33		
No	41.79	28			33.96	18		
Unsure	5.97	4			3.77	2		

Table 2

Descriptive Statistics

Attitudes	Begin OT program (<i>n</i> = 67)		After year 1 (<i>n</i> = 59)		After year 2 (<i>n</i> = 47)		Graduation (<i>n</i> = 53)	
	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>
Explicit attitudes								
No preference	14.93	10	25.42	15	19.15	9	49.06	26
Slightly prefer nondisabled people	20.90	14	25.42	15	31.91	15	30.19	16
Moderate prefer nondisabled people	41.79	28	35.59	21	36.17	17	33.96	18
Strong prefer nondisabled people	22.39	15	13.56	8	12.77	6	5.66	3
Implicit attitudes								
Strongly prefer people with disabilities	0	0	1.69	1	2.13	1	1.89	1
Moderately prefer people with disabilities	5.97	4	0	0	2.13	1	3.77	2
Slightly prefer people with disabilities	1.49	1	6.78	4	6.38	3	3.77	2
No preference	14.93	10	3.39	2	10.64	5	22.64	12
Slightly prefer nondisabled people	10.45	7	10.17	6	8.51	4	7.55	4
Moderate prefer nondisabled people	31.34	21	33.90	20	19.15	9	20.75	11
Strong prefer nondisabled people	35.82	24	44.07	26	51.06	24	39.62	21

Table 3

Repeated-Measures ANOVA: Post Hoc

Measure	<i>M</i>	<i>SD</i>	Mean difference		
			1	2	3
Explicit attitudes					
1. Begin OT program	0.35	0.08			
2. After year 1	0.33	0.09	0.02		
3. After year 2	0.33	0.10	0.03	0.003	
4. Graduation	0.29	0.09	0.07***	0.04	0.04
Implicit attitudes					
1. Begin OT program	0.52	0.40			
2. After year 1	0.54	0.43	-0.02		
3. After year 2	0.53	0.47	-0.01	0.01	
4. Graduation	0.42	0.52	0.10	0.11	0.10

* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

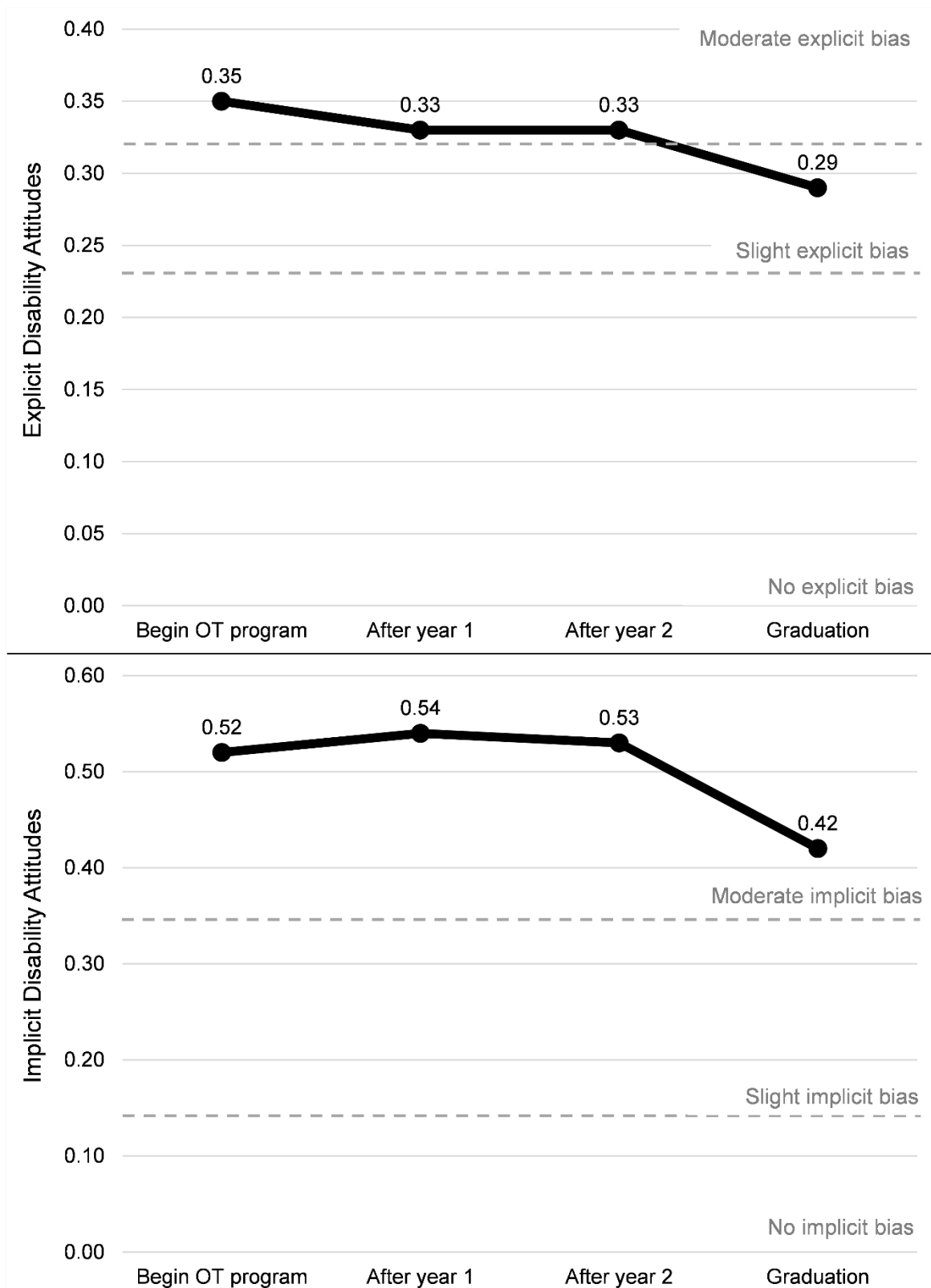


Figure 1. Occupational Therapy Students' Explicit and Implicit Disability Attitudes During Their OT Education.