

Research

Explicit and Implicit Disability Attitudes of
Occupational and Physical Therapy Assistants



OTA/PTA DISABILITY ATTITUDES

Explicit and Implicit Disability Attitudes of Occupational and Physical Therapy Assistants

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Abstract:**Background**

Reduction of explicit and implicit bias in healthcare providers is a critical issue faced by our society in moving toward more equitable and culturally appropriate health and rehabilitation care. Because resources for OT and PT services are limited and shortages in these professions exist, direct care provision by occupational and physical therapist assistants (OTA/PTA) is on the rise and valued in comprehensive rehabilitation practice. It is important to consider attitudes and biases of OTA/PTA, as they are directly involved in provision of rehabilitation services for people with disabilities.

Objective

This study examined the explicit and implicit disability attitudes of a large cross-section of OTA/PTA.

Methods

Secondary data analysis was completed using data from 6,113 OTA/PTA from the Project Implicit Disability Attitudes Implicit Association Test. Implicit attitudes were calculated and OTA/PTA explicit and implicit disability attitudes were compared. Results were further categorized using an adapted version of Son Hing et al.'s two-dimensional model of prejudice.

Results

Findings revealed the majority of OTA/PTA reported having no explicit preference for people with disabilities or nondisabled people. However, the majority of OTA/PTA were aversive ableists, indicating low explicit and high implicit bias.

Conclusions

Though explicit bias is lower in OTA/PTA, implicit bias is strong, indicating that people with disabilities face bias that may influence clinical interactions, and may be reproduced in professional education, practice, and policy. Concrete action must be taken to recognize and address disability bias to reduce health disparities in people with disabilities.

Keywords: occupational therapy, physical therapy, disability, explicit bias, implicit bias, health disparities

Disability is an ubiquitous human experience, with an estimated one in five people having a disability in the world today.¹ Yet, conceptualizations of disability vary greatly across individual, institutional, professional, and global contexts. Historically, within the medical and allied health professions, a medical model of disability has been predominant. Disability is perceived through a biological or physiological lens as an individual deficit, requiring medical cure or rehabilitation.² However, other perspectives include the social or relational models of disability, which situate disability as a complex social and political interaction between bodies, environments, and attitudes toward difference rather than strictly a medical issue, requiring social attention toward inclusion and access.^{3,4} Contemporary healthcare practice has shifted over the past decades, blending these models with the widely-adopted International Classification of Functioning, Health, and Disability (ICF), a framework that outlines both biological as well as psychosocial factors, such as relationships and environments, that contribute to an individual's participation.⁵

Across all these perspectives and theoretical framings of disability, people with disabilities (PWD) remain disenfranchised and experience marginalization and minority group status. The causes of this exclusion are deeply tied to ableism, which is defined as a set of assumptions that 'normal' body/minds are the ideal, and therefore promotes the differential or unequal treatment of people because of actual or presumed non-typical functioning (i.e. disability).² In other words, PWD face systemic exclusion and discrimination as a result of ableism- both an expectation and ultimate valuation of an able body/mind- that underpins most of society including policy, the built environment, healthcare, and the social practices and attitudes of others.²

Ableist attitudes are particularly concerning within healthcare environments. Literature describes significant health disparities for PWD due to a complex interaction of factors, such as a lack of accessible or affordable transportation, primary care services, recreation/exercise opportunities, and lifestyle factors which contribute to secondary conditions.^{6,7} When PWD *do* access healthcare, provider beliefs and attitudes that influence patient encounters, referrals for care, and clinical decision-making are often biased and further contribute to these disparities.^{8,9} Thus, through the lens of the ICF, provider beliefs and attitudes are a significant environmental factor that must be addressed to improve healthcare outcomes. These beliefs and attitudes about disability may be explicit (conscious), resulting in overt and intentional feelings and behaviors, or implicit (unconscious), resulting in automatic or unintentional feelings and behaviors, though both can affect patient-provider relationships.⁹

Explicit biases are often measured via self-report in surveys, questionnaires, or interviews, where implicit biases are often measured through the Implicit Association Test (IAT).¹⁰ As people may feel pressured to conceal their biases, or may be unaware they hold biased attitudes, there are concerns that explicit measures do not capture all attitudes.^{11,12} This may be especially true for topics where it is socially undesirable to have negative attitudes, such as against PWD.¹³ It is important to note that implicit bias tests like the IAT are not without controversy. For example, criticisms within social psychology have posited that IATs may not be able to discriminate between a respondent's general awareness level of bias or cultural stereotype versus true personal prejudice based on differences in response time, leading to a high rate of false positive bias reporting.¹⁴ Additionally, the predictive power of IATs related to explicit discriminatory behavior has been questioned.¹⁵ However, literature suggests that IATs continue to demonstrate relatively high validity and reliability as well as some predictive power compared

to the few alternative measures of implicit bias that exist, and continues to be characterized as an instrumental research tool to understand attitudes within appropriately contextualized socio-political environments.¹⁵⁻¹⁷ Further, past critiques of predictive power fail to acknowledge that explicit and implicit bias operate uniquely and may not relate to each other directly, which is why novel models for analyses, which we employ in this study, are important.¹⁸ Thus, the IAT remains both useful and widely used in characterizing implicit disability-related and other biases.^{19,20}

OT and PT Disability Attitudes

Recent work, including a systematic review, demonstrates that levels of implicit bias in health professions mirror implicit bias in the general population.^{21,22} Because PWD often interact with rehabilitation professionals, and the demand for rehabilitation services, such as occupational therapy (OT) and physical therapy (PT), is high, it is critical to examine attitudes toward disability among rehabilitation professionals. However, most literature focused specifically on OT and PT professions has examined explicit attitudes, with little attention drawn to implicit attitudes. For example, early studies describe favorable explicit attitudes toward PWD by occupational therapists, who specifically indicated that negative attitudes would adversely impact the therapeutic relationship with clients.²³ Further studies indicate that OT student explicit attitudes toward disability improved over their two-year professional education program, and were more positive than students in non-healthcare professions, yet explicit discomfort toward people with disabilities remained.^{24,25} Recent studies add examination of implicit attitudes to these findings, noting high levels of implicit bias toward PWD by entry-level OT students, as well as unchanging implicit attitudes throughout their professional education.^{26,27}

In the PT field, two early studies indicate that physical therapists have more favorable explicit attitudes toward PWD when compared to special education teachers or to the general population.^{28,29} PT students were reported to have more favorable explicit attitudes following an educational curriculum on disability, yet hold less positive explicit attitudes compared to the general population.^{30,31} An additional study found that PT students held less positive explicit beliefs about PWD and were less likely to seek outside volunteer or work experiences with the disability community than their OT counterparts.³² Favorable explicit attitudes coupled with feelings of fear or discomfort during professional activities and persistence of disability stereotypes were noted in studies involving PT students in their final year of education.^{33,34} More recently, two studies using explicit pre-post survey responses found PT students more comfortable and confident in working with PWD following 8-12 week partnered community experiences or integrated curricula focused on enhancing attitudes toward disability.^{35,36} Yet, another descriptive study found that PT student explicit attitudes are positive in general toward PWD, however, these attitudes did not change over three years of educational and clinical training.³⁷ There is a significant lack of literature describing implicit disability attitudes in PT professionals.

The majority of the studies above examine explicit biases. Knowledge of explicit bias, while important, fails to consider how implicit bias may interact with explicit bias, and how both may impact rehabilitation care provision. Moreover, people's explicit and implicit attitudes do not always align because explicit and implicit attitudes operate uniquely²². Because they are measured differently and can be independent of one another, any individual's combination of explicit and implicit bias can be organized using a two-dimensional model, resulting in four different prejudice categories that consider both explicit and implicit bias: 1) truly low

prejudiced; 2) symbolic ableist; 3) principled conservative; and 4) aversive ableist^{18,38}. As the name suggests, truly low prejudiced people are those who exhibit low explicit and implicit prejudice^{18,38}. Symbolic ableists demonstrate some empathy for PWD and recognize some discrimination, however, philosophically are likely to believe that disability results in ‘special treatment’ that is a burden to society.^{18,38} Symbolic ableists have high levels of implicit and explicit disability attitudes as a result. Principled conservatives will exhibit high explicit and low implicit bias toward PWD. Principled conservatives value abstract conservative ideas, such as individualism and small government, which causes them to dislike policies that stray from societal tradition or provide significant support to minoritized populations and discriminate equally against these groups.^{18,38} Aversive ableists are people who are progressive and well-meaning yet still participate in unconscious biased actions or thought¹⁸. Egalitarian values are important to aversive ableists’ self-image; they believe they are not prejudiced, yet they still feel discomfort around PWD and demonstrate automatic or unintentionally biased behaviors or attitudes. Aversive ableists have low explicit prejudice but high implicit prejudice toward PWD.

Purpose

Reduction of explicit and implicit bias, especially of healthcare providers in clinical and academic contexts, is a critical issue faced by our society in moving toward more equitable and culturally appropriate health and rehabilitation care. Because resources for OT and PT services are increasingly limited and shortages in these professions exist, direct care provision by occupational and physical therapist assistants (OTA/PTA) is on the rise and increasingly valued in comprehensive rehabilitation practice^{39,40}. It is important to consider attitudes and biases of therapists and therapist assistants, as they are directly involved in provision of rehabilitation

services. Yet, to the authors' knowledge, only one prior study includes OTA/PTA in an aggregate examination of ableist attitudes of healthcare providers.²²

For these reasons, the aim of this study was to explore the disability attitudes of OTA/PTA. This study's primary research aim was to quantify OTA/PTA's explicit and implicit attitudes towards PWD and categorize these attitudes using a two-dimensional model of prejudice style. To address this aim, we analyzed secondary disability attitudes implicit association test (DA-IAT) data from 6,113 OTA/PTA.

Methods

This study was a secondary data analysis of Disability Attitudes IAT (DA-IAT) data. In addition to analyzing explicit and implicit attitudes, a model of two-dimensional prejudice was applied to understand categorical combinations of these attitudes.¹⁸

Participants

Secondary data about disability attitudes were obtained from Project Implicit⁴¹, a database where people can test their implicit prejudices, including against PWD. Between 2004 and 2020, approximately 1.2 million people participated in the DA-IAT. Of those participants who identified their occupation and completed the DA-IAT, 6,113 were OTA/PTA, representing approximately 4.5% of these professional populations in the US (OTA 42,750 and PTA 94,250).^{42,43} Since these professions were categorized together in the original Project Implicit demographic dataset, results were also analyzed as one category for this study.

The majority of participants were women (84.8%) and white (78.9%). The mean age of participants was 27.4 years old ($SD = 9.2$). Only a small proportion of participants (10.0%) identified as PWD. Almost two-thirds of participants (61.6%) had a family member or friends

with disabilities. The majority of participants (44.7%) identified as liberal, with fewer identifying as neutral (29.0%) or conservative (26.3%). (See Table 1).

Measure

The DA-IAT is a computerized measure which presents participants with target-concept discriminations of ‘disabled persons’ and ‘abled persons’, and with attribute dimensions of ‘good’ and ‘bad,’ and asks them to sort word and symbol stimuli accordingly. Participants are responses are timed, and both timing and pairing of variables in the above categories are scored. The IAT also has built in safeguards against participants trying to fake results or select at random, with an updated scoring algorithm detecting and disregarding trials with response latencies of greater than 10,000 milliseconds or less than 300 milliseconds.¹⁰

Procedure

Participants were presented with the DA-IAT instructions. They were instructed to push the ‘E’ key if presented stimuli belonged in the categories on the left side of the computer screen and the ‘I’ key for the right. They were told to so as quickly as possible and with the least number of errors. Participants were given advance instructions as to which stimuli matched a given category, such as ‘disabled persons’ and the wheelchair symbol, and if participants placed stimuli on the incorrect side of the screen a red ‘X’ appeared until the matched pair was correct.

The DA-IAT presents participants with seven blocks (rounds) of categorization tasks. These include practice rounds of sorting target-concept discriminations (i.e. ‘abled persons’ and ‘disabled persons’), and attribute dimensions (i.e. ‘good’ and ‘bad’). Then, trial blocks are administered that include the target-concept discrimination together with the attribute dimensions, in a randomized presentation of stereotype consistent (i.e. ‘disabled persons’ and ‘bad’) or inconsistent (i.e. ‘disabled persons’ and ‘good’) items during testing. In addition to the

implicit categorization tasks and demographic survey, participants completed a measure of explicit disability attitudes rating their preference for people with or without disabilities on a 7-point Likert type scale, where a rating of 1 indicated a strong preference for PWD, 4 indicated no preference, and 7 indicated a strong preference for PWD.

Analyses

SPSS 27 was used for all analyses. Implicit attitudes on the DA-IAT were calculated using Greenwald et al.'s updated IAT scoring protocol.¹⁰ Using the 12 steps in the protocol, we produced *D* scores (mean differences divided by standard deviation) for each participant based on their response latencies in stereotype consistent and stereotype inconsistent blocks. Scores reported the strength of preference for PWD or nondisabled people. In general, they may range from -2.0 to 2.0. Scores of -.14 to .14 reveal no preference for PWD or nondisabled people, scores of .15 to .34 a slight preference for nondisabled people, .35 to .64 a moderate preference, and .65 or greater a strong preference.¹⁰ Negative values of the same ranges reveal preferences for PWD.

The research aim was examined using descriptive statistics of the explicit measure as well as the DA-IAT, and one-sample *t*-tests to examine the if OTA/PTA's explicit and implicit disability attitudes significantly differed from scores reflecting no prejudice. These results were further categorized using an adapted version of Son Hing et al.'s³⁸ two-dimensional model of prejudice, where explicit and implicit scores were calculated, then categorized as high and low and grouped into the four prejudice styles described earlier: 1) truly low prejudiced (low explicit and low implicit); 2) symbolic ableist (high explicit and high implicit); 3) principled conservatives (high explicit and low implicit); and 4) aversive ableists (low explicit and high implicit).¹⁸ Implicit scores were grouped based on the moderate prejudice level (.35) according

to IAT standards ($>.35$ =high; $<.35$ =low).¹⁰ The explicit score grouping was the moderate preference for nondisabled people on the explicit scale (>6 =high; <6 =low).

Results

The explicit scores of OTA/PTA ranged from 1 (strongly prefer PWD) to 7 (strongly prefer nondisabled people). OTA/PTA average explicit score was 4.29 ($SD = 0.80$). A one-sample t -test revealed this score was significantly different than the reference value of 4, which represents no preference for PWD or nondisabled people ($t(6009) = 28.08, p < .001$, Cohen's $d = 0.36$ (representing a small to medium effect size)). Findings revealed the majority of OTA/PTA (68.7%) reported having no explicit preference for PWD or nondisabled people, 26.4% reported preferring nondisabled people explicitly, and 4.9% reported preferring PWD explicitly (See Figure 1).

OTA/PTA average implicit score on the DA-IAT was 0.51 ($SD = 0.44$), which falls in the moderately prefer nondisabled people range. The DA-IAT scores of OTA/PTA ranged from -1.28 (strong preference for PWD) to 1.76 (strong preference for nondisabled people). A one-sample t -test revealed this score was significantly different from 0 ($t(6112) = 91.02, p < .001$, Cohen's $d = 1.16$ (large)) indicating implicit bias for nondisabled people amongst OTA/PTA. Findings revealed the overwhelming majority of OTA/PTA (80.1%) preferred nondisabled people, 7.6% preferred PWD, and 12.3% had no preference (See Figure 2).

We utilized a two-dimensional model of prejudice to categorize OTA/PTA's explicit and implicit disability attitudes. The majority of OTA/PTA were aversive ableists (low explicit, high implicit; $n = 3,524$), with fewer OTA/PTA scoring as symbolic ableists (high explicit, high implicit; $n = 396$), principled conservatives (high explicit, low implicit; $n = 90$), or truly low prejudiced (low explicit, low implicit; $n = 1,850$). (See Figure 3).

Discussion

Given a professional mandate within the rehabilitation profession to focus on improving equitable healthcare service delivery, the importance of addressing environmental factors as a part of the ICF's guidance for healthcare provision, and the growing role of therapy assistants in the provision of rehabilitation care for PWD, the aim of this study was to describe OTA/PTA's disability attitudes, and categorize their explicit and implicit bias toward PWD using a two-dimensional model. Findings revealed although most OTA/PTA reported having no explicit preference for people with or without disabilities, the overwhelming majority were implicitly prejudiced against PWD.

While examining how OTA/PTA's explicit and implicit attitudes were categorized, in other words, how their explicit and implicit attitudes were considered together, less than one-third of OTA/PTA scored as truly low prejudiced toward PWD (low explicit attitudes and low implicit attitudes). The majority of OTA/PTA were aversive ableists (low explicit attitudes and high implicit attitudes), indicating they reported and/or believed they had little disability prejudice, yet implicitly held negative attitudes about PWD.

Of particular concern is that the majority of OTA/PTA explicit biases were low, suggesting that the responses to the explicit survey questions may be the result of being aware of socially-political appropriate views pertaining to disability. It may also be that explicit responses reflect the OTA/PTA belief that they have positive attitudes toward their clients with disabilities and that they hold no prejudice. However, the findings that OTA/PTAs' implicit biases are strong suggests these providers do have unconscious prejudice that may inform interactions with clients without recognition. The result of these implicit ableist attitudes may be played out in everyday microaggressions toward PWD, such as failure to provide accessible medical

equipment or spaces, a lack of ASL interpreters, failure to caption videos or use plain language when describing medical procedures and conditions, biased decision-making about care, or unconscious biased behaviors during care encounters.^{44,45} The tendency of OTA/PTA to be aversive ableists is problematic not only because they were prejudiced, but also because of the unconscious nature of implicit attitudes.¹⁸ It is extremely difficult to reduce people's prejudice when they do not believe they are prejudiced in the first place.^{18,22} This is concerning and future research investigating how aversive ableism might play out in clinical rehabilitation encounters is warranted.

Although problematic, these findings are not unexpected given that the conventionally understood role of rehabilitation professionals is to eliminate impairment or disability, positioning either as inferior to an able-bodied state. Despite the wide spread acceptance of the ICF, which explains human functioning and disability by looking at the interaction between person factors and their environments, rehabilitation remains strongly focused on individual person factors.⁴⁶ In fact, the majority of outcome measures used on a daily basis to validate the effectiveness of interventions with clients, and value of therapy, stem from normative based standardized assessments focused on the individual.⁴⁷

One additional factor to consider in the implicit biases of OTA/PTA is the unintentional reinforcement of negative attitudes toward disability during professional training.²⁷ One example is the common practice of using simulation approaches in OTA/PTA educational programs. Disability simulations were introduced decades ago as a means to allow medical and allied health professionals to role-play the experiences of having a disability. There is limited research examining simulation-specific curricular practices in rehabilitation education as a potential factor in disability attitudes. One study has examined the effects of a novel 'disability-

positive' simulation on PT student estimates of self-perceived health and depression rates among PWD.⁴⁸ However, simulations have increasingly been critiqued for distorting the reality of living with disability, reproducing stereotypes that disability is related to incompetence and dependency of the person, and failing to contextualize the lived experience of disability from the perspective of PWD themselves.^{49,50} Many studies outside rehabilitation have shown that disability simulation produces more negative attitudes toward disability.^{49,51} Further research is warranted to more deeply examine changes in both explicit and implicit attitudes using strategies other than simulation.

Interventions targeting reduction of implicit bias have found it difficult to draw strong conclusions as to the level of long-term effectiveness.⁵² However, recommendations have long existed for delivering disability education not based on ableist assumptions or medical model thinking, but rather focusing on disability equity training rooted in social justice concerns and developed and delivered to health care professionals by PWD themselves.⁵³ Despite this early recommendation, a majority of disability awareness trainings continue to focus more on the individual versus environments, social attitudes, or minority group characteristics of disability. Recommendations for addressing attitudes describe raising awareness of the social and political oppression that creates disability rather than focusing on individualized facets of impairment.⁵⁴ Educators of OTA/PTA must challenge simplistic, individualized notions of disability in themselves and in their students by introducing disability as diversity, embracing the intersectional nature of disability as a part of person's identity, and bringing PWD into academic settings as faculty or guest lecturers.^{55,56} Research supports this recommendation, noting direct engagement with PWD as a key means of reducing bias.^{35,57-59} Additionally, indirect engagement through the inclusion of curricular content aimed at improving explicit attitudes in PT students

has been shown to be effective, but more research is needed in regard to impact on implicit bias.³⁶

Routine and required ethics training are part of all practicing OT/PT and OTA/PTAs licensure, including training on the socio-political causes of disability could be used as a means to help reinforce this changing dialogue.⁶⁰ Additionally, recognizing that the hegemony of the medical model remains despite transitioning to the ICF could result in a re-envisioning of the framework, including more attention to personal and environmental factors (i.e. provider biases).^{61,62} Advocacy efforts can include education on social and relational models of disability in addition to a focus on how policies and practices function to maintain stereotypes, prejudices, and internalized negative attitudes of disability.⁶³

Limitations

When interpreting these findings, it should be noted that individuals volunteered to participate in the DA-IAT and, therefore, there is a chance of selection bias. Additionally, this was an analysis of secondary data; as such additional variables could not be added to the analyses, and there was no follow up possibility with participants of the original DA-IAT datasets that could aid in interpretation of study results. For example, OT and PT were included in a larger demographic of ‘health care- diagnosis and treating practitioners’, whereas OTA and PTA were combined into a distinct category that could not be disentangled between the two. Thus, this study was limited to understanding explicit and implicit disability bias in OTA/PTA in combination only. Further, our secondary analyses were limited to those reported, and did not include interactions across existing variables from the parent dataset. These limitations offer compelling avenues for future explicit and implicit bias research. Finally, it is important to recognize that with critiques of the IAT and its ongoing evolution and application, some from the

developers themselves, the use, appropriateness, generalizability, and validity of the IAT remain under continued discussion.¹⁷ However, given that most research to date in this area consider explicit biases, the DA-IAT, as a widely used instrument that has been adapted over time, is still one of the most valuable tools researchers have to understand implicit bias across large and varied populations.

Conclusion

OTA/PTAs are becoming a larger part of the rehabilitation workforce working with PWD, yet little attention has been given to the biases they might have as a professional group. It is important to examine how these biases influence clinical interactions, and may be reproduced in professional education, practice, and policy. Now is the time to infuse educational agendas and licensure requirements with disability understandings that focuses on the social-political, contextual/environmental causes of disability. The first step in this action cycle is to understand the current state of explicit and implicit biases among rehabilitation professionals so that concrete action may be undertaken to improve relationships, interactions, and environments for PWD during healthcare utilization.

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Table 1

Demographics of Sample

Variable	%	<i>n</i>	<i>M</i>	<i>SD</i>
Age (<i>n</i> = 6,030)			27.4	9.2
Disability (<i>n</i> = 6,067)				
Nondisabled	90.0%	5,461		
Person with a disability	10.0%	606		
Gender (<i>n</i> = 6,092)				
Woman	84.8%	5,168		
Man	15.0%	914		
A different identity	0.2%	10		
Race (<i>n</i> = 5,823)				
White	78.9%	4,595		
Multiracial	5.0%	289		
Asian	6.1%	358		
Black	3.0%	175		
Latinx	4.1%	240		
American Indian/Alaska Native	0.7%	40		
Native Hawaiian or other Pacific Islander	0.7%	39		
Other	1.5%	87		
Political orientation/identity (<i>n</i> = 6,008)				
Strongly conservative	3.0%	181		
Moderately conservative	12.2%	733		
Slightly conservative	11.1%	668		
Neutral	29.0%	1,740		
Slightly liberal	13.6%	819		
Moderately liberal	23.7%	1,424		
Strongly liberal	7.4%	443		
Family member or close friend with disability (<i>n</i> = 6,078)				
Yes	61.6%	3,747		
No	38.4%	2,331		

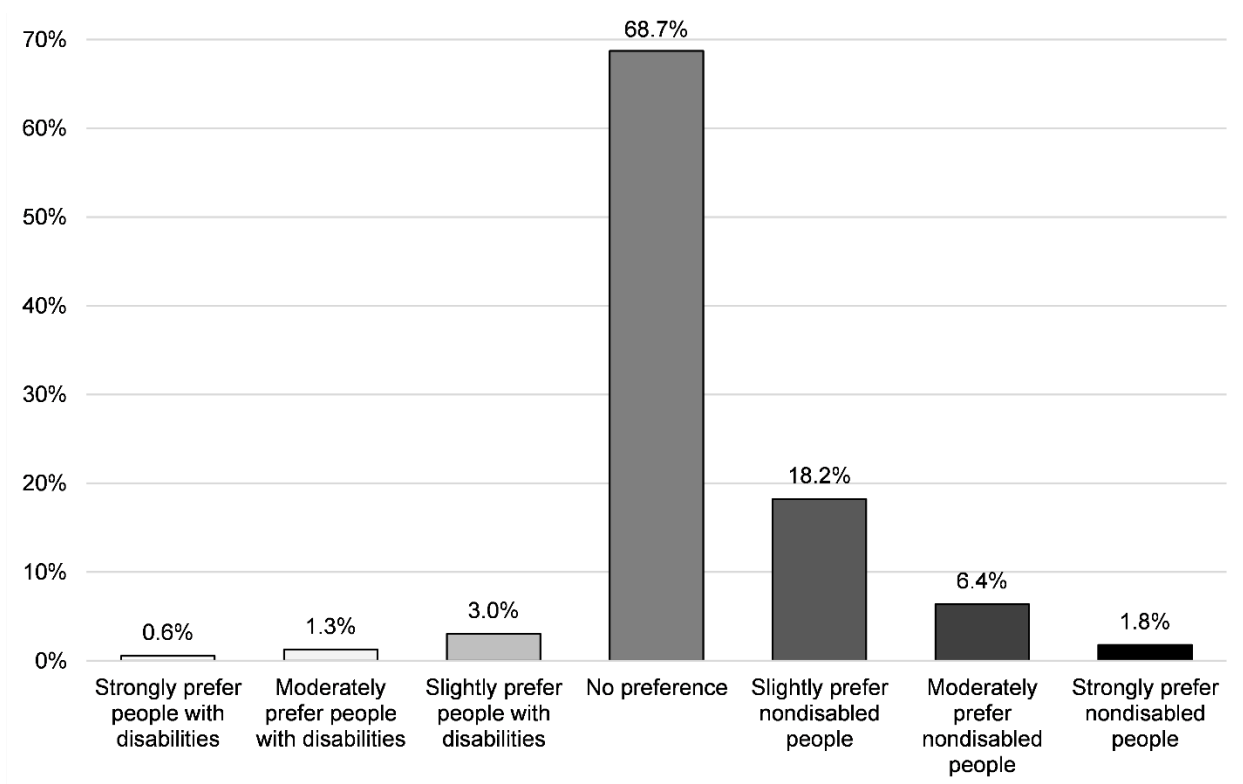


Figure 1. Explicit attitudes of occupational and physical therapy assistants.

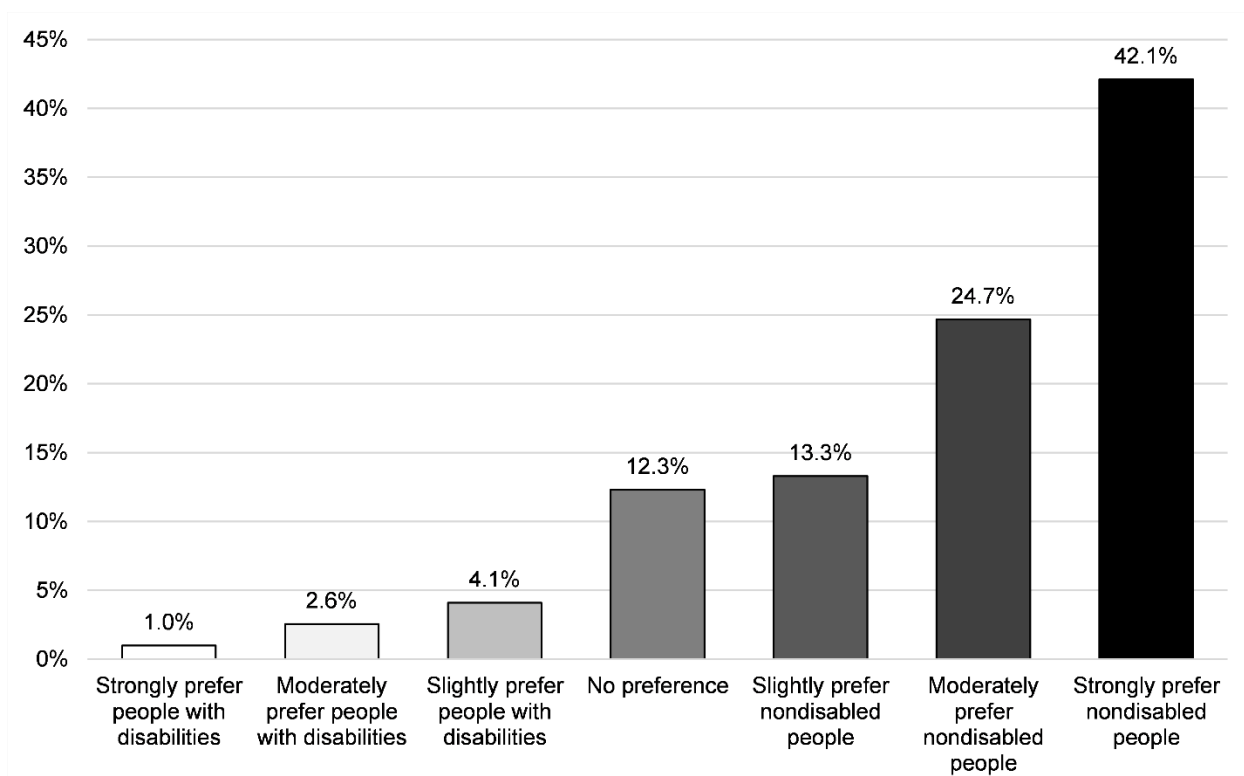


Figure 2. Implicit attitudes of OTA/PTA.

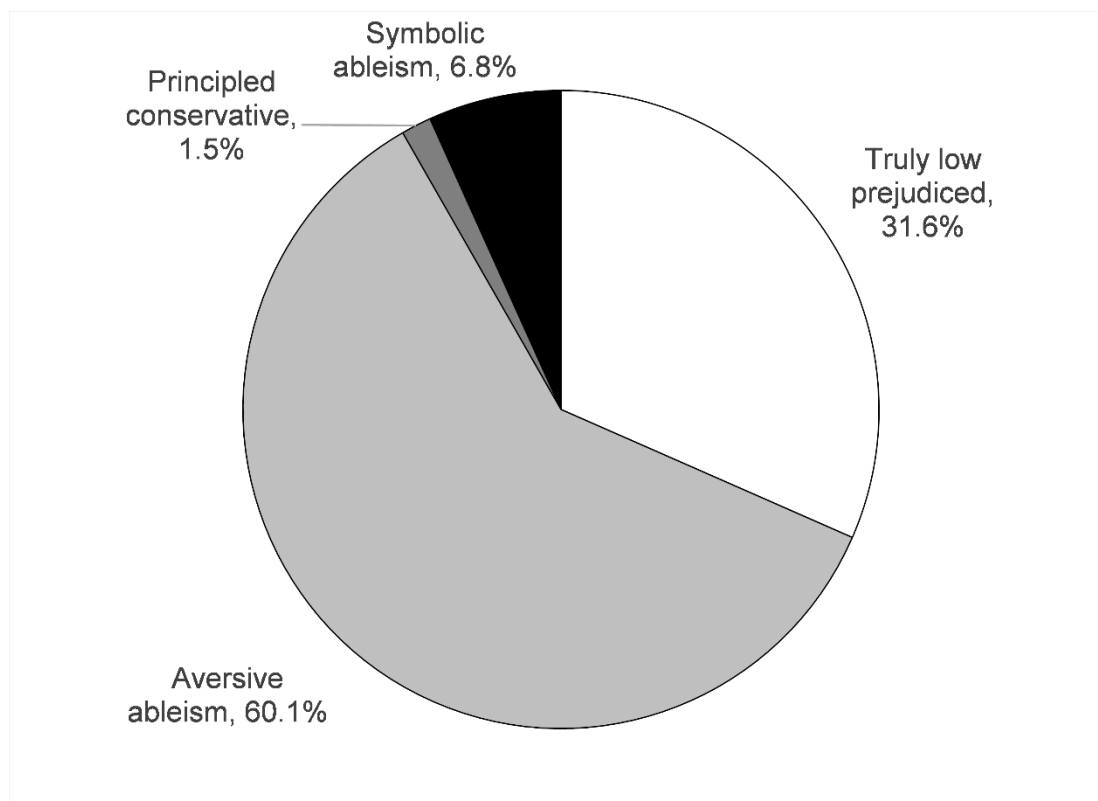


Figure 3. Prejudice styles of OTA/PTA.