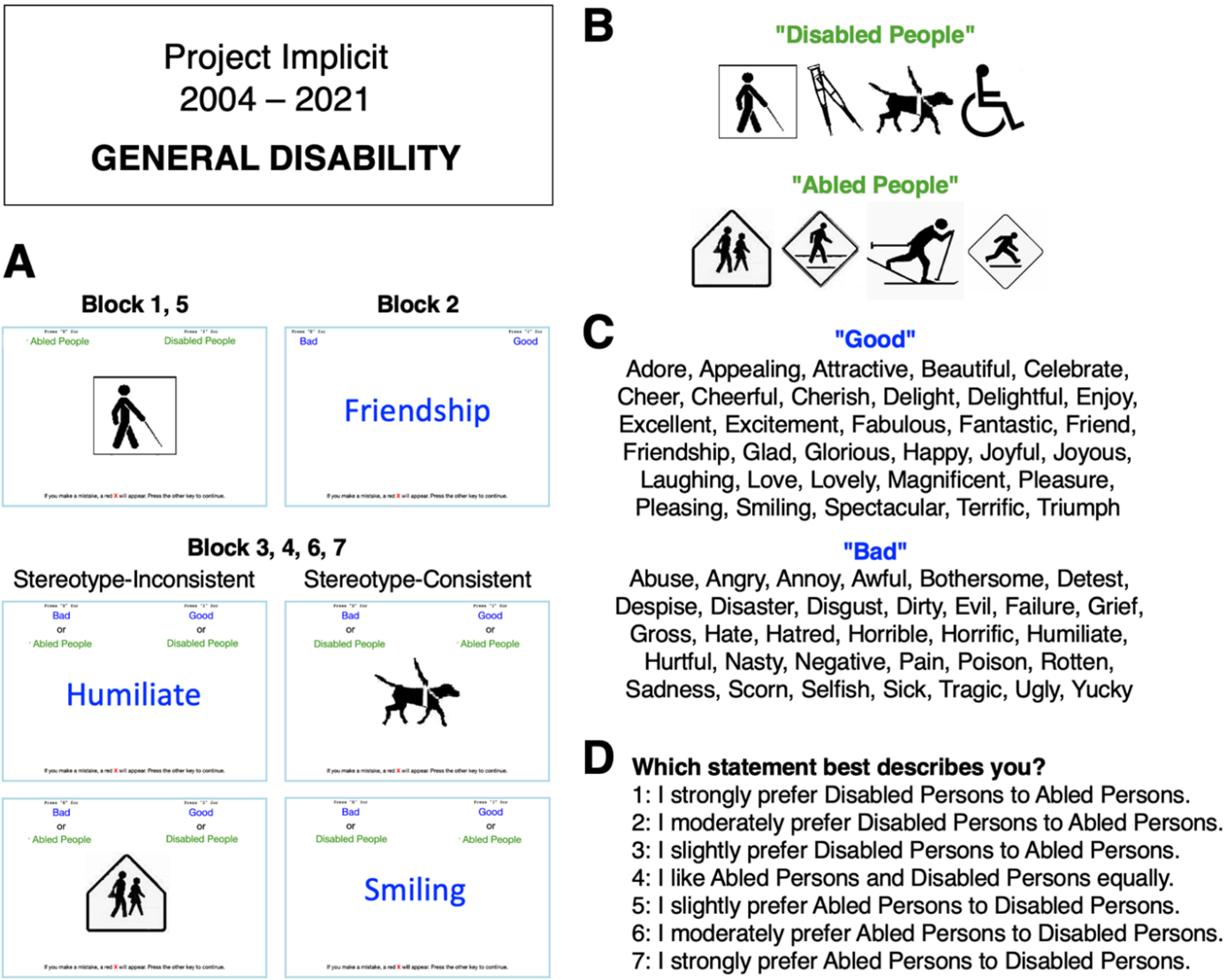
SUPPLEMENTARY MATERIAL

**Implicit and explicit attitudes toward people with physical disabilities among clinicians, rehabilitation assistants, and other occupations: A comparative study**




**Supplementary Figure 1** Material used for the Disability Implicit Association Test (IAT), which was available on the Project Implicit demonstration website from 2004 to 2021. This IAT was used to test implicit (A, B, C) and explicit (D) attitudes toward "disabled people" and "abled people". In 2022, the Disability IAT on the Project Implicit demonstration website was modified to measure associations towards "physically disabled people" and "physically abled people". Previous studies used the IAT for general disability (2004-2021),[1-4] whereas our study used the IAT for physical disability (2022-2024).

**References**

1. Nosek BA, Smyth FL, Hansen JJ, et al. Pervasiveness and correlates of implicit attitudes and stereotypes. *Eur Rev Soc Psychol.* 2007;18:36-88.
2. VanPuymbrouck L, Friedman C, Feldner H. Explicit and implicit disability attitudes of healthcare providers. *Rehabil Psychol.* 2020;65(2):101-112.
3. Feldner HA, VanPuymbrouck L, Friedman C. Explicit and implicit disability attitudes of occupational and physical therapy assistants. *Disabil Health J.* 2022;15(1):101217.
4. Derbyshire DW, Keay T. "But what do you really think?" Nurses' contrasting explicit and implicit attitudes towards people with disabilities using the implicit association test. *J Clin Nurs.* 2024;33(11):4342-4353.

**Supplementary List 1** Occupation categories.

| | | |
|---|---|---|
| Administrative Support - Supervisors | Food Service - Supervisors | Protective services - Law Enforcement |
| Administrative Support - Financial Clerks | Food Service - Cooks and food prep | Protective Services - Other (e.g., security, lifeguards, crossing guards) |
| Administrative Support - Information and Records | Food Service - Servers | Repair/Installation - Supervisors |
| Administrative Support - Recording, Scheduling, Dispatching, Distributing | Food Service - Other food service workers (e.g., dishwasher, host) | Repair/Installation - Electrical and Electronic |
| Administrative Support - Secretaries and Assistants | **Healthcare - Diagnosing and Treating Practitioners (MD, Dentist, etc.)** | Repair/Installation - Vehicle and Mobile Equipment |
| Administrative Support - Other Support (data entry, office clerk, proofreaders) | Healthcare - Technologists and Technicians | Repair/Installation - Other |
| Arts/Design/Entertainment/Sports - Art and Design | Healthcare - Nursing and Home Health Assistants | Retired |
| Arts/Design/Entertainment/Sports - Entertainers and Performers | **Healthcare - Occupational and Physical Therapist Assistants** | Sales - Supervisors |
| Arts/Design/Entertainment/Sports - Media and communication | Healthcare - Other healthcare support | Sales - Retail |
| Arts/Design/Entertainment/Sports - Media Equipment workers | Homemaker or Parenting | Sales - Sales Representatives and Services |
| Business - Business Operations | Legal - Lawyers, Judges, and related workers | Sales - Wholesale and Manufacturing |
| Business - Financial Specialists | Legal - Legal support workers | Sales - Other sales (e.g., telemarketers, real estate) |
| Computer/Math - Computer Specialists | Maintenance - Building and Grounds Supervisors | Science - Life Scientists |
| Computer/Math - Math Scientists | Maintenance - Building workers | Science - Physical scientists |
| Computer/Math - Math Technicians | Maintenance - Grounds Maintenance | Science - Social Scientists |
| Construction/Extraction - Supervisors | Management - Top Executives | Science - Life, Physical, Social Science Technicians |
| Construction/Extraction - Construction Trades | Management - Advertising, Sales, PR, Marketing | Service and Personal Care - Supervisors |
| Construction/Extraction - Helpers, Construction Trades | Management - Operations Specialists | Service and Personal Care - Animal Care |
| Construction/Extraction - Extraction (e.g., mining, oil) | Management - Other Management Occupations | Service and Personal Care - Entertainment attendants |
| Construction/Extraction - Other | Military - Officer and Tactical Leaders/Managers | Service and Personal Care - Funeral Service |
| Education - Postsecondary Teachers | Military - First-line enlisted supervisor/manager | Service and Personal Care - Personal Appearance |
| Education - Primary, Secondary, and Special Ed Teachers | Military - enlisted tactical, air/weapons, crew, other | Service and Personal Care - Transportation, Tourism, Lodging |
| Education - Other teachers and instructors | Production - Supervisors | Service and Personal Care - Other service (e.g., child care, fitness) |
| Education - Librarians, Curators, Archivists | Production - Assemblers and Fabricators | Social Service - Counselors, Social Workers, Community specialists |
| Education - Other education, training, and library occupations | Production - Food processing | Social Service - Religious Workers |
| Education - Student | Production - Metal and Plastic | Transportation - Supervisors |
| Engineers/Architects - Architects, Surveyors, Cartographers | Production - Printers | Transportation - Air Transportation |
| Engineers/Architects - Engineers | Production - Textile, Apparel, Furnishings | Transportation - Motor Vehicle Operators |
| Engineers/Architects - Drafters, Engineering and Mapping Technicians | Production - Woodworkers | Transportation - Rail Transport |
| Farming, Fishing, Forestry - Supervisors | Production - Plant and System Operators | Transportation - Water Transport |
| Farming, Fishing, Forestry - Agriculture | Production - Other | Transportation - Material Moving |
| Farming, Fishing, Forestry - Fishing and Hunting | Protective Service - Supervisors | Transportation - Other |
| Farming, Fishing, Forestry - Forest, Conservation, Logging | Protective Services - Fire fighting and prevention | Unemployed |
| Farming, Fishing, Forestry - Other | | |

**Supplementary Table 1** Explanatory factors of implicit attitudes toward people with physical disabilities in clinicians. *This table presents the results of the linear regression model examining the factors associated with implicit attitudes toward physical disability in clinicians. The model adjusts for sex, age, explicit attitudes, personal experience of disability, education, geographic region, and race. Estimates are presented as regression coefficients (b-values) with 95% confidence intervals (CIs). The reference groups for categorical variables are indicated in parentheses. Asterisks indicate statistical significance (*P < .05, **P < .01, ***P < .001).*

| IMPLICIT ATTITUDES – Clinicians (N = 6445) | | |
|---|---|---|
| **Exposure** | **b-value (95% CI)** | ***P-value*** |
| **(Intercept)** | 0.494 (0.386, 0.601) | $<2e^{-16}$*** |
| **Sex (ref.: Female)** | 0.130 (0.107, 0.153) | $<2e^{-16}$*** |
| **Age (continuous)** | 0.072 (0.061, 0.083) | $<2e^{-16}$*** |
| **Explicit Attitudes (continuous)** | 0.055 (0.044, 0.065) | $<2e^{-16}$*** |
| **No personal experience of disability (ref.: Experience)** | 0.046 (0.025, 0.067) | $2.7e^{-5}$*** |
| **Education (ref.: primary / secondary)** | | |
| College / Undergraduate | 0.019 (−0.089, 0.128) | .726 |
| Graduate / Postgraduate | −0.019 (−0.127, 0.088) | .726 |
| **Geographic Region (ref.: Northern America)** | | |
| Africa | 0.044 (−0.078, 0.166) | .480 |
| Asia | −0.012 (−0.070, 0.045) | .677 |
| Europe | 0.001 (−0.062, 0.064) | .982 |
| Oceania | −0.010 (−0.093, 0.073) | .816 |
| Latin America & the Caribbean | 0.009 (−0.065, 0.084) | .806 |
| **Race (ref.: White People)** | | |
| Asian People | 0.018 (−0.013, 0.049) | .259 |
| Black or African American People | 0.042 (−0.006, 0.089) | .084 |
| Hispanic People | −0.043 (−0.099, 0.013) | .131 |
| Middle Eastern People | 0.013 (−0.079, 0.104) | .788 |
| American Indian or Alaska Native People | 0.080 (−0.057, 0.217) | .253 |
| Multiracial, Other, or Unknown Race People | −0.028 (−0.073, 0.018) | .231 |
| Pacific Islander People | −0.025 (−0.226, 0.177) | .809 |
| **Year of Data Collection** | 0.011 (0.001, 0.022) | .040* |

Residual standard error: 0.4219 on 6425 degrees of freedom.
Multiple R-squared: 0.07056, adjusted R-squared: 0.06781.
F-statistic: 25.67 on 19 and 6425 degrees of freedom, p-value: $< 2.0e^{-16}$.

**Supplementary Table 2** Explanatory factors of explicit attitudes toward people with physical disabilities in clinicians. *This table presents the results of the linear regression model examining the factors associated with explicit attitudes toward physical disability in clinicians. The model adjusts for sex, age, implicit attitudes, personal experience of disability, education, geographic region, and race. Estimates are presented as regression coefficients (b-values) with 95% confidence intervals (CIs). The reference groups for categorical variables are indicated in parentheses. Asterisks indicate statistical significance (*P < .05, **P < .01, ***P < .001).*

| EXPLICIT ATTITUDES – Clinicians (N = 6445) | | |
|---|---|---|
| **Exposure** | **b-value (95% CI)** | ***P-value*** |
| **(Intercept)** | 4.348 (4.155, 4.541) | $<2e^{-16}$*** |
| **Sex (ref.: Female)** | 0.076 (0.034, 0.118) | $4.0e^{-4}$*** |
| **Age (continuous)** | 0.018 (−0.002, 0.038) | .080 |
| **Implicit Attitudes (continuous)** | 0.099 (0.080, 0.118) | $<2e^{-16}$*** |
| **No personal experience of disability (ref.: Experience)** | 0.165 (0.127, 0.204) | $<2e^{-16}$*** |
| **Education (ref.: primary / secondary)** | | |
| College / Undergraduate | −0.121 (−0.315, 0.074) | .225 |
| Graduate / Postgraduate | −0.068 (−0.260, 0.125) | .492 |
| **Geographic Region (ref.: Northern America)** | | |
| Africa | 0.261 (0.042,0.480) | $1.9e^{-2}$* |
| Asia | −0.167 (−0.270, −0.064) | $1.5e^{-3}$** |
| Europe | −0.068 (−0.182, 0.046) | .240 |
| Oceania | 0.082 (−0.066, 0.231) | .277 |
| Latin America & the Caribbean | −0.003 (−0.137, 0.131) | .962 |
| **Race (ref.: White People)** | | |
| Asian People | 0.154 (0.098, 0.210) | $6.1e^{-8}$*** |
| Black or African American People | 0.104 (0.019, 0.189) | $1.6e^{-2}$* |
| Hispanic People | 0.025 (−0.076, 0.125) | .631 |
| Middle Eastern People | −0.034 (−0.199, 0.131) | .689 |
| American Indian or Alaska Native People | −0.123 (−0.369, 0.123) | .328 |
| Multiracial, Other, or Unknown Race People | 0.040 (−0.042, 0.121) | .345 |
| Pacific Islander People | 0.174 (−0.188, 0.537) | .346 |
| **Year of Data Collection** | −0.015 (−0.034, 0.005) | .133 |

Residual standard error: 0.7583 on 6425 degrees of freedom.
Multiple R-squared: 0.04671, adjusted R-squared: 0.04389.
F-statistic: 16.57 on 19 and 6425 degrees of freedom, p-value: $< 2.2e^{-16}$.

**Supplementary Table 3** Explanatory factors of implicit attitudes toward people with physical disabilities in rehabilitation assistants. *This table presents the results of the linear regression model examining the factors associated with implicit attitudes toward physical disability in rehabilitation assistants. The model adjusts for sex, age, explicit attitudes, personal experience of disability, education, geographic region, and race. Estimates are presented as regression coefficients (b-values) with 95% confidence intervals (CIs). The reference groups for categorical variables are indicated in parentheses. Asterisks indicate statistical significance (*P < .05, **P < .01, ***P < .001).*

| IMPLICIT ATTITUDES – Rehabilitation Assistants (N = 3482) | | |
|---|---|---|
| **Exposure** | **b-value (95% CI)** | ***P-value*** |
| **(Intercept)** | 0.491 (0.413, 0.568) | $<2e^{-16}$*** |
| **Sex (ref.: Female)** | 0.159 (0.120, 0.198) | $3.5e^{-15}$*** |
| **Age (continuous)** | 0.056 (0.042, 0.071) | $1.0e^{-13}$*** |
| **Explicit Attitudes (continuous)** | 0.049 (0.034, 0.063) | $3.9e^{-11}$*** |
| **No personal experience of disability (ref.: Experience)** | 0.043 (0.012, 0.073) | $5.9e^{-3}$** |
| **Education (ref.: primary / secondary)** | | |
| College / Undergraduate | −0.024 (−0.102, 0.054) | .546 |
| Graduate / Postgraduate | −0.068 (−0.147, 0.011) | .092 |
| **Geographic Region (ref.: Northern America)** | | |
| Africa | 0.068 (−0.138, 0.273) | .519 |
| Asia | 0.035 (−0.057, 0.127) | .455 |
| Europe | 0.074 (−0.017, 0.166) | .112 |
| Oceania | 0.060 (−0.040, 0.160) | .242 |
| Latin America & the Caribbean | 0.004 (−0.115, 0.124) | .946 |
| **Race (ref.: White People)** | | |
| Asian People | 0.062 (0.009, 0.115) | .022* |
| Black or African American People | 0.033 (−0.033, 0.100) | .326 |
| Hispanic People | 0.073 (−0.002, 0.148) | .058 |
| Middle Eastern People | −0.028 (−0.205, 0.150) | .760 |
| American Indian or Alaska Native People | −0.051 (−0.245, 0.143) | .604 |
| Multiracial, Other, or Unknown Race People | −0.058 (−0.123, 0.006) | .076 |
| Pacific Islander People | 0.245 (0.001, 0.489) | .049* |
| **Year of Data Collection** | 0.009 (−0.006, 0.024) | .240 |

Residual standard error: 0.4289 on 3462 degrees of freedom.
Multiple R-squared: 0.06434, adjusted R-squared: 0.05921.
F-statistic: 12.53 on 19 and 3462 degrees of freedom, p-value: $< 2.2e^{-16}$.

**Supplementary Table 4** Explanatory factors of explicit attitudes toward people with physical disabilities in rehabilitation assistants. *This table presents the results of the linear regression model examining the factors associated with explicit attitudes toward physical disability in rehabilitation assistants. The model adjusts for sex, age, implicit attitudes, personal experience of disability, education, geographic region, and race. Estimates are presented as regression coefficients (b-values) with 95% confidence intervals (CIs). The reference groups for categorical variables are indicated in parentheses. Asterisks indicate statistical significance (*P < .05, **P < .01, ***P < .001).*

| EXPLICIT ATTITUDES – Rehabilitation Assistants (N = 3482) | | |
|---|---|---|
| **Exposure** | **b-value (95% CI)** | ***P-value*** |
| **(Intercept)** | 4.328 (4.197, 4.459) | $<2e^{-16}$*** |
| **Sex (ref.: Female)** | 0.130 (0.063, 0.196) | $1.5e^{-4}$*** |
| **Age (continuous)** | 0.006 (−0.020, 0.031) | 0.665 |
| **Implicit Attitudes (continuous)** | 0.083 (0.059, 0.108) | $3.9e^{-11}$*** |
| **No personal experience of disability (ref.: Experience)** | 0.125 (0.074, 0.176) | $1.4e^{-6}$*** |
| **Education (ref.: primary / secondary)** | | |
| College / Undergraduate | −0.168 (−0.299, −0.037) | .012* |
| Graduate / Postgraduate | −0.157 (−0.290, −0.024) | .021* |
| **Geographic Region (ref.: Northern America)** | | |
| Africa | 0.423 (0.078, 0.769) | .016* |
| Asia | −0.013 (−0.167, 0.142) | .871 |
| Europe | −0.053 (−0.207, 0.102) | .502 |
| Oceania | −0.076 (−0.245, 0.092) | .375 |
| Latin America & the Caribbean | -0.047 (−0.248, 0.154) | .647 |
| **Race (ref.: White People)** | | |
| Asian People | 0.120 (0.030, 0.209) | $8.6e^{-3}$** |
| Black or African American People | 0.098 (−0.014, 0.211) | .086 |
| Hispanic People | −0.059 (−0.186, 0.068) | .363 |
| Middle Eastern People | 0.068 (−0.231, 0.366) | .657 |
| American Indian or Alaska Native People | 0.096 (−0.231, 0.423) | .565 |
| Multiracial, Other, or Unknown Race People | 0.083 (−0.026, 0.192) | .135 |
| Pacific Islander People | −0.310 (−0.720, 0.100) | .138 |
| **Year of Data Collection** | 0.016 (−0.009, 0.041) | .210 |

Residual standard error: 0.7217 on 3462 degrees of freedom.
Multiple R-squared: 0.04028, adjusted R-squared: 0.03501.
F-statistic: 7.647 on 19 and 3462 degrees of freedom, p-value: $< 2.2e^{-16}$.