Contact with Young Adults with Disability Led to a Positive Change in Attitudes toward Disability among Physiotherapy Students

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ABSTRACT

Purpose: To determine whether contact over 8 weeks with a person with disability benefits physiotherapy students' attitudes toward disability and their development of professional behaviours and skills. **Methods:** Sixteen adults with Down syndrome were matched with 16 physiotherapy students (13 women, 3 men; mean age 22.5 [SD 3.0] years) and randomized to either an 8-week, twice-weekly walking programme or an 8-week, once-weekly social activities programme. Students completed the Interaction with Disabled Persons scale, the Community Living Attitudes scale, and the Barriers to Exercise scale and rated their competency in professional behaviours and skills. **Results:** There were no differences between the groups for any outcome. Across both groups, students showed positive changes in attitudes toward disability, self-ratings of professional behaviours, and confidence in working with people with disability. **Conclusions:** After an 8-week programme, physiotherapy students reported being more comfortable with and having more confidence in working with people with disability. These data support the idea that contact with people with disability in community settings has positive benefits for physiotherapy students, regardless of the content of the experience.

Key Words: attitude; intellectual disability; experiential learning; students.

RÉSUMÉ

Objectif : Déterminer si le contact avec une personne handicapée pendant huit semaines est bénéfique pour les attitudes des étudiants en physiothérapie face à l'incapacité et pour l'acquisition de comportements professionnels et de connaissances spécialisées. **Méthodes :** On a jumelé 16 adultes atteints du syndrome de Down à 16 étudiants en physiothérapie (13 femmes, 3 hommes; âge moyen de 22,5 (ET 3,0) ans) et on les affectés par randomisation à un programme de marche deux fois par semaine pendant 8 semaines ou à un programme d'activités sociales une fois par semaine pendant 8 semaines. Les étudiants ont rempli le questionnaire sur l'interaction avec les personnes handicapées, le questionnaire sur les attitudes face à la vie communautaire et le questionnaire sur les obstacles à l'exercice et évalué leur compétence aux niveaux des comportements professionnels et des connaissances spécialisées. **Résultats :** Il n'y avait pas de différences entre les groupes pour aucun des résultats. Dans les deux groupes, les attitudes des étudiants face à l'incapacité, leur autoévaluation de leurs comportements professionnels et leur confiance en eux lorsqu'il s'agit de travailler avec des personnes handicapées ont changé positivement. **Conclusions :** Après un programme de 8 semaines, les étudiants en physiothérapie ont déclaré se sentir plus à l'aise avec les personnes handicapées et avoir davantage confiance en eux lorsqu'il s'agit de travailler avec celles-ci. Ces données appuient le concept selon lequel le contact avec des personnes handicapées en contexte communautaire a des effets positifs sur les étudiants en physiothérapie, sans égard au contenu de l'expérience.

Poor attitudes toward disability among health professionals can have a negative impact on people with disability by limiting their access to health services and quality health care.^{1,2} Negative attitudes toward people with disability among health professionals, including physiotherapists, may reduce the effectiveness of interventions³ or lead health professionals to withhold from

offering particular treatments to people with disability, believing that those treatments are not warranted for them. For example, a physiotherapist who believes that people with Down syndrome should not engage in exercise or considers that the barriers to their doing so cannot be overcome may not recommend exercise as an intervention for this group, despite evidence suggesting

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that exercise is beneficial. Health professionals' attitudes toward disability may also influence workforce availability, as those with negative attitudes toward disability may be less likely to work in the disability sector.

Contact with people with disability is thought to be important to the formation of positive attitudes;⁴ contact theory proposes that attitudes toward disability can be changed by increased contact with people with disability.⁵ Past studies found that physiotherapy students who had a close family member with a disability, who had prior social contact with people with disabilities, or who had worked with people with disabilities possessed more positive attitudes toward disability than their peers who did not have such experiences.^{6,7} Practising physiotherapists have more positive attitudes to disability than physiotherapy students,⁸ and physiotherapy students show positive changes in their attitudes toward disability as they progress through their degree,^{6,7} which may be explained by their exposure to more opportunities for contact with people with disability. However, increased contact alone may not lead to more positive attitudes. Interaction facilitates a positive change in attitudes to disability when people with and without disability have equal status in the relationship, work together toward a common goal without competition, and acknowledge the same authority or social norms that support their interactions.⁵

For physiotherapy students, there may also be additional benefits to working with people with disability in terms of professional development. Consistent with the principles of contact theory, emerging research suggests that professional development and attitudes toward disability may be affected positively by participation in a community-based intervention with people with disability.^{9,10} In the programme described in these studies,^{9,10} students exercised at a high intensity with adolescents with Down syndrome twice a week for 10 weeks at their local community gymnasium; the programme resulted in significant increases in muscle strength for the adolescents with Down syndrome.¹¹ An important feature of this previous research is that the design included a control group, which allowed the authors to demonstrate that the observed changes in attitude could be attributed to the intervention and were not confounded by changes in attitudes resulting from the conventional curriculum.¹⁰ Participating students reported developing professional behaviours and skills (including leadership, management, organization, and communication skills) in addition to developing an appreciation for disability.⁹ This suggests that for physiotherapy students, the benefits of working with people with disability may be twofold: students gain both a positive change in attitude toward disability and improved professional behaviours and skills. However, it is not clear which factor is integral to attaining these benefits—the contact with people with disability itself or the context in which the interaction occurs.

Therefore, our study set out to investigate whether the findings from qualitative analysis could be confirmed quantitatively with a new sample. Our primary aims were to evaluate whether contact with a young adult with disability results in a positive change in student attitudes toward disability and to determine if a more discipline-focused experience resulted in a more positive change of attitude than a general experience. We hypothesized that participating in the programme would lead to positive changes in students' attitudes toward disability, independent of the context of the experience. Our secondary aim was to assess whether engagement in the programme led to positive improvements in professional behaviours and skills and if a more discipline-focused experience resulted in greater improvements than a more general experience. We hypothesized that participating in a discipline-focused experience would lead to more positive changes in students' professional behaviours and skills.

METHODS

Study design

Data were collected as part of a randomized controlled trial. Physiotherapy students were recruited as mentors for adults with Down syndrome (aged 18–35 years). The trial received ethics approval from the La Trobe University Human Ethics Committee (UHEC 12–056), and all participants gave written informed consent. The results of the trial for the participants with Down syndrome will be reported elsewhere.

Participants

To be eligible, student mentors had to be enrolled in an entry-level physiotherapy course in Australia and be able to spend 45 minutes twice a week walking at a brisk pace. Physiotherapy students in their second, third, or fourth year of study (approximately 300 students) were invited to become mentors through advertising flyers placed on university notice boards, short information sessions at the beginning and end of teaching activities, and email. Students were reimbursed financially for the time they spent participating in the programme.

Randomization and interventions

Adults with Down syndrome were recruited through advertising flyers sent by email or postal mail to 74 people with Down syndrome who participated in our previous studies. Adults with Down syndrome were randomly allocated, using a concealed method, to one of two groups. Adults with Down syndrome were matched with students according to the metropolitan suburb where they lived and, when families requested it, on the basis of gender. Students were assigned to each group according to the allocation of the adult with whom they were matched.

The adults with Down syndrome in group 1 completed an 8-week physical activity programme called Walkabout. The programme was designed according to Rimmer and

Rowland's conceptual framework for improving health among people with disability,¹² which aims to change physical activity behaviour in people with disability by addressing personal and environmental barriers. In this trial, the intervention was structured to empower the adult with Down syndrome through an intention to exercise plan and motivational prompts and to address environmental barriers by providing social support from a student mentor and selecting a suitable form of physical activity (walking). Each participant completed 150 minutes of moderate-intensity physical activity per week during the programme in bouts of at least 10 minutes, in accordance with physical activity guidelines.¹³ Ninety minutes of the programme were completed in two 45-minute walking sessions with a student mentor; how the other 60 minutes of walking was completed was individually tailored to the participant's circumstances and planned in advance (intention to exercise plan). For example, participants could complete 60 minutes of independent walking (e.g., walking for transport) or walking with family or friends (e.g., an evening walk). Participants with Down syndrome were encouraged to walk briskly and wore a pedometer while walking to measure the duration of the session and the number of steps completed in each session.

The student mentors recorded the details of each walking session in an activity logbook, including the number of steps taken and the duration of the walk. The logbook also included an incident section where details of any problems (adverse events) or missed sessions were recorded. A member of the research team contacted each mentor every 2 weeks to ensure that the programme was proceeding as planned and to help address any issues.

Participants with Down syndrome in group 2 completed a social programme once a week for 8 weeks with their student mentor. The social programme comprised recreational activities not expected to have a training or fitness effect, such as watching movies or going for coffee. Each session lasted for 90 minutes. The sessions took place in the participant's home or at a suitable local venue, such as a cinema or shopping centre.

All student participants received training before their participation, including background information on Down syndrome, strategies for working with people with Down syndrome, and the content of the Walkabout and social programmes, including programme progression and implementation.

Outcome measures

Students completed four self-report questionnaires at baseline (week 0) and follow-up (week 9). These questionnaires measured the student's attitudes toward people with disability, their perspectives on the barriers to exercise for adults with Down syndrome, and their rating of

their self-perceived competency in professional behaviours and skills. Data were collected and entered by an independent person who was blind to group allocation.

Attitudes toward disability were evaluated using the Discomfort subscale of the Interaction with Disabled Persons scale.¹⁴ This subscale consists of 5 items that indicate the respondent's level of discomfort when interacting with people with disability, using a 6-point Likert-type scale (1 = I disagree very much; 6 = I agree very much). This subscale exhibits sound measurement properties.¹⁴ We also report the total score for the 20-item version of the Interaction with Disabled Persons scale so that the scores from this study can be compared with those from previous literature.

Attitudes toward intellectual disability were assessed using the Community Living Attitudes scale-intellectual disability version.¹⁵ This 40-item scale comprises four subscales: Empowerment (13 items), Exclusion (8 items), Sheltering (7 items), and Similarity (12 items). It has sound measurement properties and established reliability and validity.¹⁵

Attitudes toward barriers to exercise for adults with Down syndrome were measured using the 18-item Exercise Barriers Scale,¹⁶ which includes individual items on motivational, knowledge, accessibility, cognitive, and social barriers scored on a 5-point Likert-type scale (1 = strongly disagree; 5 = strongly agree). The scale developers identified two factors: cognitive-emotional barriers (internal consistency 0.85) and access barriers (internal consistency 0.77), respectively.¹⁶

Students rated their competency in professional behaviours (general behaviours) for eight items on the Assessment of Physiotherapy Practice scale:¹⁷ (1) demonstrates an understanding of client rights; (2) demonstrates ethical, legal, and culturally sensitive practice; (3) communicates effectively and appropriately; (4) performs interventions appropriately; (5) is an effective educator; (6) monitors the effect of intervention; (7) progresses intervention appropriately; and (8) identifies adverse events and minimizes the risk associated with assessment and interventions. Each item is scored on a 5-point scale (0 = rarely demonstrates this skill; 4 = demonstrates this skill to an excellent standard).

Students were also asked to rate their competency in six specific aspects of delivering a physical activity programme: (1) implementing the programme, (2) progressing the programme, (3) problem solving during the programme, (4) ensuring a person completed their programme at the correct intensity, (5) motivating the person completing the programme, and (6) giving clear instructions. Each item was scored on a 4-point scale (1 = not too able; 4 = excellent ability).

Students were also asked to document their level of confidence in working with someone with intellectual disability on a 4-point Likert-type scale (1 = not at all

Figure 1 Design and flow of participants through the trial.

confident; 4 = extremely confident) and their likelihood of working with people with intellectual disability in the future (0 = not at all likely; 4 = very likely).

Data analysis

We calculated that a sample size of 16 (8 per group) would be sufficient to detect an effect size of 1.6 on individual items of the Exercise Barriers Scale¹⁰ at a power level of 0.8 with a two-tailed alpha of 0.05. Our data analysis used IBM SPSS statistical software, version 21.0 (SPSS Inc., Chicago, IL). Between-groups differences were analyzed using ANCOVA with the baseline measure used as the covariate,^{18,19} a method that has been recommended for analysis of data measured at baseline and follow-up in randomized controlled trials. Parametric analysis was completed where test developers have applied parametric analysis to their scales.²⁰ We calculated mean differences between the groups and their associated 95% CIs; to interpret the clinical significance of

any statistically significant differences, we accepted half the standard deviation of group 2 at baseline as representing the minimal clinically important difference.²¹ Where there were no between-groups differences, we applied paired *t*-tests to the data from both groups combined, which is equivalent to testing for a main effect for time. Because our data were ordinal, we also analyzed them using the appropriate non-parametric test (Wilcoxon signed rank-sum test) to confirm the outcome of the parametric analysis. Where data were missing, we used the carry-forward technique, which assumes that missing data remained constant.

RESULTS

Participants

Sixteen students (13 women, 3 men) were matched with 16 young adults with Down syndrome (see Figure 1). The students ranged in age from 19 to 30 years, with

Table 1 Student Mentor Demographic Data

Characteristics	Intervention (n = 8)	Control (n = 8)
Mean (SD) age, y	24.5 (3.2)	20.6 (1.0)
Sex (F:M)	7:1	6:2
Year of programme (2:3:4)	2:5:1	3:4:1
Local:international students	7:1	8:0
Family member with disability (no:yes)	6:2	6:2
Contact with people with disability (none:some)	3:5	1:7
Work experience in disability (none:some)	6:2	6:2
Work experience in intellectual disability (none:some)	4:4	6:2

a mean age of 22.5 (SD 3.0) years. Eight students were allocated to groups 1 and 2 respectively (see Table 1). All students completed assessments at baseline and at 9 weeks; there was no loss to follow-up. The students attended 186 of 192 scheduled sessions (96%) and spent an average of 12 hours with the adults with Down syndrome that they were mentoring. Missed sessions were due to illness, logistical reasons, or family holidays of the young person with Down syndrome.

At baseline, the groups were similar on all demographic factors except for age; students in group 1 were older (see Table 1). The groups appeared similar at baseline for the study outcomes (see Table 2). Baseline scores for the discomfort subscale suggest that the students had a positive attitude toward disability, with average scores equivalent to values reported for final-year physiotherapy students just before graduation.²² The average total score for the Interaction with Disabled Persons scale at baseline fell between values reported for a normative Australian sample²³ and for first-year physiotherapy students.⁷ Baseline scores for the Community Living Attitudes Scale subscales were similar to those reported for undergraduate students in the United States. Baseline scores for the Exercise Barriers Scale were similar to those reported for physiotherapy students.¹⁰

We found no between-groups differences for any outcome (see Table 2). Differences between groups approached significance for self-ratings of competence in professional skills (mean difference [MD], 1.8 units; 95% CI, 0.0–3.6) and likelihood of working with people with intellectual disability in the future (MD, 0.5 units; 95% CI, 0.0–1.0) in favour of group 1. The size of these differences was greater than the minimal clinically important differences of 1.4 units and 0.3 units respectively.

Since the groups were similar at baseline, had an equivalent amount of contact with an adult with disability, and showed no between-groups differences, we combined the samples to measure any overall changes as a result of participating in the trial. A pre–post analysis found positive changes on the discomfort subscale, on the access subscale of the Exercise Barriers scale, in confidence working with people with disability, and in the rating of competency in five professional behaviours: (1) under-

standing clients rights (MD, 0.4 units; 95% CI, 0.04–0.7); (2) being an effective educator (MD, 0.5 units; 95% CI, 0.1–0.8); (3) monitoring an intervention (MD, 0.7 units; 95% CI, 0.3–1.1); (4) progressing an intervention (MD, 0.7 units; 95% CI, 0.3–1.1); and (5) identifying an adverse event (MD, 0.6 units; 95% CI, 0.1–1.1). In each case, the size of the difference was greater than the minimal clinically important difference. We also found a small but significant negative change in attitudes to intellectual disability for the Similarity subscale. There was no change in the other outcomes measured.

DISCUSSION

Our main finding was that there were no between-groups differences in attitudes to disability or ratings of competence in professional behaviours and skills after the 8-week programme; both groups showed improvements in these areas. These results support our primary hypothesis that contact with a young adult with disability results in a positive change in attitudes toward disability among students, independent of the context of their experience. Our secondary hypothesis, that participating in a discipline-focused experience would lead to more positive changes in student professional behaviours and skills, was not supported ($p = 0.06$).

Our findings are consistent with contact theory, which proposes that increased contact with people with disability is associated with more positive attitudes toward disability. They concur with findings from previous studies that suggest increased contact with people with disability can change physiotherapy student attitudes toward disability.^{6–8} We found a positive change in attitudes to disability among students who spent a relatively short amount of time (12 hours) working with a young adult with disability. Overall, the average change in students' ratings of discomfort with interacting with people with disability was larger than the average change reported after a 12-week campus-based university curriculum for physiotherapy students focusing on neurological disability.²² Furthermore, our participants' mean score at the end of the study was 7.7 (SD 2.4), which is below the previously reported average score for final-year physiotherapy students.²² This suggests that the expected change in

Table 2 Scores on Attitude and Competency Questionnaires for Two Groups of Student Mentors at Baseline and at 9 Weeks

Outcome	Group mean (SD)				Mean (SD) difference within groups			Mean (95%CI) difference between groups	
	Week 0				Week 9 minus Week 0			Week 9 minus Week 0	
	1 (<i>n</i> = 8)	2 (<i>n</i> = 8)	All (<i>n</i> = 16)	All (<i>n</i> = 16)	1 (<i>n</i> = 8)	2 (<i>n</i> = 8)	All (<i>n</i> = 16)	All	1 minus 2
Interaction with disabled persons									
Discomfort scale (5–30)	12.0 (3.7)	10.2 (3.9)	11.1 (3.8)	8.6 (1.5)	8.6 (1.5)	6.8 (2.9)	7.7 (2.4)	–3.4 (4.5)	–3.4* (2.6)
Total score (20–120)	67.0 (6.6)	64.3 (11.0)	65.6 (8.9)	63.3 (6.9)	63.3 (6.9)	56.2 (8.4)	59.8 (8.3)	–3.6 (8.9)	–8.1* (7.4)
Community Living Attitudes Scale-Intellectual disability†	4.4 (0.5)	4.3 (0.3)	4.3 (0.4)	4.0 (0.2)	4.0 (0.2)	4.3 (0.5)	4.1 (0.4)	–0.4* (0.4)	0.0 (0.4)
Empowerment (1–6)	1.3 (0.3)	1.2 (0.2)	1.3 (0.2)	1.3 (0.2)	1.3 (0.2)	1.3 (0.3)	1.3 (0.3)	0.0 (0.2)	0.1 (0.1)
Exclusion (1–6)	3.0 (0.3)	2.8 (0.5)	2.9 (0.4)	3.0 (0.2)	3.0 (0.2)	2.6 (0.5)	2.8 (0.4)	0.0 (0.3)	–0.2 (0.6)
Sheltering (1–6)	5.6 (0.1)	5.5 (0.2)	5.5 (0.2)	5.4 (0.2)	5.4 (0.2)	5.3 (0.4)	5.3 (0.3)	–0.2* (0.2)	–0.2 (0.3)
Similarity (1–6)									
Barriers to exercise scale									
Cognitive-emotional (9–45)	25.8 (5.5)	25.6 (3.5)	25.7 (4.5)	26.1 (4.5)	26.1 (4.5)	21.6 (5.5)	23.8 (5.4)	0.3 (6.5)	–4.0 (7.0)
Accessibility (9–45)	32.5 (2.2)	30.2 (3.2)	31.3 (2.9)	29.3 (4.5)	29.3 (4.5)	29.0 (2.6)	29.1 (3.6)	–3.1* (3.2)	–1.2 (1.9)
Learning outcomes									
Professional behaviours (general) (0–32)	23.0 (6.5)	19.7 (5.7)	21.3 (6.1)	27.0 (3.4)	27.0 (3.4)	23.5 (3.5)	25.2 (3.8)	4.0 (5.0)	3.8* (4.4)
Professional skills (specific) (6–24)	17.8 (3.6)	18.3 (2.8)	18.1 (3.2)	19.3 (2.3)	19.3 (2.3)	17.7 (1.6)	18.5 (2.1)	1.5 (3.1)	–0.6 (2.1)
Confidence (0–4)	2.4 (0.5)	2.5 (0.5)	2.4 (0.5)	3.2 (0.4)	3.2 (0.4)	3.2 (0.4)	3.2 (0.4)	0.8 (0.3)	0.7 (0.4)
Likelihood of working in disability in future (0–4)	2.5 (0.5)	2.9 (0.6)	2.6 (0.6)	3.1 (0.8)	3.1 (0.8)	3.0 (0.5)	3.0 (0.6)	0.6 (0.5)	0.1 (0.3)

**p* < 0.05.†*p* < 0.05 with both paired *t*-test and Wilcoxon signed rank test.‡only *n* = 7 responses in experimental group for this outcome.§*p* = 0.06.¶*p* = 0.07.

attitudes to disability can be achieved over a relatively short period and that the resulting change in attitudes from community-based contact with people with disability might be greater in magnitude than that expected from current university curricula alone.

Our findings may have implications for the learning experiences provided to physiotherapy students. After contact with a person with disability, participants in our study reported more positive attitudes to disability, increased confidence, improved ratings of competency in professional behaviours, and a greater likelihood of working with people with disability in the future. The nature of the experience emphasized getting to know someone with a disability; this may have helped students become more comfortable around people with disability and to improve their confidence in working with people with disability. The traditional learning experiences of physiotherapy students are focused on structured clinical experiences that are discipline specific; our results suggest that general experiences, such as volunteering, might be equally effective for developing competency in some professional behaviours, including understanding disability, and in increasing confidence and influencing future work options. Service-learning pedagogy has been under-used in physiotherapy education and might be an opportunity to focus on experiencing disability in a community context. This is important, as employers have highlighted a lack of disability experience in physiotherapy graduates.^{7,24} The trend toward group 1 having higher ratings of competency in professional skills suggests that alternative service-learning experiences would complement rather than replace traditional clinical learning experiences, particularly in relation to learning specific intervention skills.

While the finding that attitudes to disability can change is important, it is unclear whether such changes lead to a change in behaviours. Although attitudes can predict behaviour,²⁵ students' changed scores on an attitude scale may not necessarily translate into a change in how students actually interact with people with disability. However, the concurrent data on confidence and likelihood of working with people with intellectual disability in the future may suggest that a change in attitude as a result of this practical experience might encourage a change in behaviour.

Our study has several limitations. First, the students who participated in this study may have been more positively inclined to work with people with disability and so had an inherent readiness to change. This notion is supported by their positive baseline scores on the discomfort subscale, which were similar to those of physiotherapy students who were about to graduate²² and lower than those of first- and second-year health science students.¹⁴ However, the students' attitudes to disability still improved after taking part in the programme, which suggests that while curriculum can

change attitudes, an even bigger shift may be possible through practical experience. Another limitation is the relatively small sample size and the fact that all student participants were from the same university. Our results would need to be replicated with a larger sample and in more than one context before we could be confident of their external validity. In addition, we did not collect follow-up data, so it is not clear whether the changes reported were maintained in the months following the intervention.

The Assessment of Physiotherapy Practice scale has been validated only for use by clinical educators, and there are no published data comparing student ratings of the scale items to clinical educator ratings. However, in practice, as part of formative assessment, students are encouraged to self-rate their competencies as a platform for discussion with their clinical educators and to learn how to reflect and self-evaluate their skills. For these reasons, we believe that it was appropriate to have students self-rate their competencies on eight items of the Assessment of Physiotherapy Practice scale.

CONCLUSION

Engagement in an 8-week community-based programme consisting of 12 hours of contact time with an adult with disability improved physiotherapy students' comfort with and confidence in interacting with people with disability. The students also rated their competency in professional behaviours as better after the experience. These data support the idea that contact with people with disability in community settings during university has positive benefits for physiotherapy students and improves their attitudes toward disability.

KEY MESSAGES

What is already known on this topic

Poor attitudes toward disability among health professionals can negatively affect people with disability by limiting their access to quality health care. Contact with people with disability is important to the formation of positive attitudes.

What this study adds

Contact with people with disability in community settings improves physiotherapy students' attitudes toward disability. Students also rated their competency in several professional behaviours better after working with an adult with disability. The duration of the contact needed to change physiotherapy students' comfort with and confidence in interacting with people with disability is relatively short (12 contact hours over 8 weeks).

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