

**Medical students' attitudes towards healthcare for people with
learning disabilities**

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Thesis declaration form

I confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

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Overview

This thesis is presented in three parts. The overall focus of the thesis is medical students' attitudes towards healthcare for people with learning disabilities. Medical students' attitudes are important because, as tomorrow's doctors, they will have opportunities to reduce the health inequalities experienced by people with learning disabilities.

The first part presents a review of literature on medical students' attitudes towards people with learning disabilities and their healthcare. Despite being limited by methodological weaknesses, reviewed studies suggested that pedagogical interventions could enhance medical students' attitudes. It was concluded that further investigation of medical students' attitudes towards healthcare for this population was warranted.

Part two is an empirical paper that documents qualitative and quantitative studies of medical students' attitudes towards healthcare for people with learning disabilities. In the first study, a thematic analysis of data from individual interviews with medical students was described. A measure of medical students' beliefs about healthcare for people with learning disabilities was developed and psychometrically evaluated in the second study. Together, these studies indicated that medical students' attitudes might benefit from more learning disabilities teaching and direct experiences with people with learning disabilities.

Part three is a critical appraisal of the literature and the two studies. The research rationale and strengths and weaknesses of the research were explored. Then, practical implications and future research directions were discussed. Finally, a conclusion and personal reflections were provided.

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Publication

The literature review was published during the course of this project. It is listed here for reference.

Ryan, T. A., & Scior, K. (2014). Medical students' attitudes towards people with intellectual disabilities: A literature review. *Research in Developmental Disabilities, 35*, 2316-2328.

Part One: Literature Review

Medical students' attitudes towards people with learning disabilities:

A literature review

1. Abstract

Aims: The present paper provides a review of research on medical students' attitudes to people with learning disabilities. The attitudes of medical students warrant empirical attention because their future work may determine people with learning disabilities' access to healthcare and exposure to health inequalities. **Method:** An electronic search of Embase, Ovid MEDLINE(R), PsycINFO, Scopus, and Web of Science was completed to identify papers published up to August 2013. **Results:** Twenty-four studies were identified, most of which evaluated the effects of pedagogical interventions on students' attitudes. Results suggested that medical students' attitudes to people with learning disabilities were responsive to interventions. However, the evidence is restricted due to research limitations, including poor measurement, self-selection bias, and the absence of control groups when evaluating interventions. **Conclusions:** There is a dearth of high-quality research on this topic, and past findings should be interpreted with caution. Future research directions are provided.

2. Introduction

People with learning disabilities (LD) experience more health inequalities than persons without disabilities (Cooper, Melville, & Morrison, 2004). For example, they have a shorter life expectancy than people without LD (Emerson & Baines, 2010). Negative attitudes among healthcare staff towards the provision of healthcare to this population are a likely contributing factor in the health inequalities that they experience (Ditchman et al., 2013; Emerson & Baines, 2010). An attitude is a “psychological tendency, expressed by evaluating a particular entity with some degree of favour or disfavour” (Eagly & Chaiken, 1993, p. 1). While doctors play a key role in their healthcare, and teaching on LD often is part of medical schools' curricula (Sinai, Strydom, & Hassiotis, 2013), few studies have investigated medical students' attitudes to people with LD.

This is an important omission because they are tomorrow's doctors (General Medical Council, 2009) and every student will provide healthcare to this population at some stage (Lennox & Diggins, 1999a). Indeed, in response to Mencap's (2007) *Death by Indifference* report that aimed to change health professionals' attitudes towards people with LD, Michael's (2008) *Healthcare for All* recommended that teaching on LD should invariably be provided for undergraduate medical students. According to Lennox and Diggins (1999b), both the quantity and quality of medical education on this subject need to be increased to improve practitioners' healthcare provision and management for this clinical population. Different teaching strategies have been recommended, such as the inclusion of people with LD and their family and friends in teaching (Lennox & Diggins, 1999a; 1999b).

Emphasising the need for medical students to have positive attitudes towards people with LD and feel comfortable communicating with them, Piachaud (2002)

recommended the inclusion of teaching on LD, which simultaneously addresses attitudes, skills, and knowledge, early in the first year of undergraduate programmes. After surveying experts on LD, Lennox and Diggins (1999b) identified six attitudes that medical students ideally should have when they finish their undergraduate education, if they are to successfully meet the health needs of this population. They stated that medical students should: a) believe that people with LD should receive equal treatment by health providers; b) look beyond the disability and see the person first; c) respect and appreciate their equal rights; d) be open to examining their own attitudes; e) respect carers' information and opinions; and f) respect the wishes and beliefs of this patient group and their families.

Thus, medical students' attitudes to people with LD are important (Michael, 2008) and medical schools have been urged to provide better LD teaching to foster the development of positive attitudes among their students (Lennox & Diggins, 1999b; Piachaud, 2002). Despite this, the health inequalities experienced by people with LD (Emerson & Baines, 2010), and reports documenting how doctors' negative attitudes are implicated in the premature deaths of patients with LD (Mencap, 2007), medical students' attitudes towards this patient group have received little empirical attention. This paper aims to provide an enhanced understanding of medical students' attitudes to people with LD and their healthcare by reviewing extant research on this topic. A subsidiary goal is the elucidation of future research directions that would incrementally advance the literature base.

3. Method

3.1. Search Strategy

The electronic databases Embase, Ovid MEDLINE(R), PsycINFO, Scopus, and Web of Science were used to search for manuscripts that examined medical

students' attitudes to people with LD. The search was conducted within the titles and abstracts of English language journal articles published before the end of August 2013. Search terms were: (attitud* or aware* or behav* or belief* or bias* or discriminat* or emotion* or experience* or feeling* or opinion* or perception* or perspective* or prejudice* or stereotyp* or stigma* or view*) and (down* syndrome or developmental* delay* or developal* disab* or intellect* challeng* or intellect* disab* or learning disab* or mental* deficien* or mental* handicap* or mental* retard*) and (medic* adj4 clerk* or medic* adj4 intern* or medic* adj4 school* or medic* adj4 student* or medic* adj4 undergrad* or medico or md student* or student doctor* or student physician*).

3.2. Review Process

The author discussed and established clear inclusion and exclusion criteria with his supervisor. Then, he decided to only include studies that investigated medical students' attitudes towards people with LD and/or their healthcare. Given the limited amount of research on this topic, studies that used measures of attitudes to people with disabilities (i.e., studies that did not use LD-specific measures) to assess participants' attitudes to people with LD were included, as were studies whose participants were a combination of medical students and professionals or other students. The author chose to exclude the following types of articles: examinations of medical students' views on training in LD, which did not assess participants' attitudes towards people with LD and/or their healthcare (e.g., Burge, Ouellette-Kuntz, Isaacs, & Lunskey, 2008; Burge, Ouellette-Kuntz, McCreary, Bradley, & Leichner, 2002); studies without a focus on LD (e.g., Beausoleil, Zalneraitis, Gregorio, & Healey, 1994; Wonkam, Njamnshi, & Angwafo, 2006); and research without medical students (e.g., Boyle et al., 2010; Parchomiuk, 2013). Then, the

author reviewed the literature. Nine hundred and thirty-six items were imported into Zotero and 377 duplicates were removed, leaving 559. After reading their titles and abstracts, 507 clearly irrelevant items were deleted. The remaining 52 articles were read in full, with 28 irrelevant articles removed after this examination. This process resulted in the retention of 24 studies that examined medical students' attitudes towards people with LD.

While the Critical Appraisal Skills Programme (CASP; 2013) checklist for evaluating qualitative work guided the review of Karl, McGuigan, Withiam-Leitch, Akl, and Symons (2013), the Cochrane Public Health Group's (n.d.) quality assessment tool informed the review of the 23 quantitative papers. The latter focused attention on the following topics: selection bias, allocation bias, confounders, blinding, data collection methods, withdrawals and dropouts, analysis, and intervention integrity.

4. Results

4.1. Overview of Studies

Twenty-four articles published between 1968 and 2013 met the inclusion criteria, all of which reported on separate studies. Studies mostly were conducted in the UK ($n = 9$), followed by the USA ($n = 8$), Australia ($n = 3$), Ethiopia ($n = 2$), Canada ($n = 1$), and China ($n = 1$). Eighteen studies sampled medical students only (e.g., Hall & Hollins, 1996; Khandelwal & Workneh, 1987) and 6 used samples that included medical students and other groups (e.g., healthcare professionals; Handler, Bhardwaj, & Jackson, 1994). All studies used surveys (with closed and/or open-ended questions) to assess students' attitudes; no focus groups or interviews were conducted. Twelve studies used a pre-test post-test design, 10 cross-sectionally analysed attitudes, 1 was experimental, and another was qualitative.

Using the aforementioned critical appraisal tools, each study's strengths and limitations were determined. Strengths included low attrition rates and attention to intergroup contact theory (Pettigrew, 1998) to explain medical students' attitudes. However, these strengths were offset by disadvantages. For example, most studies employed ad-hoc measures with questionable psychometric quality; no study blinded researchers to the intervention; and only Sinai et al. (2013) reported a power calculation. Table 1 shows component ratings for quantitative studies specified by the critical appraisal tool of the Cochrane Public Health Group (n.d.). All studies are reviewed in the following sections and an overview is given in Table 2.

Medical Students' Attitudes

Table 1

Component ratings of the quality assessment tool for quantitative studies

Authors	Selection Bias	Study Design	Confounder	Blinding	Data Collection Methods	Withdrawals and Dropouts
Andrew et al. (1998)	Weak	Weak	Weak	Weak	Weak	Strong
Boyd et al. (2008)	Weak	Weak	Weak	Weak	Weak	Moderate
Fishler et al. (1968)	Weak	Weak	Weak	Weak	Weak	Weak
Hall & Hollins (1996)	Weak	Weak	Weak	Weak	Weak	Weak
Handler et al. (1994)	Moderate	Weak	Weak	Weak	Moderate	Weak
Holt & Bouras (1988)	Weak	Weak	Weak	Weak	Weak	Weak
Khandelwal & Workneh (1986)	Weak	Weak	Weak	Weak	Weak	Weak
Khandelwal & Workneh (1987)	Weak	Weak	Weak	Weak	Weak	Weak
Laking (1988)	Weak	Weak	Weak	Weak	Weak	Weak
Lennox & Chaplin (1995)	Moderate	Weak	Weak	Weak	Weak	Weak
Li et al. (2012)	Weak	Weak	Weak	Weak	Weak	Weak
May (1991)	Moderate	Weak	Weak	Weak	Weak	Moderate
May et al. (1994)	Strong	Weak	Weak	Weak	Weak	Moderate

Medical Students' Attitudes

Table 1 Continued

Authors	Selection Bias	Study Design	Confounder	Blinding	Data Collection Methods	Withdrawals and Dropouts
Ouellette-Kuntz et al. (2012)	Moderate	Weak	Weak	Weak	Strong	Weak
Scott & Rutledge (1997)	Weak	Weak	Weak	Weak	Strong	Weak
Simeonsson et al. (1976)	Weak	Weak	Weak	Weak	Weak	Strong
Sinai et al. (2013)	Weak	Weak	Weak	Weak	Strong	Weak
St. Claire (1993)	Weak	Strong	Weak	Weak	Weak	Weak
Thacker et al. (2007)	Weak	Weak	Weak	Weak	Weak	Weak
Tracy & Graves (1996)	Weak	Weak	Weak	Weak	Weak	Strong
Tracy & Iacono (2008)	Weak	Weak	Weak	Weak	Strong	Weak
Widrick et al. (1991)	Weak	Weak	Weak	Weak	Moderate	Weak
Wishart & Johnston (1990)	Weak	Weak	Weak	Weak	Weak	Weak

Medical Students' Attitudes

Table 2

Overview of studies included in the review

Authors	Design	Location	Sample	Study's focus	Attitudinal measurement	Information provided on psychometric properties	Key attitudes-related results
Andrew et al. (1998)	Pre-test post-test	USA	125 third-year medical students in a paediatric clerkship completed an educational experience, with 115 doing a questionnaire	Educational experience that focused on children with developmental disabilities, and parents' psychosocial issues	Survey assessed students' opinions on where people with disabilities should live, the education they should get, as well as students' knowledge of, and exposure to, people with disabilities. Open-ended and Likert-type response options	None	Most students reported enjoying and learning from the educational experience. 68% said their attitudes changed at least moderately
Boyd et al. (2008)	Pre-test post-test	USA	48 physician assistant students; 31 graduate nursing students; 18 undergraduate nursing students; and 4 medical residents	Training intervention's effects on students' knowledge and perception of difficulty in providing care to female health patients with developmental disabilities	The eight-item Disability Situations Inventory - Women's Health Version (developed by the authors) measured perceived difficulty in addressing the needs of individuals with developmental disabilities. Five-point Likert-type scale (1 = least difficult; 5 = most difficult)	The authors created items with input from others (e.g., faculty)	Participants reported less difficulty working with patients with developmental disabilities after the intervention than beforehand

Medical Students' Attitudes

Table 2 Continued

Authors	Design	Location	Sample	Study's focus	Attitudinal measurement	Information provided on psychometric properties	Key attitudes-related results
Fishler et al. (1968)	Pre-test post-test	USA	36 fourth-year medical students	Intervention's effects on medical students' comprehension of LD	Students ranked in order of importance 10 problem areas related to LD; selected what advice about care (from 4 options) they would give to parents of a new-born child with LD	None	Students ranked medical and psychological as more important problem areas, and custodial and sterilization less important problem areas after clinic experience; however, their advice remained the same afterwards
Hall & Hollins (1996)	Pre-test post-test	UK	28 medical students	Medical students' attitudes towards people with Down's syndrome before and after a workshop given by people with LD	Students rated how much they agreed with ten statements about people with Down's syndrome (response options ranged from "strongly agree" to "strongly disagree")	None	After the workshop, self-reported attitudes improved, with changes on seven statements reaching statistical significance

Medical Students' Attitudes

Table 2 Continued

Authors	Design	Location	Sample	Study's focus	Attitudinal measurement	Information provided on psychometric properties	Key attitudes-related results
Handler et al. (1994)	Cross-sectional	USA	136 medical students and 149 healthcare professionals	Medical students' and healthcare professionals' expectations about people with LD	Adapted version of the Prognostic Beliefs Scale (Wolraich & Siperstein, 1983) assessed expectations and prognostications for 3 target cases: a child with mild, moderate, and severe LD. Expectations had 23 questions about functional capabilities. Prognostics had 4 levels of residential placement and 5 levels of vocational placement	A panel of experts assessed content validity	Medical students' expectations were lower than healthcare professionals' expectations. Fourth-year students had higher expectations than those in earlier years. No relationship was found among medical students' expectations and background variables, such as having a family member with a disability
Holt & Bouras (1988)	Cross-sectional	UK	166 medical students	Medical students' attitudes to LD	Questionnaire with questions about terminology, feelings, causes of LD, and contact with people with LD	None	Students reported favourable attitudes. While they wanted to learn more about this group, only 10% wanted to work in LD services

Medical Students' Attitudes

Table 2 Continued

Authors	Design	Location	Sample	Study's focus	Attitudinal measurement	Information provided on psychometric properties	Key attitudes-related results
Karl et al. (2013)	Qualitative	USA	144 third-year medical students	Effects of a clinical experience that involved caring for people with LD	Seven open-ended questions about the experience	Questions were developed through collaborative discussions among medical educators, patients, and health-care providers with experience in caring for people with disabilities	Students positively evaluated the learning experience. Four themes emerged: communication strategies; attitudes and comfort about disability care; the medical facility's organisational structure; and environmental and technological accommodations at the facility
Khandelwal & Workneh (1986)	Cross-sectional	Ethiopia	60 undergraduate medical students	Medical students' perceptions of, and attitudes to, mental illnesses, before the start of a 6-week psychiatric attachment	Questions about conditions (e.g., LD) depicted in vignettes representing conditions. Using a 3-point response scale (from normal to most serious), attitudinal ratings were made for gravity of the illnesses, their prognoses, and their influences on marriage prospects, family life, and work	None	92% regarded LD as an illness; 62% regarded it as very serious; 59% stated that its prognosis would remain the same; 35% stated that it would be impossible for a person with LD to get married; 78% stated that they would have some problem in their family life; and 25% stated that it would be impossible for them to work

Medical Students' Attitudes

Table 2 Continued

Authors	Design	Location	Sample	Study's focus	Attitudinal measurement	Information provided on psychometric properties	Key attitudes-related results
Khandelwal & Workneh (1987)	Pre-test post-test	Ethiopia	100 medical students	Attitudinal changes among medical students after a psychiatric course	Same questions as Khandelwal & Workneh (1986)	None	After training, students were: more pessimistic about the prognosis of those with LD after training; more likely to think it is impossible for this group to get married; more likely to report believing they would have problems working; and as likely to believe they would have problematic family relations
Laking (1988)	Cross-sectional	UK	58 medical students, of whom 33 had completed a short psychiatry of mental handicap course	Medical students' attitudes, comparing those who did a short LD psychiatry course with those who did not	Modified version of the ATDP, with "mentally handicapped" substituted for "disabled" in the items. Response options were Likert-style, ranging from "Strongly agree" to "Strongly disagree"	No information provided about modified ATDP. Laking (1988) concluded that the ATDP was not a valid instrument to measure changes in attitudes over time	Those who did, and did not, do the course reported comparable attitudes to people with LD

Medical Students' Attitudes

Table 2 Continued

Authors	Design	Location	Sample	Study's focus	Attitudinal measurement	Information provided on psychometric properties	Key attitudes-related results
Lennox & Chaplin (1995)	Cross-sectional	Australia	116 people took part, of which 78% were psychiatric trainees, 16% were medical officers, and 7% were psychiatrists	Perceptions of psychiatric care of people with LD	18 items assessed participants' opinions on management of people with LD and mental disorders. Response options for the 18 items were on a 6-point Likert-type scale, ranging from "very much agree" to "very much disagree"	Items were pretested on eight psychiatrists and psychiatric trainees, and revised based on their comments	Most participants believed: more training in this area is required; the standard of psychiatric care is poor; the standard of community and inpatient care is poor; and psychiatric care should be provided in specialised units. They reported positive attitudes towards people with LD, and suggested how to improve care
Li et al. (2012)	Cross-sectional	China	136 medicine students and 144 education students	Attitudes towards inclusion of people with LD	The 29-item Mental Retardation Attitude Inventory-Revised (Antonak & Harth, 1994) measured attitudes towards the inclusion of people with LD. Response options were on a 4-point Likert-type scale, ranging from "strongly disagree" to "strongly agree"	An alpha coefficient of .78 was reported (Hampton & Xiao, 2008). As the questionnaire's multidimensionality was not confirmed among a Chinese sample (Hampton & Xiao, 2008), it was used as a unidimensional questionnaire	Students of both disciplines reported comparably favourable attitudes. Females reported more positive attitudes than males. There was a positive association between attitudes and familiarity with this group

Medical Students' Attitudes

Table 2 Continued

Authors	Design	Location	Sample	Study's focus	Attitudinal measurement	Information provided on psychometric properties	Key attitudes-related results
May (1991)	Pre-test post-test	UK	Of 26 medical students, 24 completed a questionnaire before a seminar, with 17 completing a questionnaire afterwards	Effects of LD teaching on medical students' attitudes towards people with LD	Questionnaires on students' responses to teaching and attitudes towards LD	None	When describing people with LD, positive (53%) and negative (47%) words were used. Some participants supported the group's civil rights, while others did not. Teaching minimally affected attitudes. After teaching: more participants supported this group's right to attend "normal" school; fewer students were willing to work in LD; and general practitioners were viewed as less important to people with LD
May et al. (1994)	Pre-test post-test	UK	21 medical students answered questions before the programme and 16 medical students answered them afterwards	Effects of a teaching programme for medical students	Students were asked to: choose 10 words from a list of 43 words (containing 23 positive and 20 negative descriptors) that they thought described people with LD; and comment on the rights of this population	None	After the seminar, participants chose more positive and less negative words to describe people with LD. However, support for this group's rights did not change

Medical Students' Attitudes

Table 2 Continued

Authors	Design	Location	Sample	Study's focus	Attitudinal measurement	Information provided on psychometric properties	Key attitudes-related results
Ouellette-Kuntz et al. (2012)	Cross-sectional	Canada	258 medical students	Attitudes of upper-year undergraduate medical students toward community inclusion of persons with LD	The Community Living Attitudes Scale—Short Form (CLAS; Henry et al., 1998), which is a 17-item scale with 4 subscales measuring: empowerment; exclusion; sheltering; and similarity. A 6-point Likert-type response format was used (6 = strong agreement; 1 = strong disagreement)	Adequate internal consistency, test-retest reliability, and construct validity were reported (Henry et al., 1996). However, inadequate internal consistency was reported in this study	Participants that were more familiar with patients with LD scored higher on sheltering. Participants that positively evaluated supervision scored higher on empowerment, and lower on sheltering, than those that negatively evaluated supervision
Scott & Rutledge (1997)	Cross-sectional	USA	80 first-year medical students	Attitudes towards people with LD	Attitude Toward Disabled Persons Scale. No citation was provided	The authors stated the scale was reliable and valid; however, no information was provided	Scores suggested attitudes were not negative. 77% were willing to work with this group post-training. 95% believed people with LD should live in the community

Medical Students' Attitudes

Table 2 Continued

Authors	Design	Location	Sample	Study's focus	Attitudinal measurement	Information provided on psychometric properties	Key attitudes-related results
Simeonsson et al. (1976)	Pre-test post-test	USA	12 fourth-year medical students	Evaluation of training	43-item measure of attitudes to people with developmental disabilities. Six-point response options ranged from "disagree strongly" to "agree strongly"	None	After training, attitudes reportedly improved
Sinai et al. (2013)	Pre-test post-test	UK	136 medical students completed a questionnaire before teaching, and 133 medical students completed the questionnaire after teaching	Effects of teaching on medical students' attitudes towards people with LD and their knowledge about this group	Amended 17-item short form of the Community Living Attitudes Scale – Mental Retardation (Henry et al., 1996). There were four subscales: empowerment; exclusion; sheltering; and similarity. Questions were rated 1 (strongly disagree) to 6 (strongly agree)	The subscales have been shown to have acceptable test-retest reliability and internal consistency (Henry et al., 1996). The short form has correlated with the long form of this scale (Henry et al., 1998)	Attitudes did not change after teaching. Overall, participants' attitudes were favourable

Medical Students' Attitudes

Table 2 Continued

Authors	Design	Location	Sample	Study's focus	Attitudinal measurement	Information provided on psychometric properties	Key attitudes-related results
St. Claire (1993)	Experiment	UK	7 doctors and 38 medical students	The role of social identification in medical students' and doctors' beliefs and behaviours vis-à-vis people with LD	46-item measure of beliefs about people with LD. A semantic differential format was employed, with each separately analysed. Each scale had two poles, separated by seven boxes. The questionnaire either was labelled: "Medical diagnosis and subnormality: beliefs about retardates" (clinical condition) or "Personality and perception: personal beliefs about retarded people" (personal condition)	None	People in the medical condition reported more negative beliefs about people with LD than those in the personal condition; however, the groups did not differ on differentiating between children with and without LD
Thacker et al. (2007)	Cross-sectional	UK	26 medical students attended the drama workshop; 14 medical students did not	Workshop's effect on medical students' perceptions of the abilities and qualities of people with LD	A questionnaire entitled attitude formation (Hall & Hollins, 1996)	None	Participants in the workshop reported more positive attitudes than those who did not take part in the workshop

Medical Students' Attitudes

Table 2 Continued

Authors	Design	Location	Sample	Study's focus	Attitudinal measurement	Information provided on psychometric properties	Key attitudes-related results
Tracy & Graves (1996)	Pre-test post-test	Australia	25 first-year medical students who chose to do an LD teaching unit	Effect of teaching on medical students' attitudes to people with developmental disabilities	Before and after the unit, a questionnaire asked about whether students' feelings and beliefs changed over the unit and, if so, why; and what words they used to describe their feelings about people with developmental disabilities and their family members	None	After the unit, students reported more positive feelings and views towards this group
Tracy & Iacono (2008)	Pre-test post-test	Australia	128 fourth-year undergraduate medical students	Effect of training on medical students' attitudes towards interacting with developmental disabilities	The Interaction with Disabled Persons Scale (Gething, 1994), which contains 20 statements describing attitudes towards interacting with a person with a disability. Higher scores reflect greater discomfort in social interaction. Items were rated on a 6-point Likert-type scale (1 = "I disagree very much" and 6 = "I agree very much")	The scale was developed in Australia and Gething (1994) reported adequate internal consistency for six subscales, and stated that items loaded onto six factors.	Students reported that they felt more comfortable interacting with people with disabilities after the session

Medical Students' Attitudes

Table 2 Continued

Authors	Design	Location	Sample	Study's focus	Attitudinal measurement	Information provided on psychometric properties	Key attitudes-related results
Widrick et al. (1991)	Pre-test post-test	USA	39 third-year medical students	Effects of course on medical students' expectations about people with LD's functional ability	Prognostication about Mental Retardation Scale (Wolraich & Siperstein, 1983), which assesses prognostication skills and knowledge about the functional abilities of people with LD. It has 25 statements about functional tasks, which are divided into separate categories for people with mild, moderate, and severe LD. Students kept logs to enable researchers to investigate attitudinal change over time	Wolraich and Siperstein (1983) said the scale had evidence of discriminant validity, as it was able to detect differences in expectations among professionals. It was developed for professionals working in this area	Students were more optimistic after the course. Students were most optimistic about persons with mild LD, followed by those with moderate LD and, lastly, people with severe LD. The logs revealed that attitudes improved after home visits
Wishart & Johnston (1990)	Cross-sectional	UK	People with different degrees of experience, including ten medical students	Relationship between having experience of children with Down's syndrome and stereotypical responses about this group	Participants were asked to indicate to extent to which 26 personality characteristics described the personality of children with Down's syndrome. A 5-point rating scale was used, with opposing characterological terms at either end	Stereotypical words chosen were based on literature	Adults with frequent contact with children with Down's syndrome were less likely to rate their personality in a stereotypical manner. Medical students reported less stereotypical beliefs than others groups

4.2. Studies on Attitude Interventions

Findings suggested that interventions disparately affected attitudes; however, there were methodological concerns.

4.2.1. Research suggesting minimal or no attitudinal change. Sinai et al. (2013) investigated attitudes towards the community inclusion of persons with LD among fourth-year medical students in the UK. The students reported favourable attitudes and these remained unchanged after a 14-week neurosciences block that included LD teaching. However, results should be interpreted with caution. It is unclear if participants attended the teaching block, and self-selection bias may have influenced results as only 136 and 133 students completed the questionnaire beforehand and afterwards, respectively, despite 387 students invited to participate. An amended, shortened version of the Community Living Attitudes Scale – Mental Retardation (CLAS-MR; Henry, Keys, Jopp, & Balcazar, 1996) was used, whose psychometric properties have not been assessed. Also, mean imputation for missing data was employed, a strategy that should be avoided (Allison, 2001).

Laking (1988) compared UK medical students who had, and had not, completed a course on LD psychiatry. A modified version of the Attitudes to Disabled Persons Scale (ATDP; Yunker, Block, & Campbell, 1960) was employed. Items were changed with “mentally handicapped” replacing “disabled,” which is poor psychometric practice because word substitution is unlikely to produce items that optimally measure the intended latent construct. Students were not randomly assigned to conditions (i.e., course completion or not) and there appears to have been a self-selection bias (i.e., most students who completed the course reported previous contact with this group, which may not be representative of medical students). Also, listwise deletion was used for cases that did not complete the ATDP, a suboptimal

strategy for the management of missing data (Allison, 2001). The two groups reported comparable attitudes and Laking (1988) suggested that the ATDP might not be sensitive enough to detect changes in attitudes over time.

May (1991) also studied LD teaching's impact on UK medical students' attitudes. In general, most students supported the rights of this group; however, before teaching, only 42%, 33%, and 13% supported their rights to have children, leave home upon adulthood, and attend mainstream schools, respectively. Although students were more likely to support people with LD's right to attend mainstream schools after the intervention, results suggested that teaching typically did not improve attitudes. However, the "crude measuring instruments" (May, 1991, p. 241) might have been unable to capture attitudinal change.

4.2.2. Research suggesting worsened attitudes. Khandelwal and Workneh's (1987) study demonstrated that an intervention might deleteriously affect attitudes. They found that the attitudes of 100 Ethiopian medical students worsened after a six-week full-time course in psychiatry. The course covered various conditions including LD, with students completing a measure, designed by the authors, before and after. Participants' responses suggested that, upon completion of the course, more students believed that people with LD were unable to work or marry. For example, beforehand, 35% of students believed it was impossible for someone with LD to get married; however, afterwards, this figure increased to 65%. The intervention's non-specificity to LD, and the assessment tool's narrow focus, may be limitations.

4.2.3. Research suggesting improved attitudes: Learning disabilities-specific measures. Several studies reported that interventions led to self-reported improvements in attitudes among medical students (e.g., Fishler, Koch, Sands, &

Bills, 1968; Hall & Hollins, 1996; May et al., 1994; Simeonsson, Kenney, & Walker, 1976; Thacker, Crabb, Perez, Raji, & Hollins, 2007). Using a sample of 12 American medical students (2 did not complete post-test measures), Simeonsson et al. (1976) found that participants reported more positive attitudes towards people with LD after training on the topic. The authors also found more positive self-reported attitudes among participants that had better experiences of persons with LD. However, descriptive statistics only were given and psychometric support for their measure was not provided.

Fishler et al. (1968) also researched American students ($N = 36$), finding that they were less likely to rate sterilisation and custodial as important areas in LD, and more likely to rate medical and psychological as important areas, after clinical experiences in the area. Despite these experiences, and contrary to Fishler et al.'s expectation, students' advice regarding institutional versus home care for children with LD did not change. However, analyses may have lacked power due to the small sample.

The effects of LD training on American medical students' ($N = 39$) beliefs about people with LD's functionality also have been examined (Widrick et al., 1991). Scores on the Prognostication about Mental Retardation Scale (Wolraich & Siperstein, 1983) suggested that students were more optimistic about what people with LD can achieve after the intervention, with people with mild LD ascribed the greatest functional ability, followed by persons with moderate and severe LD, respectively. Students' comments, which also were recorded, suggested that they believed the intervention and, in particular, meeting with this population, increased their expectations about people with LD.

Boyd et al. (2008) examined the efficacy of an intervention that aimed to reduce 101 American students' difficulty with working with people with developmental disabilities. Results suggested that the intervention, which involved training with a virtual patient, achieved a reduction in students' perceived difficulty with providing care to this population. However, only four participants were medical residents, therefore limiting the relevance of this study to understanding medical students' attitudes to people with LD.

Hall and Hollins (1996) found that, among 28 medical students in the UK, attitudes towards people with Down's syndrome improved on 7 of 10 items after taking part in a workshop with actors with LD. For example, students were less likely to report that people with LD have little sense of humour and act like children most of the time. Thacker et al. (2007) used the same measure to examine a teaching intervention's effects on the attitudes of medical students in the UK towards people with LD. Again, the intervention involved actors with LD. Thacker et al. stated that, compared to 14 students who did not take part in the role-plays, the 26 students who did reported relatively positive attitudes. It was unclear whether the students were randomly allocated to attending or not, or if attendance was volitional. Further, neither Hall and Hollins nor Thacker et al. provided psychometric information about their measurement tool; thus, its reliability and validity are unknown, making the interpretation of results difficult.

4.2.4. Research suggesting improved attitudes: Generic measures. Studies that used measures of attitudes towards persons with disabilities in general also suggested that LD teaching/training enhanced medical students' attitudes (e.g., Tracy & Graves, 1996; Tracy & Iacono, 2008). However, such measurement is problematic as scales non-specific to LD may omit critical aspects of students'

attitudes towards this clinical group. Tracy and Graves (1996) examined whether an optional teaching unit on developmental disabilities influenced the attitudes of 25 Australian first-year medical students. At the beginning and end of the unit, students reported their thoughts and feelings towards people with disabilities and the patients' families. Before teaching, 56% of participants expressed discomfort and lack of confidence working with people with disabilities, and 92% wanted to become more knowledgeable about the area. Afterwards, 92% reported that their attitudes had changed over the course of teaching, with qualitative comments typically suggesting attitudinal improvement and identifying intergroup contact as an important change mechanism. However, due to the measure's non-specificity to LD, it is possible that the students' attitudes towards interacting with people with LD remained unchanged or worsened, whilst their comfort interacting with people with other disabilities increased. As measures' psychological constructs should be specific to the research goals (DeVellis, 2003), the validity of such findings is questionable.

Tracy and Iacono (2008) evaluated changes in 128 Australian fourth-year medical students' attitudes towards interacting with people with disabilities after training on developmental disabilities and communication skills. The students completed the 20-item Interaction with Disabled Persons Scale (Gething, 1994), which measured discomfort interacting with persons with a disability, before and after the intervention. Results suggested that the students were more comfortable interacting with people with disabilities after the intervention, with 77% of students valuing the opportunity to meet people with disabilities during the intervention. However, as with Tracey and Graves (1996), these findings are difficult to interpret due to the measure's lack of specificity.

Andrew, Siegel, Politch, and Coulter (1998) also used a generic measure of attitudes to those with disabilities in their evaluation of training, which included experiences with children with developmental disabilities. Little information was given about the chosen measurement tool and its psychometric properties are unknown; however, descriptive results suggested that students enjoyed and learned from the experience. Most students reported that their attitudes at least moderately changed, with 30% indicating unchanged attitudes. Attitude change was mostly attributed to a new awareness of family dynamics, and the most commonly reported behavioural intention arising from the intervention was a need for greater sensitivity when interacting with children with disabilities.

4.2.5. Research suggesting improved attitudes: Qualitative work. Karl et al. (2013) qualitatively examined medical students' written responses to an Internet survey on their reflections about a clinical experience, in which they met patients with developmental disabilities and worked with professionals in this area. A survey was used to avoid interviewer and response bias; however, the authors did not describe consideration of the relationship between the researcher and participants as recommended by CASP (2013), and interviews or focus groups may have produced richer data. Results suggested that, after the intervention, students better understood the need to overcome communication barriers; were more comfortable caring for this population; and were more aware of diagnostic overshadowing and this group's right to equal healthcare standards.

4.3. Cross-Sectional Attitudinal Studies that Did Not Evaluate Interventions

While cross-sectional research has provided snapshots of medical students' attitudes towards this population, studies frequently lacked methodological rigour. Lennox and Chaplin (1995) used four attitudinal items to examine the attitudes of

128 psychiatric trainees and 27 medical officers in Australia. Despite 30% of participants reporting that they would personally prefer not to treat people with LD and a psychiatric disorder, the majority of participants endorsed the need to investigate psychiatric symptoms among persons with severe LD, and recognised the utility of psychotherapy for persons with LD and a psychiatric disorder. No information on item generation was provided, and a rationale for the inclusion of only four items was omitted.

Li, Tsoi, and Wang (2012) found that 280 Chinese students of education or medicine reported comparably favourable attitudes towards the inclusion of persons with LD. Participants with more experience with this population, and females, reported more positive attitudes. However, the use of the Mental Retardation Attitude Inventory-Revised (Antonak & Harth, 1994) among Chinese people may be questioned because its factor structure was not replicated among a sample of Chinese people (Hampton & Xiao, 2008).

Ouellette-Kuntz et al. (2012) studied the attitudes of 258 Canadian medical students towards community inclusion of people with LD, finding that those with experience of people with LD were more likely than those without such experience to score higher on sheltering (e.g., the belief that this population should be protected). Further analysis revealed that 88.5% of those with experience typically reported meeting with five or fewer persons with LD. Thus, their experience and consequent understanding may have been limited (Ouellette-Kuntz et al., 2012). Supervision's salience to attitudes emerged, with those who reported positive supervision experiences scoring higher on the empowerment of people with LD, and lower on the need to protect them in the community (Ouellette-Kuntz et al., 2012), than students who reported negative experiences of supervision. Whilst interesting,

this study may have been limited by the authors' decision to use the CLAS-MR (Henry et al., 1996), as it only measures attitudes towards community inclusion and neglects a focus on medical students' attitudes to providing healthcare to people with LD.

Holt and Bouras (1988) used a short questionnaire based on McConkey and McCormack (1983) to examine 166 British medical students' attitudes towards people with LD. Findings predominantly indicated that students held favourable attitudes towards this clinical group, with 10% saying that they wanted to work in services for people with LD and participants typically disagreeing that people with LD would always act like children. Although encouraging, results may be explained by students' socially desirable responses and the measurement tool's psychometric qualities are unknown.

Wishart and Johnston (1990) examined stereotypical beliefs about children with Down's syndrome among different groups of British people, including 10 medical students. The role of previous contact with this group also was studied. In general, participants with more experience were less likely to endorse stereotypes, and medical students reported less stereotypical beliefs than other groups, including mothers with children with Down's syndrome. However, the measurement tool's content validity is questionable, and no psychometric information was provided, reducing the interpretability of the findings.

Prognostic beliefs among 136 medical students and 149 healthcare professionals in the USA also have received empirical attention (Handler et al., 1994), with students reporting lower expectations about people with LD than their qualified peers. Students' beliefs were unrelated to having a family member with a disability or working with people with disabilities. Compared to medical students in

earlier years, fourth-year medical students reported more optimistic beliefs about this group's potential. Students were most pessimistic about people with severe LD, followed by those with moderate LD, and lastly persons with mild LD.

Khandelwal and Workneh (1986) used vignettes to assess 60 Ethiopian medical students' attitudes to various conditions, including LD. Ninety-two per cent of students said the person with LD was ill; 62% regarded it as a very serious illness; and 20% said the prognosis would worsen. Only 7% reported that the person with LD had the same ability to marry as anybody else, while 82% and 92% said the person would have at least some difficulty living at home and working, respectively.

Scott and Rutledge (1997) used an uncited ATDP to investigate the attitudes of 80 American first-year medical students to people with LD. The authors claimed the scale's reliability and validity when measuring attitudes towards those with disabilities; however, its specificity to LD and psychometric properties were not detailed. Scott and Rutledge suggested that scores on the ATDP indicated that most participants did not have negative attitudes towards people with LD. Most participants reported that they were willing to work with this population and believed that people with LD should live in the community.

4.4. Experiment on Attitudes

St. Claire (1993) examined the role of social identification among 7 doctors and 38 medical students in the UK. The author hypothesised that, compared to participants whose personal identities purportedly were activated; those with activated clinical identities would report more negative beliefs about people with LD and be more likely to attribute LD to children. Participants were randomly assigned to either condition and therefore received questionnaires titled, "Medical diagnosis and visual cues" or "Personality and person perception." Participants in the clinical

identity condition reported more negative beliefs than those in the personal identity condition, but people in both conditions were equally accurate distinguishing between children with and without LD. However, as a manipulation check suggested different social identities might not have been activated, this study's findings should be interpreted with caution.

5. Discussion

This literature review identified 24 articles regarding medical students' attitudes towards people with LD. The majority of the evidence reviewed consisted of evaluations of teaching/training interventions that sometimes resulted in improved self-reported attitudes. As these interventions often involved students interacting with people with LD (e.g., Hall & Hollins, 1996), findings are consistent with intergroup contact theory, which posits that contact between groups usually reduces prejudice (Pettigrew, 1998). Thus, opportunities for medical students to gain experience with this clinical group may be a key component of future attitudinal interventions. However, as recommended by Corrigan and Penn (1999), interventions to reduce stigma "should not be accepted on faith" (p. 765); instead, their theoretical underpinnings and empirical support warrant scrutiny. This point seems particularly salient, as LD stigma research has not used systematic approaches with conceptual models (Ditchman et al., 2013).

To address this omission, future research may experimentally examine interventions characterised by intergroup contact under optimal conditions of equal status between groups, shared goals, cooperation between groups, and organisational support (Allport, 1954); high levels of intimacy between groups; and minimal differences between the persons with LD involved and their stereotype (Corrigan & Penn, 1999). As the number, frequency, and quality of contacts may be important

(Morin, Rivard, Crocker, Boursier, & Caron, 2013), the roles of these variables should be assessed. Also, as students' attitudes towards persons with LD may be associated with their supervision (Ouellette-Kuntz et al., 2012), future research may examine if quality of placement supervision moderates the effectiveness of interventions on students' attitudes and future clinical behaviours.

In line with other areas of LD research (Ditchman et al., 2013; Rose, Rose, & Kent, 2012; Werner, Corrigan, Ditchman, & Sokol, 2012), there is a need for scale development. Specifically, a measure of medical students' attitudes towards people with LD is needed if the efficacy of interventions is to be determined in a valid manner. As precise definitions of psychological constructs facilitate valid measurement (Eagly & Chaiken, 2007), the conceptualisation of medical students' attitudes to persons with LD requires empirical attention. According to Eagly and Chaiken (2007), attitudes may be: (a) covert or overt; (b) cognitive (e.g., thoughts and beliefs), behavioural (e.g., intentions and overt actions), or affective (e.g., feelings and emotions); and (c) conscious or unconscious.

Eagly and Chaiken (2007) described explicit and implicit attitudes, noting that the former represent evaluations reported by the person holding the attitude, and the latter represent spontaneous emotional reactions that the person may not be consciously aware of. As explicit and implicit attitudes may predict volitional and spontaneous behaviour, respectively, both warrant empirical attention (Eagly & Chaiken, 2007). Further, people may hold an explicit attitude and an implicit attitude towards the same entity, and each may be differentially affected by an intervention (Wilson, Lindsey, & Schooler, 2000). Thus, future research may wish to examine the effects of pedagogical interventions on explicit and implicit attitudes of medical students.

6. Conclusion

This review suggests that teaching and training may improve medical students' attitudes, with interventions driven by intergroup contact theory (Pettigrew, 1998) holding promise. However, the review also identifies the need for more robust research to accurately understand (a) medical students' attitudes towards people with LD and (b) the kinds of interventions that improve these attitudes. Attitude enhancement is the ultimate goal of research on LD stigma (Ditchman et al., 2013). Indeed, if tomorrow's doctors' attitudes towards this population do not improve, efforts to reduce health inequalities experienced by people with LD (Emerson & Baines, 2010; Turner & Robinson, 2010) may well have limited success.

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Part 2: Empirical Paper

Medical students' attitudes towards healthcare for people with learning disabilities:

Thematic analysis, scale development, and psychometric evaluation

8. Abstract

Aims: Investigate medical students' attitudes towards healthcare for people with learning disabilities via thematic analysis and the development and psychometric evaluation of a scale. **Method:** In Study 1, interviews with 17 medical students were thematically analysed to better understand this construct. In Study 2, 609 medical students training in the United Kingdom completed an item pool measuring medical students' attitudes towards healthcare for people with learning disabilities. Data underwent exploratory factor analysis, confirmatory factor analysis, reliability analyses, and tests of validity. **Results:** Key themes were identified in Study 1 (e.g., medical students are especially anxious about working with this group and would benefit from more teaching and direct experience with people with learning disabilities). Study 2 detailed the development and evaluation of the new scale whose psychometric properties indicate its suitability for future research. **Conclusions:** Medical schools' curricula should be reviewed and opportunities for direct contact and clinical experiences with this patient group increased to better prepare medical students for their role as healthcare providers.

9. Introduction

People with learning disabilities (LD) experience health inequalities; they have worse health than persons without LD and die younger (Disability Rights Commission, 2006; Hoghton, Turner, & Hall, 2013). These health inequalities largely are avoidable and therefore unjust, as evidenced by a Confidential Inquiry that found that 90 of 244 deaths of people with LD were preventable and associated with changeable factors, such as healthcare professionals' failure to accurately recognise the health needs of those with LD (Heslop et al., 2014). While this paper will focus on healthcare as a cause of health inequalities, it needs stressing that determinants are multifarious (e.g., poverty and unemployment; Emerson, Baines, Allerton, & Welch, 2012).

Health inequalities are partly due to institutional discrimination, whereby healthcare professionals do not provide care to people with LD in a manner that appropriately accounts for their health needs and circumstances (Hatton, Roberts, & Baines, 2011; Mencap, 2007, 2012; Parliamentary and Health Ombudsman and Local Government Ombudsman, 2009). Other barriers to equitable healthcare include diagnostic overshadowing (i.e., the erroneous misattribution of physical symptoms to mental health, behavioural difficulties, or LD), inappropriate applications of the Mental Capacity Act (2005), off-label use of anti-psychotic medication to manage challenging behaviours, and negative attitudes among healthcare providers (Ali et al., 2013; Emerson et al., 2012).

As tomorrow's doctors, medical students' clinical behaviours and attitudes towards healthcare for people with LD are critically important (Campbell, 2009; Lennox & Diggins, 1999), especially as mainstream health services are increasingly expected to meet the health needs of this group (Duff, Hoghton, & Scheepers, 2000).

Consequently, medical schools need to produce doctors who are competent and non-discriminatory when working with people with LD (Duff et al., 2000). To help medical students develop their knowledge, attitudes, and self-awareness, Campbell (2009) recommended extensive medical curricula on disability, which involve contact with people with disabilities and are based on a social model of disability (e.g., an understanding that social factors account for differences between a person's impairment and their degree of disability). She argues that such curricula would minimise negative attitudes that induce illness and reflect implicit biomedicalist understandings of disablement as a "personal medical tragedy" (p. 223), and maximise positive attitudes and a social model understanding of disability. Lennox and Diggins (1999) also provided guidance on LD teaching, specifying knowledge (e.g., about the causes of LD), skills (e.g., getting information from carers), and attitudes (e.g., being open to examining one's own attitude) that medical students should have at the end of their undergraduate education. They also emphasised the need for medical students to gain direct experience of working with people with LD (Lennox & Diggins, 1999).

The literature review in Part 1 concluded that there is a lack of clarity surrounding medical students' attitudes towards healthcare for people with LD and the amenability of these attitudes to teaching and training. It also demonstrated that poor measurement of the construct has limited research by reducing the interpretability of findings. The current research aims to advance the literature by improving understanding of medical students' attitudes towards healthcare for this group, and developing and evaluating a measure of this construct. Interviews with medical students will be carried out to enhance understanding of these attitudes and generate a pool of scale items (Study 1). Then, medical students will complete the

item pool, with resultant data undergoing psychometric testing to produce a psychometrically sound measure appropriate for use in future research (Study 2).

10. Study 1 Method

10.1. Participants

Seventeen medical students (9 females, 8 males) at a university in London participated in telephone interviews. They were aged between 18 and 27 years ($M = 20.76$, $SD = 2.51$). Nine people described their ethnicities as White British, with the others self-identifying as Asian European, Black African, Black Caribbean, Chinese, Indian, Malaysian, White other than British, or White/Black Caribbean British. Eight participants were in first year; 3 were in second year, 1 was in third year; 2 were in fourth year; 1 was in fifth year, 1 was in sixth year, and 1 was in their intercalated year. Data collection ceased when saturation was reached (Guest, Bunce, & Johnson, 2006).

10.2. Procedure

Ethical approval was obtained from the research ethics committee affiliated with the author's university (Appendices A & B). Interview questions (Appendix C) were developed and undergraduate and postgraduate medical students at a university in London received an email, inviting them to participate in an interview about medical students' attitudes to people with LD (Appendix D). The author made announcements at lectures for first and second year medical students, handing out advertisements with brief information about the study and the author's email address (Appendix E). Interested students read an information sheet (Appendix F) and completed a consent form (Appendix G) via a hyperlink. Students who consented to participate provided their email address and the author emailed them to arrange a telephone interview.

At the beginning of the interview, all participants were thanked for their interest in taking part and reminded about the interview topic. They also were reminded that participation was voluntary, the information gathered would be held in strictest confidence, and participants had the right to withdraw from the study at any time without penalty or consequence. Participants were asked if they consented to the interview being audio-recorded. All participants gave their permission. Every participant was debriefed at the end of the interviews.

10.3. Data Analysis

Interviews lasted an average of 29 minutes (range = 16 to 50 minutes). They were transcribed and data were subjected to an iterative, recursive thematic analysis, a method for the identification, analysis, and reporting of themes across a data set. This type of analysis was chosen as its theoretical freedom makes it a flexible, useful research tool, capable of providing rich, detailed, and intricate accounts of data (Braun & Clarke, 2006).

Braun and Clarke's (2006) guidelines on the use of thematic analysis informed the analysis. First, inductive data analysis was chosen to avoid paradigmatic biases, allow for identification of themes without restrictions imposed by theoretical postulations, and produce a richer overall description of the data. Second, I opted to semantically examine data, as the research objective was to better understand medical students' attitudes to people with LD. Third, a realist epistemology was used to permit straightforward understandings of data.

Braun and Clarke (2006) also informed each step of the analytical process. Transcripts were read closely and repeatedly while taking notes regarding their content (Appendix H). Then codes, basic elements of data that possessed meaning regarding medical students' attitudes to people with LD, were recorded along with

supportive quotations. A document was created for each transcript that listed all of its codes (Appendix I). Then, codes were collated into possible themes, whose interpretation was guided by their prevalence and pertinence to the research aim. A thematic map (Figure 1) was created and underwent several revisions to ensure it accurately and comprehensively represented the data. The codes and their extracts supported the validity of the analysis. As advised by Braun and Clarke (2006), homogeneity of data within themes and themes' heterogeneity were scrutinised.

The author's supervisor checked the accuracy of the analysis. She reviewed and checked initial codes, providing insights and advice that informed the coding process. The author's supervisor also scrutinised how codes combined to form themes, as well as their representation in the thematic map. While no substantive differences in interpretation were observed, her advice informed revisions, including the expansion of the thematic map for clearer communication.

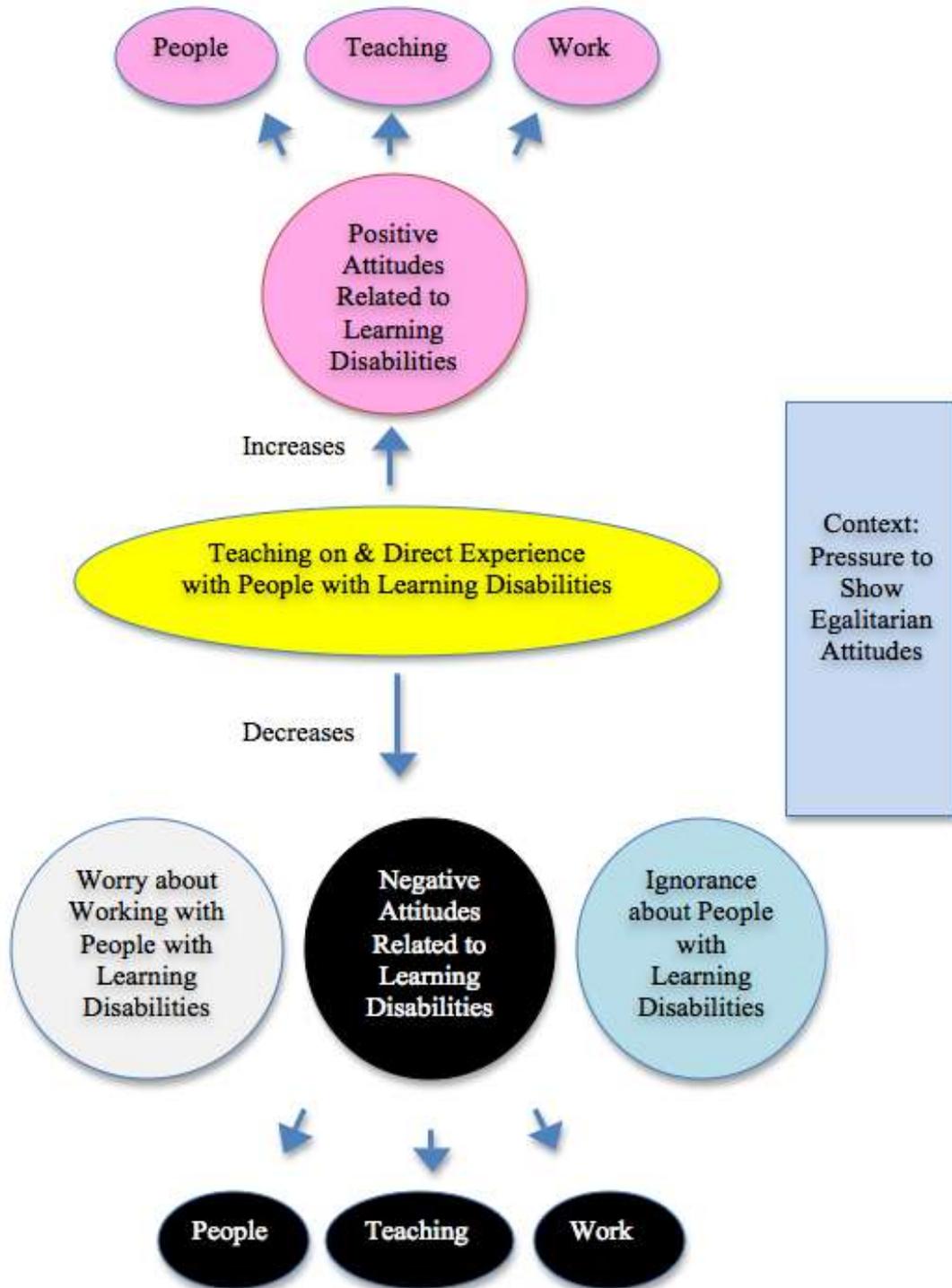


Figure 1. Thematic Map. This figure illustrates how the themes related to each other.

11. Results

The following key themes were identified.

11.1. The Influence of Direct Experience with People with Learning Disabilities

All 17 interviewees felt that experiences with people with LD improve medical students' attitudes towards people with LD. For example, interviewee 7 said, "I didn't understand people with learning disabilities... but looking after this little girl with learning disabilities has definitely improved my attitude towards them." Others commented on the ability of such experiences to change medical students' emotions towards providing healthcare to this patient group.

I think if people are being exposed to people with learning disabilities or have worked with them or volunteered, then it would probably take away anxiety. Medical students treating someone with learning disabilities.

They'd probably be less worried about how to act and less worried that they were going to do the wrong thing. (i7)

Interviewees remarked that experiences with people with LD improve medical students' understanding of them.

I think even over the studies I've done so far, I've become a bit more understanding. You get to meet people with learning disabilities and their families... So like we had a family come in with a girl with Angelman syndrome... that was really interesting and you get to see... how tough life is for them. (i2)

A minority with family members and friends with LD commented on how their experiences with these people improved their attitudes. For example, interviewee 16 said she used to be "embarrassed" by her aunt with LD. However, with experience, she came to "embrace" her aunt for who she is. Participants without friends or

family members with LD also recognised that medical students' attitudes would be better if they had such people in their lives.

Interviewees talked about disadvantages of not having direct experiences with people with LD.

If the medical student isn't used to seeing... people with learning disabilities and then, all of a sudden, you're thrown into the deep end, to be honest, for them, then that might affect their reaction because they've never encountered something like that before. (i14)

Finally, interviewees claimed that most medical students do not have much experience with people with LD: "People haven't had that much experience particularly when they had just left A-levels to go into medical school" (i1).

11.2. Medical Students' Positive Attitudes to People with Learning Disabilities

Fourteen interviewees talked about medical students' positive attitudes towards people with LD. Medical students were said to behave in "more caring" ways with people with LD (i2) and try their best to be nice and non-offensive due to medical students' "attitudes and personalities" (i6). For some interviewees, being a medical student necessitates a mature, respectable, trustworthy approach to patients and forbids judgmental or offensive attitudes.

11.3. Medical Students' Positive Attitudes to Learning Disabilities Teaching

Fifteen interviewees spoke about medical students' positive attitudes towards LD teaching: "I'm interested in it. I think it's a really important subject" (i2). Some noted its benefits, such as taking away anxiety (i7), while others noted medical students' desire for more teaching on the topic. For example, interviewee 1 described the general consensus towards LD teaching as, "I wish we had more of this."

Ten interviewees reported positive attitudes towards LD teaching involving the participation of people with LD. Interviewee 11 said the following about LD teaching:

It's very scientific the way it is taught. There is one exception to this and that is a session where we am... have someone who is disabled or has a learning difficulty or parents or carers of somebody like that... and we have a group session with them and talk about their problems and what they encounter, how it affects them, that kind of thing, and it personifies what's on a piece of paper because I think when you're learning about learning disabilities, you really need to actually see the person and talk it through. It's got to be a humanitarian subject. It can't just be something you learn from a lecture.

11.4. Medical Students' Positive Attitudes to Learning Disabilities Work

Sixteen interviewees said they and/or other medical students had positive attitudes towards working as doctors with people with LD: "... I would be very happy to work with people with LD" (i10). Eleven interviewees were positive about gaining clinical experience with people with LD as medical students. For example, interviewee 4, said that medical students would approach work experience with people with LD with "the upmost seriousness and be respectful of their difficulties." Others stated that medical students would want to gain work experience with this group despite negative beliefs about them: "They would keep whatever prejudices to themselves and be happy to do it" (i13).

Seven interviewees explained their positive beliefs about LD work. For example, they described it as "valuable" (i2) and "important" (i10). They also spoke about how "rewarding" it would be to make a difference to people's lives (i15).

Doctors prepared to specialise in LD were described, for example, as “caring” (i2) “respectable” (i11), and “kinder and nicer than the rest of us... a better person” (i13).

11.5. Medical Students' Negative Attitudes to People with Learning Disabilities

Six interviewees revealed that some medical students hold negative attitudes to people with LD. For example, interviewee 13 described “a general disregard” for people with LD among a minority of medicals students, who “... don't see them as the same level as us. Sorry, non-disabled citizens. So, some attitude like that. It's just very dismissive. And very looking down upon.” Interviewee 11 said she heard medical students saying “really horrible things... about people with learning difficulties... that goes along the eugenics route.” Other interviewees said medical students feel sorry for or pity people with LD: “I'd want to say compassion (laughs). Aaa... in some ways, I hate the word ‘pity,’ but pity” (i10).

11.6. Medical Students' Negative Attitudes to Learning Disabilities Teaching

Nine interviewees described the perceived unimportance of teaching on LD among medical students. Most interviewees spoke about how their peers prefer lectures seen as medical, clinical, or scientific and do not value LD teaching: “I think quite a lot of people think it's a waste of time” (i16). A minority of interviewees said they also attribute less importance to LD teaching.

I try to attend all the teaching that's available and so I'd never miss a lesson because I think it's irrelevant but maybe in the lecture itself... there are a lot more empty seats... and a lot of people... are not so upright and attentive... I guess, for me personally, I'd always go to the lessons but perhaps I wouldn't be as... as am... as attentive as say for an immunology lecture. (i4)

11.7. Medical Students' Negative Attitudes to Learning Disabilities Work

Ten interviewees described medical students' negative attitudes to LD work. Some interviewees claimed that LD work is perceived as less likely to produce results: "... you often don't get easy solutions so people in the medical world just kind of say, 'well, it's not going to... there's nothing you can really do about that'" (i2). Others said medical students perceive LD work as "less prestigious" (i10) and "below them" (i15).

Twelve interviewees said LD work often is seen as challenging. Challenges associated with communication were emphasised: "I think some people probably panic in the sense that people feel like it will be harder to look after them as a patient because it can be difficult to communicate" (i16). Emotional challenges also were mentioned: "I would fear that maybe I would not be able to remain in a professional context... I'd be subjected to too much emotion possibly?" (i17). Some interviewees said LD work might be too challenging for newly qualified doctors: "I'd probably be interested... but I think if I just qualified, it might be maybe a bit much of a challenge" (i9).

11.8. Medical Students Worry about Working with this Group

Fifteen interviewees said medical students are anxious and worry about working with this group and, in particular, communicating and interacting with people with LD.

I'd be worried about getting someone to understand what I was saying and then... understanding what they're saying back to me and... sometimes people speak differently or they might sign... if someone has got a severe learning disability and they can't understand. Say if I'm trying to do a procedure and they get upset because they don't know what I'm

doing and I can't get them to understand and often there'll be a parent or guardian... with that person and then having another person watching me do something would be quite nerve wracking and then watching me cock it up if I can't get my message across. (i15)

11.9. Medical Students Lack Knowledge about Learning Disabilities

Nine interviewees stated that medical students do not know much about people with LD. For example, interviewee 7 said that some medical students "... have no idea whatsoever about maybe what a learning disability really is." Indeed, some interviewees' definitions of learning disability contained inaccuracies, such as the inclusion of dyslexia (i2), autism (i3), "ADHD" (i3), and dyscalculia (i5) as exemplar learning disabilities.

11.10. Pressure to Appear Egalitarian Towards People with Learning Disabilities

Four interviewees said medical students are expected and feel pressure to display socially desirable attitudes towards those with LD.

People are very aware of being politically correct and holding back and I think quite often a lot of things aren't said because someone wants to err on the side of caution but then if somebody does decide, you know, to be quite brutal and honest, it can sound as if they're being quite inappropriate. (i11)

12. Discussion of Study 1 Results

Interviewees described medical students as people aware of their need to show "politically correct" attitudes towards people with LD, despite their significant worries and anxieties about providing healthcare to them, a patient group they lack knowledge about. Medical students' attitudes towards people with LD and

associated teaching and clinical work appear to vary substantially, with perceptions of LD teaching, for example, ranging from very important to “a waste of time.” The ability of medical students' direct experiences with people with LD to enhance their attitudes towards this patient group was a predominant theme.

13. Study 2 Method

13.1. Participants

Of 1,157 people who commenced the Internet survey, 892 (77.1%) reported that they were medical students, 110 (9.5%) said they were not medical students, and 155 (13.4%) did not say if they were medical students or not. Of the 892 medical students, 735 (63.5%) reported that they were training in the United Kingdom. Of those training in the UK, 21 (1.8%) were excluded because they failed to respond correctly to a validity check (see 3.1.2.1.), as were 105 (9.1%) who only provided demographic information and did not complete any of the items.

Thus, data from 609 medical students currently training in the UK were analysed (60.9% female; 38.9% male; 0.2% “ambidextrous” [i.e., slang for bisexual]). On average, participants were 21.7 years old ($SD = 3.0$) and of British nationality (85.2%), followed by Irish (2.6%), Malaysian (1.8%), Canadian (1.0%), Singaporean (0.8%), and Chinese (0.7%). A majority described their ethnicity as White British (66.2%), with others identifying as ethnically Chinese (5.3%), of White background other than British or Irish (5.1%), British Indian (4.4%), of mixed ethnicity (3.1%), and White Irish (3.1%).

First (22.0%), second (15.8%), third (14.6%), fourth (18.9%), fifth (13.5%), and sixth (5.3%) year undergraduate medical students, as well as postgraduate medical students (3.5%) and medical students in intercalated years (6.6%), took part. Three British medical schools agreed to email a link to the Internet survey to their

students, who forwarded it to their peers at other medical schools. This resulted in medical students from at least 13 British medical schools participating.

Typically, more females than males are accepted onto undergraduate courses in medicine in the UK (56% vs. 44% in 2008); most who are accepted are 20 years old or younger (77.9% in 2008); and sizeable proportions are from ethnic minority communities (70.5% self-identified as White in 2008; British Medical Association, 2009). Thus, the current sample of medical students appears to be broadly representative.

13.2. Measures

13.2.1. Data quality check item. The following item was included to allow the exclusion of participants who were not reading the items carefully: "Please show us that you are reading the questions by selecting 'Moderately Disagree' for this question."

13.2.2. Demographic questions. Participants were asked to indicate their gender, age, nationality, and ethnicity. They also were asked if they were a medical student, what year of training they were in, and what country they were training in.

13.2.3. Medical Students' Beliefs about Healthcare for People with Learning Disabilities Scale (MED-LD). In accordance with scale development guidelines (DeVellis, 2003), a pool of 31 items was developed based on the literature review, the thematic analysis, and interviewees' language and phraseology in Study 1 (see Table 1). For example, given students' perceived need to appear egalitarian, items tapped modern prejudicial beliefs (i.e., subtle negative attitudes) rather than old-fashioned prejudicial beliefs (i.e., blatant negative attitudes; Morrison & Morrison, 2003; 2008) to maximise variability in scores. An experienced LD researcher not involved in the study deemed the item pool content valid. Item

wording was investigated to ensure the items' compatibility with a fully anchored Likert scale (1 = strongly disagree to 7 = strongly agree). One double-barrelled item (i.e., an item measuring two ideas) was administered but excluded from factor analyses, as responses to double-barrelled items are difficult to interpret (DeVellis, 2003). A definition of LD was provided on the top of the page of MED-LD items (please see Appendix J for this definition and the final version of the scale).

13.2.4. Validation items. Four items were included to permit tests of convergent validity: (a) "How many people with learning disabilities have you ever known personally (for example, a relative or friend)?" (b) "If applicable, think about the person with learning disabilities who you have known personally and were/are closest to. Please rate how close you were/are to this person;" (c) "How many people with learning disabilities have you ever known professionally (for example, through voluntary/paid work or medical training)?" (d) "If applicable, think about the person with learning disabilities who you have known professionally and were/are closest to. Please rate how close you were/are to this person." For the second and fourth items, response options ranged from 1 (not at all close) to 9 (extremely close).

13.3. Procedure

Ethical approval was obtained from the author's university's research ethics committee (Appendices A & B). Potential participants were invited to complete an Internet survey hosted by Opinio, a web-based survey tool, through convenience and snowball sampling methods. Medical students at three British universities received an email (Appendix K) inviting them to complete the survey. Students who wished to take part read an information sheet (Appendix L) and completed a consent form (Appendix M). Demographic questions appeared first, followed by the item pool, data quality check

item, and validation items. Participants were informed they could enter a prize draw to win a £100 gift voucher as an incentive. Then, they were asked to provide their email address if they were willing to complete a brief follow-up Internet survey on the same topic. Finally, they were asked to forward the invitation to other medical students.

13.4. Data Analysis of the MED-LD

Many data were positively skewed and had platykurtic distributions, with participants typically disagreeing with most items (Table 1). Therefore, the generated items and validation items were log transformed. Although resultant distributions were less non-normal, non-parametric analyses were subsequently employed. To permit exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) on different data, the data set was randomly split into Data Sets A and B ($n_s = 291$ and 318 , respectively).

An EFA was conducted with Data Set A. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .84 and Bartlett's test of sphericity was statistically significant, revealing that the data were suitable for factor analysis (Worthington & Whittaker, 2006). Following recommendations outlined by Fabrigar, Wegener, MacCallum, and Strahan (1999), principal axis factoring and oblique rotation were used, with parallel analysis in conjunction with the scree plot assisting in factor retention. Items with factor loadings greater than .50 and no cross loadings exceeding .32 were retained (Worthington & Whittaker, 2006).

Medical Students' Attitudes

Table 1

Percentages of Participants who Selected Each Response Option in Data Set A/Data Set B

Item	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Disagree nor Agree	Slightly Agree	Moderately Agree	Strongly Agree
1. I would be more confident working with a non-disabled person than someone with learning disabilities.	4.1/4.1	3.8/4.7	5.2/5.7	10.0/14.5	37.8/32.5	27.5/27.4	11.7/11.0
2. Spending money on improving healthcare for people with learning disabilities is not a priority at a time of recession.	29.2/31.9	37.1/35.0	17.2/17.7	9.3/11.0	4.5/2.5	1.7/1.6	1.0/0.3
3. Doctors discriminate against people with learning disabilities. ^a	15.8/13.9	24.4/24.0	13.7/14.8	20.3/20.8	22.3/21.5	2.4/3.8	1.0/1.3
4. I would prefer to get clinical experience with non-learning disabled people than those with learning disabilities.	22.3/25.9	23.4/24.9	15.1/12.3	23.4/22.1	9.3/9.1	4.8/4.4	1.7/1.3
5. People with learning disabilities should have access to specialist healthcare services instead of mainstream ones.	4.1/6.0	8.6/7.3	10.3/9.8	24.7/22.1	32.6/31.9	14.4/17.4	5.2/5.7
6. Once a qualified doctor, I will treat all patients the same way, whether they have a learning disability or not.	1.4/3.5	6.9/5.7	9.6/10.1	7.2/5.7	12.0/10.4	21.3/22.4	41.6/42.6
7. Non-disabled people live more rewarding lives than those with learning disabilities.	28.2/27.8	23.7/23.7	15.1/11.4	17.5/23.7	10.3/8.2	3.4/3.8	1.7/1.6
8. Healthcare policies for people with learning disabilities put unnecessary burden on doctors.	31.6/33.4	27.5/28.1	14.4/16.1	20.6/19.6	5.5/2.8	0.3/0.0	0.0/0.0

Medical Students' Attitudes

Table 1 Continued

Item	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Disagree nor Agree	Slightly Agree	Moderately Agree	Strongly Agree
9. Enough doctors look beyond their patients' learning disabilities and see the person first.	1.7/0.6	9.3/6.9	17.5/22.1	25.1/21.8	18.9/20.8	22.3/24.0	5.2/3.8
10. People with learning disabilities positively contribute to their own healthcare. ^a	0.3/1.3	3.8/2.2	7.9/5.0	42.3/42.6	23.4/25.2	17.9/16.1	4.5/7.6
11. Lectures on other topics are more important than medical teaching on learning disabilities.	13.4/14.2	29.9/25.2	20.6/22.7	16.8/17.0	10.0/12.9	6.9/6.0	2.4/1.9
12. Most people with learning disabilities are unable to give consent for medical treatment.	25.4/21.1	30.2/30.6	21.3/22.1	13.1/15.5	7.9/8.8	1.7/1.9	0.3/0.0
13. Healthcare for people with learning disabilities is fine as it is.	4.8/5.4	18.2/18.6	24.7/28.4	40.5/40.1	8.2/5.4	3.4/2.2	0.0/0.0
14. I might be more tempted to skip a lecture on learning disabilities than other lectures.	32.0/33.8	24.7/20.2	13.4/13.9	7.9/11.4	17.2/14.8	3.4/4.4	1.4/1.6
15. Too many doctors assume that signs and symptoms are features of people's learning disabilities rather than suggesting a possible physiological cause. ^a	4.1/1.6	5.8/7.6	6.5/11.0	35.4/33.4	32.6/29.7	12.7/14.5	2.7/2.2
16. In healthcare, people with learning disabilities get too much special treatment.	23.0/21.5	30.2/31.9	25.8/27.8	16.5/16.1	3.4/2.8	0.7/0.0	0.3/0.0
17. Doctors examining their attitudes to people with learning disabilities sounds like a waste of time.	35.7/38.8	33.7/32.2	18.6/18.6	8.6/7.6	2.4/2.8	1.0/0.0	0.0/0.0

Medical Students' Attitudes

Table 1 Continued

Item	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Disagree nor Agree	Slightly Agree	Moderately Agree	Strongly Agree
18. Doctors should be as confident working with people with learning disabilities as any other patient group. ^a	0.7/1.3	0.3/0.6	1.7/2.8	3.1/1.9	6.9/8.2	22.7/22.1	64.6/63.1
19. Too much importance is put on people with learning disabilities' communication needs.	20.6/22.1	37.5/30.9	20.3/24.9	17.2/14.8	3.8/6.6	0.7/0.6	0.0/0.0
20. It is understandable that doctors don't pay much attention to what people with learning disabilities say.	51.5/46.1	22.3/25.2	13.7/13.9	6.5/6.3	4.8/6.3	1.0/1.6	0.0/0.6
21. Working with patients with learning disabilities would be too challenging for newly qualified doctors.	22.0/21.5	32.6/28.1	20.3/23.7	4.5/5.7	14.4/16.4	5.5/3.5	0.7/1.3
22. Healthcare for people with learning disabilities is one of medicine's less attractive areas.	12.4/12.6	13.4/19.2	18.2/15.5	17.5/15.5	24.4/21.8	12.4/12.9	1.7/2.5
23. Carers of people with learning disabilities are unlikely to give useful clinical information.	57.7/64.4	26.5/22.1	8.2/7.9	3.8/3.8	1.7/1.6	1.4/0.3	0.7/0.0
24. Healthcare for people with learning disabilities costs more than it is worth.	44.3/51.1	29.2/21.5	8.9/10.7	13.7/14.5	3.1/1.9	0.0/0.3	0.7/0.0
25. If I had a family member with learning disabilities, I might be reluctant to admit this.	46.7/48.3	21.3/15.8	8.9/11.0	9.3/8.2	8.9/10.7	3.4/4.4	1.4/1.6
26. Doctors giving extra time to patients with learning disabilities is unfair to other patients.	32.0/28.4	29.9/35.0	19.2/20.2	10.7/7.6	6.9/7.6	1.0/6.3	0.3/2.5

Medical Students' Attitudes

Table 1 Continued

Item	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Disagree nor Agree	Slightly Agree	Moderately Agree	Strongly Agree
27. Healthcare for people with learning disabilities is unlikely to produce positive outcomes.	48.5/52.1	34.7/31.2	10.3/8.8	5.2/5.7	0.7/1.6	0.7/0.3	0.0/0.3
28. Doctors have enough respect for people with learning disabilities' equal rights.	1.4/0.3	5.2/6.9	14.1/17.0	31.6/30.0	18.9/21.1	25.1/20.2	3.8/4.4
29. I would be more nervous speaking with patients with learning disabilities than non-disabled patients.	6.9/9.5	12.7/10.7	11.0/11.4	7.9/7.6	35.7/36.9	16.5/16.7	9.3/7.3
30. Medical training on working with people with learning disabilities should be optional rather than compulsory.	62.9/61.2	22.3/21.5	9.6/10.1	2.1/2.2	2.4/3.5	0.3/0.9	0.3/0.6
31. As most people with learning disabilities can't read doctors' letters, their letters should be addressed to their carers. ^b	44.0/42.3	21.6/14.8	14.8/18.6	10.7/13.6	6.2/6.0	2.1/2.8	0.7/1.9

Note: Percentages for Data Sets A and B are left and right of the forward slash, respectively; ^a = Reverse scored item; ^b = Double-barrelled item excluded from factor analyses

A CFA was conducted using AMOS 19 with Data Set B, which was multivariate non-normal (Mardia's coefficient = 13.56). Given problems associated with maximum likelihood estimation under non-normal conditions, bootstrapping was used after the deletion of one case exceeding the critical value for Mahalanobis distance (i.e., 36.12 for 14 dependent variables). Bootstrapping is not based on the assumption of normal distribution and, relative to maximum likelihood estimation, provides standard error estimates that are less biased (Byrne, 2001).

For CFA, Hoyle (2000) recommended using fit statistics that possess different computational logic. Thus, absolute fit was assessed using the Standardized Root Mean Square Residual (SRMR) and the Root Mean Square Error of Approximation (RMSEA); and comparative fit was examined using Bentler's Comparative Fit Index (CFI). Guidelines for these indices are: $SRMR \leq .08$; $RMSEA \leq .06$; and $CFI \geq .95$ (Hu & Bentler, 1999). Modification indices also were inspected to assess the extent to which the hypothesised model was appropriately described (Byrne, 2001).

Cronbach's alpha coefficients and a Spearman's rho correlation were used to assess internal consistency and test-retest reliability, respectively. As recommended by Kline (2000), a time period of three months was employed for test-retest reliability. Then, the following tests of convergent validity (*H1-H4*) and known groups validity (*H5-H6*) were conducted. Research has found that Canadians who knew more people with LD, had higher quality relationships with them, and had more contact with them reported less discomfort and fewer negative attitudes towards interacting with them (Morin, Rivard, Crocker, Boursier, & Caron, 2013). Therefore, medical students who reported negative beliefs about healthcare for people with LD were predicted to report: personally knowing less people with LD (*H1*); feeling less close to the person with LD they personally knew best (*H2*);

professionally knowing less people with LD (*H3*); and feeling less close to the person with LD they professionally knew best (*H4*).

Medical students in the first year of their degree were similarly expected to report more negative beliefs than those in the final year(s) of their degree (i.e., fifth and sixth year; *H5*), as first years are less likely to have worked with patients with LD or had relevant teaching. Finally, male medical students were anticipated to report more negative beliefs than their female peers, in line with previous research (Scior, 2011; *H6*). Spearman's rho correlations were used to test hypotheses 1 to 4 and Mann-Whitney *U* tests examined hypotheses 5 and 6.

14. Results

14.1. Exploratory Factor Analysis (Data Set A, *n* = 291)

Thirty of the 31 generated items were factor analysed, as one double-barrelled item was omitted. Parallel analysis and inspection of the scree plot (Figure 2) suggested the retention of two factors. The first and second eigenvalues from the real data exceeded the first and second eigenvalues from the random data (i.e., 6.29 vs. 1.65, and 2.76 vs. 1.56, respectively). Corroborating scree plot inspection, negligible differences were detected between subsequent eigenvalues from real and random data.

The two factors were: negative beliefs about healthcare for people with LD (NEG-H; higher scores reflect more negative beliefs), and (b) disagreement that doctors discriminate against people with LD (DIS-D; higher scores reflect more disagreement). They accounted for 20.98% and 9.19% of the variance, respectively. Based on factor loadings and cross loadings, 16 items were removed (Table 2). The NEG-H has 10 items: 4, 8, 11, 16, 17, 19, 20, 24, 26, and 27. The DIS-D has four items: 3, 9, 15, and 28. A small positive association emerged between the subscales

($r_s = .12, p < .05$). Participants with more negative beliefs about healthcare for people with LD were more likely to disagree that doctors discriminate against this group.

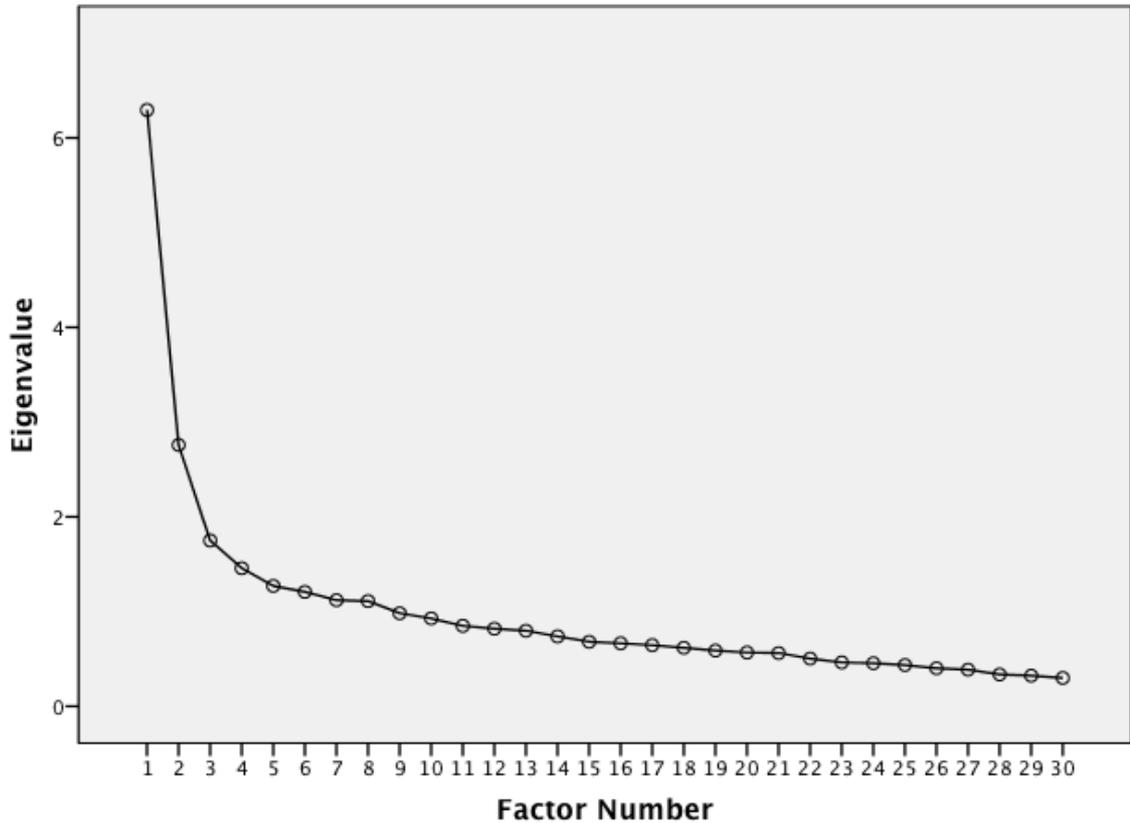


Figure 2. Scree Plot. This figure illustrates the scree plot from the exploratory factor analysis with Data Set A.

14.2. Confirmatory Factor Analysis (Data Set B, $n = 317$)

Fit indices for the 14-item MED-LD were: $\chi^2(76) = 118.74, p < .001$; SRMR = .05; RMSEA = .04 (90% CI: .03-.06); and CFI = .96. Standardised coefficients typically were comparable in magnitude to the EFA's factor loadings (Table 2), suggesting that items measured their respective dimensions of the latent construct in Data Sets A and B. Modification indices were negligible, and the association between the subscales was statistically nonsignificant ($r_s = .10, p = ns$).

Medical Students' Attitudes

Table 2

Factor Loadings of the Exploratory Factor Analysis (Data Set A) and Standardised Coefficients of the Confirmatory Factor Analysis (Data Set B)

Item	Factor 1 Loadings	Factor 2 Loadings	Factor 1 Standardised Coefficients	Factor 2 Standardised Coefficients
1. I would be more confident working with a non-disabled person than someone with learning disabilities.	.29	-.16		
2. Spending money on improving healthcare for people with learning disabilities is not a priority at a time of recession.	.49	.21		
3. Doctors discriminate against people with learning disabilities. ^a	-.04	.57		.62
4. I would prefer to get clinical experience with non-learning disabled people than those with learning disabilities.	.50	-.06	.52	
5. People with learning disabilities should have access to specialist healthcare services instead of mainstream ones.	.08	-.20		
6. Once a qualified doctor, I will treat all patients the same way, whether they have a learning disability or not.	.05	.14		
7. Non-disabled people live more rewarding lives than those with learning disabilities.	.46	-.14		
8. Healthcare policies for people with learning disabilities put unnecessary burden on doctors.	.60	.09	.61	
9. Enough doctors look beyond their patients' learning disabilities and see the person first.	.15	.58		.65
10. People with learning disabilities positively contribute to their own healthcare.	.34	.03		
11. Lectures on other topics are more important than medical teaching on learning disabilities.	.52	-.01	.46	

Medical Students' Attitudes

Table 2 Continued

Item	Factor 1 Loadings	Factor 2 Loadings	Factor 1 Standardised Coefficients	Factor 2 Standardised Coefficients
12. Most people with learning disabilities are unable to give consent for medical treatment.	.37	.07		
13. Healthcare for people with learning disabilities is fine as it is.	.38	.55		
14. I might be more tempted to skip a lecture on learning disabilities than other lectures.	.45	-.07		
15. Too many doctors assume that signs and symptoms are features of people's learning disabilities rather than suggesting a possible physiological cause. ^a	.04	.50		.63
16. In healthcare, people with learning disabilities get too much special treatment.	.59	.17	.63	
17. Doctors examining their attitudes to people with learning disabilities sounds like a waste of time.	.58	.15	.70	
18. Doctors should be as confident working with people with learning disabilities as any other patient group. ^a	.26	-.03		
19. Too much importance is put on people with learning disabilities' communication needs.	.58	.23	.61	
20. It is understandable that doctors don't pay much attention to what people with learning disabilities say.	.57	-.01	.49	
21. Working with patients with learning disabilities would be too challenging for newly qualified doctors.	.46	-.22		
22. Healthcare for people with learning disabilities is one of medicine's less attractive areas.	.44	-.23		

Medical Students' Attitudes

Table 2 Continued

Item	Factor 1 Loadings	Factor 2 Loadings	Factor 1 Standardised Coefficients	Factor 2 Standardised Coefficients
23. Carers of people with learning disabilities are unlikely to give useful clinical information.	.33	.05		
24. Healthcare for people with learning disabilities costs more than it is worth.	.62	.01	.60	
25. If I had a family member with learning disabilities, I might be reluctant to admit this.	.41	-.11		
26. Doctors giving extra time to patients with learning disabilities is unfair to other patients.	.58	.13	.55	
27. Healthcare for people with learning disabilities is unlikely to produce positive outcomes.	.62	-.03	.58	
28. Doctors have enough respect for people with learning disabilities' equal rights.	.11	.64		.69
29. I would be more nervous speaking with patients with learning disabilities than non-disabled patients.	.12	-.33		
30. Medical training on working with people with learning disabilities should be optional rather than compulsory.	.48	.05		

14.3. Reliability Analysis & Construct Validity

Cronbach's alpha coefficients and 95% confidence intervals for the 14-item MED-LD and its subscales suggested that the measure generally yielded reliable scores in both data sets (Table 3). In Data Set B, a Cronbach's alpha of .66 emerged for the DIS-D. The deletion of item 15 (i.e., "Too many doctors assume that signs and symptoms are features of people's learning disabilities rather than suggesting a possible physiological cause") was indicated, given its alpha if item deleted value of .70. However, item 15 was retained because the DIS-D only has four items. One hundred and forty-one participants completed the 14-item MED-LD three months later. Spearman's rho correlations of .68 ($p < .001$), .64 ($p < .001$), and .57 ($p < .001$) for the MED-LD, NEG-H, and DIS-D, respectively, suggested scale scores were somewhat temporally stable.

Table 3

Descriptive Statistics and Cronbach's Alphas for the MED-LD and its Subscales

Scale/subscale	Possible	Data Set A	Data Set A	Data Set B	Data Set B
(Number	Range	Mean	α	Mean	α
of items)		(SD)	(95% CI)	(SD)	(95% CI)
MED-LD	14-98	41.02	.81	40.71	.79
($k = 14$)		(9.14)	(.77-.84)	(8.78)	(.76-.83)
NEG-H	10-70	23.68	.84	23.49	.83
($k = 10$)		(7.83)	(.81-.86)	(7.61)	(.80-.85)
DIS-D	4-28	17.34	.70	17.22	.66
($k = 4$)		(4.02)	(.64-.75)	(3.89)	(.60-.72)

As can be seen from Table 4, correlational analyses only provided support for hypothesis 3 in Data Sets A and B. As predicted, the less people with LD medical students knew professionally, the more negative their beliefs about healthcare for this group. However, contrary to hypotheses 1, 2, and 4, participants' scores on the MED-LD and its subscales were not related to the number of people with LD they knew personally, or how close they felt to them.

Hypothesis 5 only was supported by one statistically significant group difference: a Mann-Whitney *U* test indicated that first years scored higher on the DIS-D subscale than fifth or sixth year students ($p < .05$). Compared to fifth or sixth year medical students, first year medical students were more likely to disagree that doctors discriminate against people with LD. Scores on the MED-LD or its NEG-H subscale did not vary by student cohort (i.e., first vs. fifth and sixth years; $ps = ns$).

Mixed support also was found for hypothesis 6. Mann-Whitney *U* tests revealed that males were more likely than females to score higher on the MED-LD ($p < .05$ and $p < .001$ in Data Sets A and B, respectively) and the NEG-H subscale ($p < .05$ and $p < .001$ in Data Sets A and B, respectively). However, scores on the DIS-D did not differ by gender ($ps = ns$). While men were more likely than women to report negative beliefs about healthcare for people with LD, both genders were equally likely to disagree that doctors discriminate against people with LD.

Table 4

Tests of Convergent Validity in Data Set A/Data Set B

Validation item	MED-LD	NEG-H	DIS-D
1. Number of people with learning disabilities personally known to the participant	-.05/-.05	-.05 /-.06	-.03/.03
2. How close participant felt to the person with learning disabilities they personally knew best	.04/-.01	-.03/-.03	.04/.08
3. Number of people with learning disabilities professionally known to the participant	-.21*/-.25*	-.22*/-.24*	-.08/-.08
4. How close participant felt to the person with learning disabilities they professionally knew best	-.02/-.14	-.05/-.10	-.07/-.11

Note: Correlations for Data Sets A and B are left and right of the forward slash, respectively; * $p < .001$; statistical nonsignificant associations are not asterisked

14.4. Descriptive Statistics

Medical students typically did not report negative beliefs about healthcare for people with LD (Table 1), with means and standard deviations for the NEG-H subscale showing that, on average, participants did not score above the midpoint. To illustrate, more than 70% of participants at least moderately disagreed with the item, "Healthcare for people with learning disabilities costs more than it's worth."

Average scores on the DIS-D subscale were closer to the midpoint, with the standard deviations demonstrating that some students agreed that doctors discriminate against people with LD whilst others disagreed. The item, "Doctors discriminate against people with learning disabilities," illustrates this, with approximately 55% of participants disagreeing, 25% agreeing, and 20% neutral or undecided.

Items excluded from the 14-item MED-LD also warrant attention. Approximately 80% of medical students reported that they would be more confident working with people without disabilities than those with LD; over 60% reported that they would be more nervous speaking with people with LD than those without disabilities; and 20% reported that they might be more tempted to skip LD lectures than other teaching.

Mann-Whitney *U* tests showed that first year students were as likely as their fifth and sixth year counterparts to report that (a) they would be more confident working with people without disabilities than people with LD and (b) they would be more nervous speaking with people with LD than those without disabilities. However, Mann-Whitney *U* tests also revealed that fifth and sixth year students were more likely than first year students to report that they might be more tempted to skip LD teaching than other teaching ($p < .001$ and $p < .01$ in Data Sets A and B, respectively).

15. Discussion of Study 2 Results

Participants' completion of the MED-LD's item pool provided interesting insights into beliefs medical students possess about healthcare for people with LD. On average, they did not express negative beliefs about healthcare for people with LD. Students were less unanimous in agreeing that doctors' discriminate against people with LD; most medical students, irrespective of their stage of training, reported being less confident and more nervous working and speaking with people with LD; and approximately one fifth of medical students stated that they might be more tempted to skip LD lectures than teaching on other subjects.

Preliminary support for the psychometric properties of the MED-LD is promising. Both the EFA and CFA suggested the appropriateness of a two-factor structure and the MED-LD and its subscales yielded internally consistent scores. However, there was mixed support for the tests of convergent validity and known groups validity. In terms of convergent validity, only one predicted association reached statistical significance ($H3$): students who professionally knew less people with LD reported more negative beliefs about their healthcare. With regards known groups validity, first year students only scored higher than fifth and sixth year students on the DIS-D subscale (i.e., first year students were more likely to disagree that doctors discriminate against people with LD), and males only scored higher than females on the MED-LD and its NEG-H subscale (i.e., males reported more negative beliefs about healthcare for people with LD). Thus, only hypotheses 3, 5, and 6 received support, highlighting the need for more validation work.

However, consideration of the ranges of scores on the MED-LD and its subscales, and their implications for the psychometric analyses is indicated. It is possible that the restricted distributions of scores attenuated the sizes of associations

between variables and made the detection of group differences difficult (Furr & Bacharach, 2008). That is, little variability in scores on the NEG-H and DIS-D subscales potentially reduced the likelihood that tests of validity would be supported, lowered Cronbach's alpha values, and reduced the sizes of the correlations between the subscales. This lack of variability, attributable to very few medical students reporting unfavourable beliefs about healthcare for this population, may have been influenced by self-selection bias. That is, medical students interested in LD may have been more likely to participate while those disinterested in the topic, or prejudiced towards people with LD, decided against taking part. Future research should investigate the psychometric properties of the MED-LD when an entire class of medical students completes it to rule out self-selection bias, paying particular attention to its range of scores and associated statistics.

Compared to the NEG-H subscale, the DIS-D subscale's Cronbach's alpha values were lower (i.e., .70 and .66 in Data Sets A and B, respectively). This likely is due to the latter's small number of items ($k = 4$; Worthington & Whittaker, 2006). While four items may be sufficient for a subscale (Worthington & Whittaker, 2006), future research may wish to add items and reassess the subscale's reliability. The test-retest reliability coefficients for the MED-LD and its subscales ranged from .57 to .68. Therefore, they did not reach the minimum figure of .80 recommended by Kline (2000). However, the students' learning experiences during the intervening months may have affected the temporal stability of scores (Kline, 2000).

In addition to the lack of variability in scores on the MED-LD, the use of validation items without psychometric support may have hindered the tests of validity. The items' brevity was advantageous in the current study; however, future validation

testing would benefit from the use of measures with demonstrated psychometric properties.

Items excluded from the MED-LD may tap a different yet useful psychological construct. The items that measured students' confidence and nervousness interacting with people with LD, relative to those without disabilities, did not load onto a factor above .50 and, therefore, were deleted. These items may measure medical students' self-efficacy and/or anxiety regarding the delivery of healthcare to people with LD, which may be amenable to interventions. Consequently, future research may wish to develop and psychometrically evaluate a measure of these constructs.

16. General Discussion

People with LD die younger and have poorer health than those without disabilities (Disability Rights Commission, 2006; Houghton et al., 2013) and doctors' provision of healthcare to people with LD is believed to contribute to the occurrence and persistence of these health inequalities (Hatton et al., 2011; Mencap, 2007, 2012; Parliamentary and Health Ombudsman and Local Government Ombudsman, 2009). Therefore, this research aimed to improve understanding of the attitudes of tomorrow's doctors (i.e., medical students) towards people with LD, and develop and psychometrically evaluate a measure of their attitudes towards healthcare for this patient group. These goals were important because, as documented in the literature review, no individual interviews had been carried out with medical students on this topic, and no measure of this construct existed.

Studies 1 and 2 achieved a better understanding of medical students' attitudes towards people with LD and their healthcare. In Study 1, it became clear that many medical students approach people with LD and associated work and teaching with positive beliefs and emotions. Interviewees said many medical students want to gain

competencies so they can help to maximise the health and quality of life of this patient group, underlining the demand for and appropriateness of medical teaching based on the social model of disability (Campbell, 2009) and involving the participation of people with LD (Lennox & Diggins, 1999). Indeed, interviewees displayed attitudes deemed ideal by Lennox and Diggins (1999), as they were open to examining their own attitudes, showed respect for people with LD and their families, and wanted to provide high-quality healthcare to them.

However, the interviewees also reported that many medical students are anxious and worried about working with people with LD, arising from fears that they would not be able to communicate with this client group. Their worries are understandable as a lack of training in this area may lead to ignorance and fear (Michael, 2008), and justified as Mencap (2012) identified poor communication as a contributory factor in many premature deaths of people with LD. Interviewees also said that some medical students disparage people with LD, dismiss LD teaching as a “waste of time,” and regard LD work as “below them.” Such negative attitudes are disturbing because healthcare professionals’ lack of prioritisation, knowledge, and understanding of this group are implicated in premature deaths of people with LD (Mencap, 2007, 2012); and their failure to uphold the principles of *Valuing People* (e.g., equality, dignity, rights, and inclusion; Department of Health, 2001) had serious negative consequences for the bereaved (Parliamentary and Health Ombudsman and Local Government Ombudsman, 2009). It is clear that medical schools need to ameliorate their students’ worries and negative attitudes to ensure tomorrow’s doctors do not repeat past malpractice, such as the inappropriate use of Do Not Resuscitate orders and flawed best-interest decisions (Mencap, 2012).

Despite this, LD training is left to the discretion of health professionals' training bodies (Mencap, 2012) and individual training providers.

Study 2's quantitative findings upheld those of Study 1, with the majority of medical students reporting that they were less confident working with people with LD than those without LD, and more nervous about speaking with the former; and a minority revealing their greater temptation to skip LD lectures compared to other teaching. And, as in Study 1, most participants in Study 2 did not report negative beliefs about healthcare to this group. Whilst encouraging, these findings should be interpreted with caution, as Study 1's interviewees said medical students feel pressure to appear equalitarian in their attitudes to all patients. This is in line with *Tomorrow's Doctors* (General Medical Council, 2009) that states that doctors registered with the General Medical Council must fulfil certain duties, such as treating patients as individuals and respecting their dignity. Thus, the tendency of Study 1's interviewees to assign negative attitudes to others while affirming their own positive attitudes may, to some degree, reflect a reluctance to contravene such expectations (General Medical Council, 2009).

In Study 2, some participants rejected the notion that doctors discriminate against people in LD. Therefore, it is possible that (a) medical students are unaware that some doctors provide unequal treatment to persons with LD; (b) they do not believe that the delivery of inadequate healthcare constitutes discrimination; and/or (c) they are committed to portraying their profession as one in complete fulfilment of its professional obligation (General Medical Council, 2009). This finding reemphasises the need for, and importance of, LD teaching as recommended by Michael (2008):

Those with responsibility for the provision and regulation of undergraduate and postgraduate clinical training, must ensure that curricula include mandatory training in learning disabilities. It should be competence-based and involve people with learning disabilities and their carers in providing training. (p. 10)

Providers of LD teaching may want to follow the highly commended medical teaching at St. George's medical school, University of London (Michael, 2008). At St. George's, students receive lectures on LD, processes underpinning health inequalities, and communication skills training with people with LD who play the roles of patients (after receiving training on teaching medical students). The students also gain clinical experience of working with people with LD. Students have positively appraised the teaching noting, for example, greater understanding of people with LD and more enthusiasm about working with them (Manners, Adeline, & Butler, 2010). Indeed, a recent study of LD teaching involving the participation of simulated patients with LD found that it had positive effects on medical students (Thomas, Courtenay, Hassiotis, Strydom, & Rantell, 2014). After the teaching, medical students believed they used more appropriate clinical approaches with people with LD, were more skilled in the management of this patient group, and were more comfortable during interactions with them (Thomas et al., 2014).

The involvement of people with LD in medical teaching makes theoretical and empirical sense. Allport (1954) theorised that intergroup contact reduces prejudice when both groups have equal status in the situation, common goals, cooperation, and support from authorities. Pettigrew and Tropp (2006) meta-analysed 515 studies drawing on this theory and found a mean correlation of -.22 between contact and prejudice (i.e., more contact is associated with less prejudice),

with little variation according to age, gender, nationality, and the target of prejudice (e.g., ethnic minorities and people with disabilities). Higher correlations were found among studies that were more rigorous or met more of Allport's (1954) optimal conditions, and such contact effects have typically generalised (Pettigrew & Tropp, 2006), increasing confidence in intergroup contact's propensity to reduce prejudicial attitudes.

Anxiety reduction, enhanced empathy, and (albeit to a lesser extent) increased knowledge may mediate the relationship between intergroup contact and prejudice (Pettigrew & Tropp, 2008). The mechanism of reduced anxiety may be understood in terms of Stephan and Stephan's (1985) model of intergroup anxiety, which theorises that people become anxious when they interact with outgroup members because they fear negative consequences for themselves (e.g., feeling embarrassed by an inability to communicate) and negative evaluations of them by ingroup or outgroup members (e.g., people with LD or their relatives/carers viewing medical students as unhelpful or lacking competence). These three mediating variables also may explain why interviewees in Study 1 recommended and wanted more LD teaching: medical students were said to be worried about working with people with LD, a group they knew little about and wanted to understand more.

Researchers may use the newly developed measure of medical students' beliefs about healthcare for people with LD, the MED-LD, to ascertain the efficacy of LD teaching. It also may prove useful if researchers wish to investigate how LD teaching achieves reductions in prejudice among medical students by evaluating Pettigrew and Tropp's (2008) theorised causal sequence: teaching may reduce students' initial anxiety and, then, students may be better able to gain a greater

understanding of the outgroup (e.g., people with LD) and empathise with them which, in turn, reduces prejudice towards them.

16.1 Limitations

While this research possessed several strengths (e.g., good sample sizes), potential research limitations warrant discussion. It is possible that face-to-face interviews may have been preferable to telephone interviews in Study 1 because the absence of visual cues may have deleteriously affected data quality. However, it is also possible that telephone interviews allowed participants the anonymity to disclose sensitive information on this topic (Novick, 2008). Indeed, several interviewees candidly admitted being worried about working with this patient group (e.g., section 2.2.8.). Some researchers believe that telephone interviews may be as appropriate or even preferable to face-to-face interviews, depending on contextual factors (Holt, 2010; Sturges & Hanrahan, 2004).

Similarly, the choice of Internet over paper-and-pen surveys in Study 2 may be questioned because potential self-selection and dropout biases associated with Internet research means generalisation of results is unclear (Eysenbach & Wyatt, 2002). Also, Hardré, Crowson, and Xie (2010) noted differential effects across these modes of data collection with Internet research, for example, leading to less variability in scale responses. However, online research affords participants greater anonymity (Eysenbach & Wyatt, 2002) and research has demonstrated the measurement equivalence of data obtained with Internet and paper-and-pencil surveys (De Beuckelaer & Lievens, 2009). Future research should employ heterogeneous recruitment methods to determine whether different methodologies lead to different understandings of medical students' beliefs about healthcare for people with LD.

17. Conclusion

Doctors' attitudes to people with LD are implicated in the inequitable healthcare they deliver to people with LD, thereby causing health inequalities. Therefore, medical schools need to ensure positive attitudes towards people with LD among the doctors of tomorrow, medical students. To do so, more high-quality LD teaching is required. The present findings indicate that medical students' attitudes towards healthcare for this group require improvement and therefore warrant intervention. As preliminary evidence supports the psychometric properties of the newly developed MED-LD, it may be used to determine the efficacy of LD teaching.

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Part 3: Critical Appraisal

19. Introduction

This critical appraisal aims to further explore the process and challenges of researching medical students' attitudes towards healthcare for people with learning disabilities (LD). Strengths and weaknesses of the literature review, Study 1, and Study 2 are discussed, as are future research directions and implications of the present findings. Finally, concluding remarks and personal reflections are provided.

20. Research Rationale

My interest in medical students' attitudes towards healthcare for people with LD was born out of my work experiences with this group, my growing sense of social injustice, and my desire to make a difference to the lives of people with LD. Motivated by scandals (e.g., the abuse at Winterbourne View hospital) and recognition that many people with LD die prematurely (Mencap, 2007; 2012), and encouraged by legislation that aims to address health inequalities (e.g., *Healthcare for All* [Michael, 2008]), I wanted to carry out a research project with the potential to positively affect healthcare provision to this patient group.

Initially, I aimed to qualitatively examine the attitudes of primary healthcare professionals towards healthcare for people with LD, as part of a larger national project. This work allowed me to learn about health inequalities (Cooper, Melville, & Morrison, 2004), barriers to overcoming them (Emerson, Baines, Allerton, & Welch, 2012), general practitioners' (GPs) attitudes towards healthcare for people with LD (Cook & Lennox, 2000), people with LD's experiences of primary healthcare services (Perry et al., 2014), the ability of annual health checks to meet people with LD's health needs (Robertson, Roberts, Emerson, Turner, & Greig, 2011), and the proportion of persons with LD who have received these checks (Emerson, Copeland, & Glover, 2011).

Enthused to better understand the attitudes of primary healthcare professionals in GP surgeries that elected not to participate in the Directed Enhanced Service (DES) that provides these annual health checks, I identified relevant practices in local London boroughs via a Freedom of Information Act (2000) request. I sent research invitations to these practices, asking staff members to participate in 20-minute telephone interviews about attitudes towards healthcare for people with LD. Despite offering a not insubstantial incentive, only one person accepted this invitation; therefore, I ended the project. Instead, I decided to study the attitudes of tomorrow's doctors (i.e., medical students) because, during their careers, they will have many opportunities to address health inequalities commonly experienced by people with LD.

21. Literature Review

The literature review was a positive experience, helped by the fact that the topic was clearly and concisely expressed, as was the review process. The sources used to identify relevant studies for the review were selected based on a consultation with my supervisor and a senior librarian who were able to recommend appropriate databases for the review. This minimised database bias by increasing the likelihood of selecting the right databases for the review question (Schlosser, Wendt, & Sigafoos, 2007). Scope and selection biases also were minimised by the clearly stated inclusion and exclusion criteria and the lack of geographic or time constraints (i.e., studies were included regardless of their publication year or research location; Schlosser et al., 2007). Also, the use of critical appraisal tools was advantageous because it ensured that I evaluated and used the quality of the research to inform the amount of meaning and significance attached to the reviewed studies (Schlosser et al., 2007).

At the same time, the quality of the literature review could have been enhanced in several ways. First, to reduce the influence of source-selection bias, a multifaceted search strategy (e.g., database searches and hand-searching journals) might have identified additional pertinent studies (Schlosser et al., 2007). Second, publication bias could have been negated by the inclusion of unpublished and published articles (Schlosser et al., 2007). Third, English-language bias could have been overcome by the inclusion of studies in any language (Schlosser et al., 2007). Fourth, to further guard against scope and selection biases, I could have attempted to secure the services of independent raters to evaluate a randomly selected subset of studies under consideration for inclusion. This would have allowed for an indication of inter-rater agreement (Schlosser et al., 2007).

22. Study 1: Qualitative Research

22.1. The Quality of Study 1

Study 1's semi-structured individual interviews allowed for an improved understanding of medical students' attitudes towards healthcare for people with LD, and the generation of a valid pool of items measuring this construct. Akin to the literature review, Study 1 was characterised by numerous strengths. The research question was relevant and clearly stated; individual interviews were an appropriate means of gathering qualitative data; and the choice and process of thematic analysis was discussed (Malterud, 2001).

However, there may have been ways to improve Study 1. It might have been helpful to recruit an additional researcher to independently analyse the data, and report an indicator of inter-rater reliability (Pope, Ziebland, & Mays, 2000). Also, as more first year medical students participated than those in later years of their degree, the research findings may be more relevant to medical students embarking on their

studies. Similarly, it is possible that students disinterested in the research decided against participating whilst those interested in the topic volunteered to take part. Therefore, the present findings may be more pertinent to medical students who are relatively interested in LD. Future qualitative research may, therefore, wish to sample the attitudes of randomly selected medical students from each year of medical degree programmes.

To achieve this, researchers may want to employ individual interviews in combination with focus groups and integrate resultant data. Such within-method triangulation (e.g., the combined use of focus groups and interviews) is beneficial when collecting data on a “common but complex theme” (Wadsworth, 2000, p. 653). While I was cognisant of the potential utility of such a combined approach, pragmatic considerations (e.g., time constraints) dictated the sole use of individual interviews for the current research.

22.2. The Use of Telephone Interviews

The decision to conduct interviews by telephone was important, as data collection modes may influence people's decisions to participate in research and the nature of resultant data (Feveile, Olsen, & Hogh, 2007). Disadvantages associated with telephone interviews include maintaining participants' cooperation and involvement; the propensity for frustration and miscommunication (e.g., participants finding it difficult to hear an interviewer's questions); the lack of visual cues (e.g., body language) that can enhance understanding and communication; and the potential presence of a third party during telephone interviews (Musselwhite, Cuff, McGregor, & King, 2007). These disadvantages were relevant to the current research. For instance, on rare occasions, people in participants' immediate environments momentarily disrupted the interviews. Also, I often was curious about

what interviewees' facial expressions might have been, believing that such visual information might have reduced ambiguity and facilitated my understanding of the interviewees' communications.

However, these disadvantages were offset by considerable benefits of telephone interviews: they were time-efficient and cost-effective (e.g., the participant and researcher avoided travel costs); they permitted greater anonymity and, therefore, may have allowed for more honest responses; they offered participants a greater sense of security as they did not have to meet me in person; and they allowed participants to take part at a time and location of their choice (Musselwhite et al., 2007). Also, the lack of face-to-face contact may have conferred advantages. I was able to take notes discreetly so the interviewees were free to express their opinions with minimal distraction. And, as the participants were unable to see me, my physical presence (e.g., facial reactions) did not affect their responses (Musselwhite et al., 2007).

Therefore, while telephone interviews seemed an appropriate option for Study 1, this means of conducting interviews possessed advantages and disadvantages. Future research on this topic may wish to carry out individual interviews using different means (e.g., face-to-face, telephone, and Skype), comparing and contrasting resultant data.

22.3. The Thematic Analysis

As the thematic analysis enabled me to identify, analyse, and report themes within the data, its use appeared to be a sound methodological decision. However, as there are innumerable ways of conducting thematic analysis (Braun & Clarke, 2006), the nature of the current analysis warrants discussion. I decided to define themes within the data inductively in an effort to ensure data were coded without the

restraints of a theoretical framework. As this pioneering study was the first to use interviews to understand medical students' attitudes towards healthcare for people with LD, a data-driven approach seemed preferable to a deductive one. However, as the current research findings indicated the applicability and relevance of intergroup contact theory (Pettigrew, 1998) to medical students' attitudes, future qualitative studies may opt to deductively analyse data to gauge the explanatory value of this theory (Pettigrew, 1998).

I chose to semantically identify themes rather than detect them at an interpretive level. This meant that I understood what interviewees said at face value. However, after learning that medical students feel pressured to give socially desirable responses, it could have been useful to identify themes at an interpretive level. This might have allowed for a better understanding of why interviewees said what they said (i.e., what may have influenced responses?).

Similarly, the realist epistemological stance adopted for this project seemed an appropriate and understandable choice, as I assumed that the students' language would accurately reflect their experiences. However, in light of the current findings, it may be advantageous to adopt a constructionist epistemology in future studies. Social influences, such as values advocated by *Tomorrow's Doctors* (General Medical Council, 2009), may have greatly affected students' conversations.

23. Study 2: Quantitative Research

23.1. Internet Research – Strengths and Weaknesses

I elected to use Internet surveys for Study 2 because this method of data collection possesses several advantages. Internet surveys are easy to develop, distribute, and complete; many participants, including hard-to-access populations, can be reached quickly; participants may be more likely to give honest answers to

questions about sensitive topics; participants can be reminded to answer items they have mistakenly skipped; participants can forward survey links to others; data analysis can be expedited because data can be directly downloaded into a SPSS file; and Internet surveys are cost-effective and environmentally friendly (Rhodes, Bowie, & Hergenrather, 2003).

However, disadvantages of Internet surveys may have influenced the data and, therefore, should be considered. A response rate could not be calculated because it was impossible to know how many people received the survey link; the sample was non-random and, as noted, likely influenced by self-selection bias; multiple submissions were possible (i.e., students might have completed the survey more than once to qualify for the prize draw with multiple entries); participants may have been distracted by competing stimuli when completing the survey; and medical students with disabilities may have been less likely to take part (Braithwaite, Emery, de Lusignan, & Sutton, 2003; Rhodes et al., 2003).

Thus, the representativeness of Study 2's sample is unclear and readers should interpret the current findings with caution (Duffy, 2002; Schonlau, 2004). Study 2 likely was affected by self-selection bias, as medical students interested in LD might have been more likely to take part than those who were disinterested. Future research should examine medical students' attitudes towards healthcare for people with LD when an entire cohort of medical students completes the MED-LD.

23.2. Psychometric Properties of the MED-LD

Study 2's psychometric analyses demonstrated that the MED-LD holds promise as a measure and may be used to determine the efficacy of LD teaching. I adhered to DeVellis's (2003) guidelines on scale development to ensure the generation of a high-quality pool of items. Indeed, when reviewed by an

experienced LD researcher, the items were deemed content valid and no changes were recommended. Expert guidelines also were followed on exploratory factor analysis (Fabrigar, Wegener, MacCallum, & Strahan, 1999) and confirmatory factor analysis (Byrne, 2001). The exploratory factor analysis guided item deletion and resulted in the detection of two factors, medical students' negative beliefs about healthcare for people with LD (10 items; NEG-H) and their disagreement that doctors discriminate against people with LD (4 items; DIS-D). Importantly, this two-dimensional factor structure received empirical support from the subsequent confirmatory factor analysis, which showed that this factor structure matched the data well (e.g., CFI = .96).

Thus, the 14-item MED-LD was developed and its descriptive statistics illustrated how most participants did not report negative beliefs about healthcare for this group, whilst there was more variability in scores on disagreement that doctors discriminate against people with LD. The overall restricted range of scores on the MED-LD should be considered when interpreting its reliability statistics and tests of validity, as it might have led to attenuation of its associations with other variables and its indices of reliability (Cronbach's alpha coefficients and test-retest reliability coefficients; Furr & Bacharach, 2008).

To illustrate, of the four tests of convergent validity, only one received empirical support (i.e., medical students who knew less people with LD in professional contexts were more likely to report negative beliefs about healthcare for this group). Similarly, hypotheses 5 and 6 only were partially supported. As anticipated, first year students were more likely than fifth or sixth year students to disagree that doctors discriminate against people with LD; however, they did not differ on beliefs about healthcare. And, as expected, men were more likely than

women to report negative beliefs about healthcare for people with LD; however, disagreement that doctors discriminate against this patient group did not differ as a function of gender.

As a greater range of scores on the MED-LD would permit more sensitive correlational analyses and detection of group differences (Furr & Bacharach, 2008), future psychometric research on the MED-LD would benefit from recruiting a representative sample of medical students, which may be more likely to include those with negative views. To maximise the chances of greater variability in scores, future research should ensure the anonymity of participants' responses so they feel as comfortable as possible expressing views, thereby minimising the putative influence of social desirability bias. In the current research, participants were given the opportunity to provide their email addresses if they wished to enter a draw for a gift voucher. While this prize may have incentivised research participation, the provision of email addresses may have deterred participants from disclosing views incongruent with values espoused by medical schools and *Tomorrow's Doctors* (General Medical Council, 2009).

Other explanations for the mixed support for the MED-LD's tests of validity also warrant exploration. First, it is possible that the MED-LD suboptimally measured the latent construct; hence, the mixed support for its validity. Second, the tests of validity may warrant revision. My choices of tests of validity were informed by research on the general public's attitudes to people with LD (a different psychological construct; Scior, 2011) because there was an insufficient amount of high-quality research on medical students' attitudes towards healthcare for this population. It is possible that the MED-LD optimally measures its intended

psychological construct, which genuinely does not relate to other constructs as hypothesised.

Indeed, the latter explanation seems supported by previous research. For example, Gill, Kroese, and Rose (2002) investigated the attitudes of GPs towards patients with LD, finding that female GPs and those with more professional contacts with persons with LD reported more positive attitudes. However, GPs' attitudes did not differ according to how much contact they had had with people with LD in non-professional contexts (Gill et al., 2002). These findings are in line with Study 2's findings, which found that medical students' attitudes only related to their professional contacts, not their personal ones. Thus, the recommendation to interpret the current tests of validity with caution seems important.

23.3. Deleted Items

Attitudes are conceptualised as having cognitive and affective components (Eagly & Chaiken, 2007), and the interviewees in Study 1 highlighted the importance of both of these components. Accordingly, in Study 2, I generated items tapping into cognitive and affective dimensions of medical students' attitudes towards healthcare for people with LD. While cognitive items loaded onto a factor and therefore were retained, the affective items failed to load on any factor and were deleted. Thus, it is likely that the affective items constituted a distinct psychological construct in this context.

Although they were excluded from the MED-LD, these items provided important descriptive information. For example, one item revealed that most medical students felt less confident working with people with LD than those without LD. Given the need for tomorrow's doctors to feel confident when providing healthcare irrespective of the patient group, such emotions warrant empirical

attention. Future research should start by developing a measure of medical students' affective responses towards healthcare for people with LD. If such a measure were developed, it and the MED-LD could be used to test whether LD teaching improves emotional reactions and beliefs related to the provision of healthcare for people with LD.

24. Implications of the Research

24.1. Medical Curricula and LD Teaching

The present findings offered firm support for the delivery of LD teaching involving direct experiences with people with LD. The literature review suggested that pedagogical interventions that include people with LD as instructors hold promise as means of enhancing medical students' attitudes towards this patient group and their healthcare. Study 1 was consistent with this, with interviewees stressing the ability of LD teaching to improve students' beliefs about healthcare for patients with LD and reduce their fears and anxieties about delivering it. Study 2 highlighted the need for intervention because most participants admitted that they were nervous about working with this population.

The call for more and better LD teaching on medical curricula is not new, with previous research documenting much variance in LD teaching among medical schools, the need for uniform high-quality education on this topic across schools, and the necessity of a core curriculum on LD (Lennox & Diggins, 1999; Moyle, Iacono, & Liddell, 2010). If medical schools want to determine the efficacy of their LD teaching, the MED-LD may be used as an outcome measure.

24.2. Other Healthcare Professionals' Attitudes: The Need for LD Teaching

The need for more LD teaching is relevant to all healthcare professionals and their training programmes (i.e., not just medical students). The European manifesto

on basic standards of healthcare for people with LD (Meijer, Carpenter, & Scholte, 2004) stated that health professionals of all disciplines (including those in mainstream services) should develop competencies relating to LD and people with LD's specific health needs; all training programmes should have teaching on LD; and training on communication, attitudes, and clinical skills should be regarded as equally important.

This appears particularly pertinent to the mental healthcare of people with mild LD in the United Kingdom, as they are increasingly treated in mainstream mental healthcare services (e.g., Improving Access to Psychological Therapies [IAPT]), rather than specialist community LD services. As this constitutes a new challenge for IAPT workers, LD teaching will be important as noted by IAPT's *Learning Disabilities Positive Practice Guide* (Department of Health, 2009):

Staff training helps avoid inequalities by improving disability awareness competences and overcoming any professional bias and personal prejudices in the IAPT workforce. All staff should be trained to be sensitive to and aware of the specific needs of individuals with learning disabilities in line with human rights and disability discrimination law. (p. 9)

The efficacy of such training should be robustly evaluated using validated measures (Rose, Rose, & Kent, 2012). Therefore, researchers may wish to employ the MED-LD to inform the development of a scale specific to their measurement needs.

25. Conclusions and Personal Reflections

In summary, this research has significantly contributed to the literature base. Analyses supported the psychometric soundness of the MED-LD, a measure of medical students' beliefs about healthcare for people with LD. And understanding of medical students' attitudes towards healthcare for this patient group was increased.

Most importantly, the present findings demonstrated the need for LD teaching to improve medical students' attitudes towards healthcare for people with LD. This corroborates Michael's (2008) recommendation for enhanced medical teaching on LD. Surely, it is time that medical schools took the necessary action to ensure tomorrow's doctors are able to reduce the health inequalities experienced by people with LD.

26. References

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Appendices

Appendix A

UCL Ethical Approval for Studies 1 and 2

UCL RESEARCH ETHICS COMMITTEE
GRADUATE SCHOOL OFFICE



Dr Katrina Scior
Research Department of Clinical, Educational and Health Psychology
UCL

13 March 2013

Dear Dr Scior

Notification of Ethical Approval

Project ID: 4662/001: Understanding primary healthcare professionals' attitudes to providing healthcare to people with learning disabilities

I am pleased to confirm that in my capacity as Chair of the UCL Research Ethics Committee I have approved your project for the duration of the study i.e. until September 2014.

Approval is subject to the following conditions:

1. You must seek Chair's approval for proposed amendments to the research for which this approval has been given. Ethical approval is specific to this project and must not be treated as applicable to research of a similar nature. Each research project is reviewed separately and if there are significant changes to the research protocol you should seek confirmation of continued ethical approval by completing the 'Amendment Approval Request Form'.

The form identified above can be accessed by logging on to the ethics website homepage: <http://www.grad.ucl.ac.uk/ethics/> and clicking on the button marked 'Key Responsibilities of the Researcher Following Approval'.

2. It is your responsibility to report to the Committee any unanticipated problems or adverse events involving risks to participants or others. Both non-serious and serious adverse events must be reported.

Reporting Non-Serious Adverse Events

For non-serious adverse events you will need to inform Helen Dougal, Ethics Committee Administrator (ethics@ucl.ac.uk), within ten days of an adverse incident occurring and provide a full written report that should include any amendments to the participant information sheet and study protocol. The Chair or Vice-Chair of the Ethics Committee will confirm that the incident is non-serious and report to the Committee at the next meeting. The final view of the Committee will be communicated to you.

Reporting Serious Adverse Events

The Ethics Committee should be notified of all serious adverse events via the Ethics Committee Administrator immediately the incident occurs. Where the adverse incident is unexpected and serious, the Chair or Vice-Chair will decide whether the study should be terminated pending the opinion of an independent expert. The adverse event will be considered at the next Committee meeting and a decision will be made on the need to change the information leaflet and/or study protocol.

Medical Students' Attitudes

On completion of the research you must submit a brief report (a maximum of two sides of A4) of your findings/concluding comments to the Committee, which includes in particular issues relating to the ethical implications of the research.

With best wishes for the research.

Yours sincerely



Professor John Foreman
Chair of the UCL Research Ethics Committee

Cc:
Travis Ryan, Applicant
Professor Peter Fonagy, Head of Department

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Appendix B

UCL Ethical Approval of Amendments for Studies 1 and 2

UCL RESEARCH ETHICS COMMITTEE



Amendment Approval Request Form

1	Project ID Number: 4662/001	Name and Address of Principal Investigator: Dr Katrina Scior, Research Department of Clinical, Educational, & Health Psychology, UCL
2	Project Title: Understanding primary healthcare professionals' attitudes to providing healthcare to people with learning disabilities	
3	Type of Amendment/s (tick as appropriate) <input type="checkbox"/> Research procedure/protocol (including research instruments) <input checked="" type="checkbox"/> Participant group <input type="checkbox"/> Sponsorship/collaborators <input type="checkbox"/> Extension to approval needed (extensions are given for one year) <input type="checkbox"/> Information Sheet/s <input type="checkbox"/> Consent form/s <input type="checkbox"/> Other recruitment documents <input type="checkbox"/> Principal researcher/medical supervisor* <input type="checkbox"/> Other * <small>*Additions to the research team other than the principal researcher, student supervisor and medical supervisor do not need to be submitted as amendments but a complete list should be available upon request.</small>	
4	Justification (give the reasons why the amendment/s are needed) For Part 1, I want to interview primary care staff in general. In the ethics form, it stated that interviews would be carried out with "20 primary healthcare professionals (GPs and practice nurses)." However, my research team has learned that it would be very informative to interview other primary care staff, such as practice managers. Therefore, to ensure my research is comprehensive and does not exclude the views of certain employees, I would like to expand my participant pool to primary care staff in general (e.g., practice managers, practice nurses, and GPs). For Part 2, I want to ensure that the questionnaire I develop is of the highest standard possible. Therefore, before developing and evaluating a measure of medical students' attitudes to providing healthcare to people with learning disabilities, I would like to interview medical students to find out more about their attitudes on this subject and ask them about the kinds of questions they think such be included in my questionnaire. I would analyse medical students' qualitative data in a manner akin to Part 1 (i.e., using thematic analysis).	
5	Details of Amendments (provide full details of each amendment requested, state where the changes have been made and attach all amended and new documentation) 1. I would like to interview primary care staff in general for Part 1. An information sheet and consent form modified to reflect this amendment is attached. 2. I would like to interview medical students about their attitudes to providing healthcare to people with learning disabilities. An information sheet and consent form reflecting this amendment is attached.	
6	Ethical Considerations (insert details of any ethical issues raised by the proposed amendment/s) The first amendment means that all primary care staff members' views would be invited and valued. This means that GP practice employees may be happier to take part. The researchers believe that this does not increase potential risk to the participants or researchers. The second amendment would allow medical students to express their views about providing healthcare to people with learning disabilities, creating data that would inform the creation of a higher-quality questionnaire. Although risk seems to be negligible, the researcher will strictly take all appropriate steps regarding the ethical treatment of participants. For example, they will be informed that participation is voluntary and they may stop taking part at any time without penalty or consequence. Also, if any participant	

Medical Students' Attitudes

becomes upset due to their taking part, they would be able to contact the researchers if the participant wants to.

7	<p>Other Information (provide any other information which you believe should be taken into account during ethical review of the proposed changes)</p> <p>These amendments aim to improve the standard of my research by inviting the participation of people important to the healthcare of persons with learning disabilities. The first amendment would allow practice managers to take part. These people play a key role in the management of GP services for people with learning disabilities. The second amendment would allow medical students to express their opinions on the subject. Their views are very important because they are the doctors of tomorrow, the people who will be responsible for the healthcare of people with learning disabilities in the future.</p>
	<p>Declaration (to be signed by the Principal Researcher)</p> <ul style="list-style-type: none">• I confirm that the information in this form is accurate to the best of my knowledge and I take full responsibility for it.• I consider that it would be reasonable for the proposed amendments to be implemented.• For student projects I confirm that my supervisor has approved my proposed modifications. <p>Signature: [Redacted]</p> <p>Date: 3.8.2013</p>
	<p>FOR OFFICE USE ONLY:</p> <p>Amendments to the proposed protocol have been <i>approved</i> by the Research Ethics Committee.</p> <p>Signature of the REC Chair, Professor John Foreman: [Redacted]</p> <p>Date: 13/8/2013</p>

Appendix C

Interview Questions (Study 1)

Section A – Broad Opening Question about Attitudes

1. In your opinion, how do medical students react when they hear the words, “people with learning disabilities?”
 - a. Thoughts
 - b. Feelings
 - c. Behaviours

Section B – Attitudes about Teaching

2. What are medical students' attitudes to medical teaching about people with learning disabilities?
3. What are your own attitudes to medical teaching about people with learning disabilities?

Section C – Attitudes about Clinical Work

4. How do medical students view doing clinical work with patients with learning disabilities?
5. What is your view on doing clinical work with patients with learning disabilities?

Section D – Conversations

6. If you were to have an honest conversation with other medical students about people with learning disabilities, what do you think would be said?
7. Have you ever held a conversation with other medical students about people with learning disabilities? If so, what was said?

Section E – Hypothetical Employment Scenarios

8. Please imagine the following scenario. You're qualified as a doctor and looking for a job. You see an advertisement for a job specialising in the medical care of people with learning disabilities. How would you react?
 - a. Thoughts
 - b. Feelings
 - c. Behaviours
9. If one of your medical student peers secured such a job upon graduating, what would your immediate thoughts be?

Section F – Reflections about Influences on Attitudes

10. Have your attitudes towards people with learning disabilities changed over the course of your lifetime?
 - a. Please explain.
 - b. In your opinion, what or who shaped your attitudes?

Section G – Focus on Questionnaire

11. I am going to develop a questionnaire that measures medical students' attitudes to people with learning disabilities. Other than what you have already told me, what else should my attitudes questionnaire tap into?

Conclusion

Before we finish, is there anything else you would like to say about this topic?

End

Thank you!

Appendix D

Research Invitation by Email (Study 1)

Message sent on behalf of Dr Travis Ryan, Research Department of Clinical, Educational and Health Psychology. Please do not reply directly to this email, instead use the contact details provided below.

Dear Medical Students,

Research on Attitudes to People with Learning Disabilities Needs You!
I am inviting medical students to do a brief research interview with me by phone. The interview would be about medical students' attitudes to people with learning disabilities. Your participation would be greatly appreciated! Every participant has the option of being entered into a draw to win a £100 Amazon gift voucher. For more information and/or take part, please visit: <https://opinio.ucl.ac.uk/s?s=26203> If you have any questions, please email me: travis.ryan.11@ucl.ac.uk This study has been approved by the UCL Research Ethics Committee as Project ID Number: 4662/001

Best wishes,
Travis

Dr Travis Ryan
Research Department of Clinical, Educational and Health Psychology
University College London

Appendix E

Research Advertisement Handed Out to Medical Students Before Lectures

(Study 1)



Dear Medical Students,

Research on Attitudes to People with Learning Disabilities Needs You!

I am inviting UCL medical students to do a brief telephone interview with me.

Your participation would be **greatly** appreciated!

Every participant has the option of being entered into a draw to win **£100**.

Please email me if you are interested in taking part: [REDACTED]

Best wishes,

Travis

Dr Travis Ryan
Research Department of Clinical, Educational and Health Psychology
University College London

Appendix F

Information Sheet (Study 1)

Participant Information Sheet for Interviewees

Title of project: Understanding medical students' attitudes to people with learning disabilities

Name, Address and Contact Details of Investigators:

Dr Katrina Scior & Dr Travis Ryan

Research Department of Clinical, Educational, & Health Psychology

[REDACTED]

We would like to invite you to participate in this research project. You should only participate if you want to; choosing not to take part will not disadvantage you in any way. Before you decide whether you want to take part, please read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear, or if you would like more information.

Our project aims to improve understanding of medical students' attitudes to people with learning disabilities. You are being invited to take part because we would like to interview medical students about this topic. Interviews will be arranged so as to be convenient for participants, who may decide how, when, and where they occur. For example, interviews may be conducted via telephone, lasting approximately 20-30 minutes. With participants' permission, interviews will be audio recorded. Data will be anonymised and stored securely. To illustrate the study's findings, verbatim quotes may be used in publications (e.g., journal articles); however, everything that participants say will be anonymised so that participants will not be identifiable. All information collected during interviews will be handled in strictest confidence. All participants will be sent a brief report summarising the results once the study is completed.

To thank participants for their time, each participant can choose to enter a draw to win a £100 Amazon gift voucher. One winner will be randomly selected once the study is completed.

If you are interested in taking part, please read the informed consent form for interviewees later in this survey, and answer its questions. Then, you'll be asked to give your email address so we can contact you to schedule an interview. We would arrange an interview that is convenient for you (e.g., by phone). Even after agreeing to take part, you can still withdraw at any time and without giving a reason. Also, if a participant decides to end participation during the interview, data collected up to that point would be permanently deleted and not used in the research, unless the participant indicated that they wanted their views to be included in the study. If you have a concern about any aspect of this study, please contact one of the researchers identified above. If you remain unhappy and wish to complain formally, you can contact Pasco Fearon, co-director of the Doctorate in Clinical Psychology programme (phone: +44 [0] 20 7679 1244).

All data will be collected and stored in accordance with the Data Protection Act 1998.

This study has been approved by the UCL Research Ethics Committee as Project ID Number: 4662/001

This study has received confirmation of negligent harm insurance in place for this study sponsored by University College London.

Appendix G

Consent Form (Study 1)

Informed Consent Form for Interviewees

Title of project: Understanding medical students' attitudes to people with learning disabilities

The UCL Research Ethics Committee as Project ID Number has approved this study: 4662/001

Name, Address and Contact Details of Investigators:

Dr Katrina Scior & Dr Travis Ryan

Research Department of Clinical, Educational, & Health Psychology

████████████████████████████████████████████████████████████████████████████████

Participant's Statement

I agree that I have:

1. Read the information sheet and/or the project has been explained to me orally;
2. Had the opportunity to consider the information and ask questions;
3. Received satisfactory answers to all my questions or have been advised of an individual to contact for answers to pertinent questions about the research and my rights as a participant and whom to contact in the event of a research-related injury;
4. Understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason

I understand that my participation will be audio recorded, and I am aware of, and consent to, your use of the recordings for research purposes. I am aware that verbatim quotes may be used in publications (e.g., journal articles); however, everything that participants say will be anonymised so that participants will not be identifiable. I understand that I am free to withdraw from the study without penalty if I so wish, and I consent to the processing of my personal information for the purposes of this study only and that it will not be used for any other purpose. I understand that such information will be treated as strictly confidential and handled in accordance with the provisions of the Data Protection Act 1998.

Yes, I agree with the above and want to take part

No, I do NOT agree with the above and do NOT want to take part

Appendix H

Sample Page of Transcript with Notes (Study 1)

Transcript: 1
Pseudonym: Josh

Gender: Male
Age: 27
Nationality: British
Ethnicity: White British
Year: 2nd

Time: 37 min 51s

J = Josh
T = Travis

T: In your opinion, how do medical students react when they hear the words, "people with learning disabilities"?

J: Am... it's difficult to say. I think, am, in the first year, we had some sessions where we met with am... various people with various learning difficulties. I think most people hadn't had much experience with that in

the past and a lot of them were quite nervous about meeting... about meeting the people. I don't think they reacted in a negative way at all and I think most people were positive and interested in ah... you know, in finding... finding out more about these people's experience, really.

T: Okay, you said they were positive and interested. You also said that they were nervous and... can you tell me a little more about that?

J: I think that's to do with... am... they worried about them saying something out of turn, saying something... offensive

probably.

Am, I think that's part of my experience or was in the past...
T: Okay... and how did they behave when they got this experience of people with learning disabilities?

J: Am, I think, as a group, people were quite reticent in the beginning. You know, am, I think they were nervous at the beginning.

Met people with LD in 1st year

Not much LD experience in the past

Nervous about meeting people with LD

Positive and interested about people with LD's experiences

Worry about saying something offensive

Reticent and nervous at the beginning of the session with people with LD

Appendix I

Sample Codes and Interview Extracts (Study 1)

Codes for Transcript 5	Extract
Nervous about offending anybody	R: I think they are probably nervous... it's just on the grounds that they don't really want to offend anybody, if that makes sense?
Need to appear to be non-judgmental	R: You kind of need to appear like non-judgmental and all the rest of it and... and you kind of do... you stop highlighting these things. There is for all... somebody could take it the wrong way.
Think about how to communicate	R: (Sighs) The first thing would be communication issues, if that makes sense? How you would actually go about communicating clearly with the person... And of course based on their condition, you would have to make adjustments. You'd have to take certain approaches. T: kind of approaches/adjustments? R: possibly the techniques used to explain the concept would be the first thing that would jump into my head... The environment. You want the person to feel comfortable. It would also vary depending on the condition the person has.
Interested to learn how LD affects the person	R: I suppose it would be in a way interesting... because in theory you should have the perspective of person there... so it would be an interesting take on how the condition actually affects the person.
Concern that person with LD may not be comfortable with being part of teaching	But on the other hand there is "Is the person comfortable with this?" There could be an element of this person has a problem... and a lot of people kind of stare at you. You kind of feel like a bug under a microscope, I think.
Appreciate clinical LD work so they will know what to expect on the job	R: I suppose they'd be grateful for the opportunity to be able to have contact with these patients... so they'd have a fair idea of what to expect on the job.
Worried about "how to handle" or interact with people with LD	R: On the other hand, I suppose they'd worry if they know how to handle the person with the learning difficulty properly. T: worry about how to handle it properly? R: yeah, how to interact with the person properly

Appendix J

Final Version of the Medical Students' Beliefs about Healthcare for People with
Learning Disabilities Scale (MED-LD)

A “**learning disability**” is an umbrella term for a condition in which someone has an impairment in their ability to think (intellectual functioning) and to cope on their own on a day-to-day basis (social functioning) and which has been identified as having an onset before adulthood (18 years old).

Learning disability is referred to in certain countries as an intellectual disability. In the past, the terms “**mental handicap**” and “**mental retardation**” have also been used to denote this condition.

Some specific syndromes and conditions such as Down's syndrome, Fragile X and Autism **may** in some cases be associated with having a learning disability.

Learning disabilities are different from specific learning difficulties such as Dyslexia, which are **not** the focus of this study.

1. Doctors discriminate against people with learning disabilities.
2. I would prefer to get clinical experience with non-learning disabled people than those with learning disabilities.
3. Healthcare policies for people with learning disabilities put unnecessary burden on doctors.
4. Enough doctors look beyond their patients' learning disabilities and see the person first.
5. Lectures on other topics are more important than medical teaching on learning disabilities.
6. Too many doctors assume that signs and symptoms are features of people's learning disabilities rather than suggesting a possible physiological cause.
7. In healthcare, people with learning disabilities get too much special treatment.

8. Doctors examining their attitudes to people with learning disabilities sounds like a waste of time.
9. Too much importance is put on people with learning disabilities' communication needs.
10. It is understandable that doctors don't pay much attention to what people with learning disabilities say.
11. Healthcare for people with learning disabilities costs more than it is worth.
12. Doctors giving extra time to patients with learning disabilities is unfair to other patients.
13. Healthcare for people with learning disabilities is unlikely to produce positive outcomes.
14. Doctors have enough respect for people with learning disabilities' equal rights.

Appendix K

Research Invite Emailed to Medical Students (Study 2)

Subject Line: Medical Students needed for a Brief Internet Survey (£100 Voucher = Prize)

Dear Medical Students,

You may be aware that health care provision for people with learning disabilities is a topic attracting a lot of debate. We are keen to ensure that the views of medical students, as future healthcare providers, are part of this debate and to this end are conducting this survey.

You could win a £100 Amazon gift voucher by completing a brief internet survey. This will take no more than 5 to 10 minutes of your time.

The link to the survey is: <https://opinio.ucl.ac.uk/s?s=26205>

This study has been approved by the UCL Research Ethics Committee as Project ID Number: 4662/001. Your responses will be kept confidential. At the very end of the survey, you will be asked to provide your contact details if you wish to be entered into the prize draw. These details will be immediately separated from your survey responses on receipt. Should you have any questions about this study, please feel free to contact us.

Thanks a lot for your help in advance

Dr Travis Ryan

████████████████████

Dr Katrina Scior

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Research Department of Clinical, Educational and Health Psychology
University College London
Gower Street
London WC1E 6BT

Appendix L

Information Sheet (Study 2)

Title of project: Understanding medical students' attitudes to people with learning disabilities

Name, Address and Contact Details of Investigators:

Dr Katrina Scior & Dr Travis Ryan
Research Department of Clinical, Educational, & Health Psychology

We would like to invite you to participate in this research project. You should only participate if you want to; choosing not to take part will not disadvantage you in any way. Before you decide whether you want to take part, please read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear, or if you would like more information.

Our project aims to improve understanding of medical students' attitudes to people with learning disabilities. We would like to invite students of medicine to do a brief online survey. This should take approximately 5-10 minutes to complete.

If you are interested in taking part, please read the informed consent form for interviewees below, and answer its question. Then, you will be able to commence the Internet survey. At the end of the survey, participants can enter a draw to win a £100 Amazon gift voucher. One winner will be randomly selected once the study is completed.

If you have a concern about any aspect of this study, please contact one of the researchers identified above. If you remain unhappy and wish to complain formally, you can contact Pasco Fearon, co-director of the Doctorate in Clinical Psychology programme (phone: +44 [0] 20 7679 1244).

It is up to you to decide whether or not to take part. If you choose not to participate, you won't incur any penalties or lose any benefits to which you might have been entitled. Even after agreeing to take part, you can still withdraw at any time and without giving a reason.

All data will be collected and stored in accordance with the Data Protection Act 1998.

This study has been approved by the UCL Research Ethics Committee as Project ID Number: 4662/001

This study has received confirmation of negligent harm insurance in place for this study sponsored by University College London.

