

PHYSICIANS' ATTITUDES ABOUT INDIVIDUALS WITH INTELLECTUAL DISABILITY AND HEALTH CARE PRACTICES TOWARD THEM: A SYSTEMATIC REVIEW

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SUMMARY

Background Attitudes of physicians toward intellectual disability (ID) impact access and quality of the health care services provided to individuals with ID. Attitudes are conceptualized as composed of cognitive, affective, and behavioral dimensions. However, research on attitudes toward ID frequently neglects to define the underlying theoretical framework. This work aimed to review research over the past 20 years on physicians' attitudes toward and health care practices for individuals with ID. Findings are reported on the cognitive, affective, and behavioral dimensions of attitudes.

Methods A systematic review was conducted following the PRISMA guidelines. Articles published in English between 2000 and October 2021 were searched in Scopus and Web of Science. Descriptive statistics and frequencies were used to describe the attitudes of physicians.

Results A total of 14 studies were included in the review. Considering the cognitive dimension of attitudes, physicians had a medium to good but almost always incomplete knowledge of ID and its associated conditions, rights and capabilities of individuals with ID, and health care practices for this population. Concerning the affective dimension, approximately half of physicians expressed feelings of pity, dissatisfaction, frustration, discomfort, and lack of confidence. With respect to the behavioral dimension of attitudes, approximately half of physicians preferred to avoid patients with ID.

Conclusions Physicians' attitudes are rather complex. From this work emerges a clear need to change these generally unfavorable attitudes, especially in the aspects regarding emotions and behaviors, to provide better health care to individuals with ID. Educational and training programs on ID for physicians should be developed to improve attitudes toward ID and consequently foster the wellbeing of this population.

Key words: intellectual development disorder, opinions, health personnel, bias, public health

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INTRODUCTION

The United Nations Convention on the Rights of Persons with Disabilities (CRPD, United Nations 2006) states that individuals with intellectual disability (ID) have the right to receive optimal health services without discrimination. However, this population faces several types of barriers in accessing health care services, which are often inadequate to meet their specific needs (Doherty et al. 2020, World Health Organizations [WHO] 2011). Individuals with ID and their families reported unique challenges in staying healthy and getting appropriate health services when they are sick, exclusion from public campaigns to promote wellness, and shortages of health care professionals who are willing to accept them as patients (Iezzoni et al. 2021, U.S. Department of Health and Social Services 2002).

One of the factors impacting these health care disparities and dissatisfaction with the medical services received seems to be the presence of poor attitudes of health care providers toward individuals with ID (Alliance for Disability in Health Care Education 2019, Havercamp et al. 2021). Attitude is "a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor" (Eagly & Chaiken 1993, p. 1). Physicians' attitudes toward ID (e.g., ID can be caused by problems during birth),

people with ID (e.g., People with ID are able to work) and health care practices provided to this population (e.g., Regular visual and hearing screenings need to be provided to people with ID) are particularly important, given that physicians are generally the first point of entry into the health care system for individuals with ID (Breau et al. 2019). Examples of physicians' attitudes relevant to patient care may be the belief that adults with ID should receive cancer screenings as people without ID, and that comfort interacting with people with ID is essential to creating a welcoming atmosphere in medical practice. Adults with ID reported perceptions of unfriendliness and being ignored by their physicians; assumptions of incapacity to make choices or manage their own life; lack of time needed to understand technical jargon and to communicate effectively; missing information about their diagnosis, procedures, and interventions; and that physicians put less importance on annual health care preventive examination (Ali et al. 2013, Nicholas et al. 2017, Potvin et al. 2019). The evidence that individuals with ID frequently present comorbid health problems (Center for Disease Control and Prevention [CDC] 2019, Havercamp & Scott 2015) makes physicians' attitudes even more critical because these health care challenges experienced by patients with ID are exacerbated by co-occurring health conditions (Nicholas et al. 2017, Man & Kangas 2020).

On the other side, physicians and other health care providers frequently recognize that individuals with ID receive inappropriate or insufficient medical care and report the need for more training on ID (Edwards et al. 2007, Kaushal et al. 2020). Moreover, physicians feel that a positive attitude towards persons with ID represents a key point to improving care, satisfaction, and strengthening care provider-client contact (Morad et al. 2004).

Previous literature reviews found that unfavorable attitudes of medical students are usually sensitive to interventions aimed to improve them (Ryan & Scior 2014) and that nurses with training on ID experienced conflicting positive and negative emotions (Desroches 2020). In contrast, mainstream nurses' attitudes were primarily negative (Desroches 2020), and stigmatizing attitudes are present among health professionals (Pelleboer-Gunnink et al. 2017). Previous literature reviews are limited by their lack of a clear conceptualization and theoretical model of attitude. Instead, a precise definition of this psychological construct would facilitate its reliable and valid measurement.

The most widely accepted theoretical framework of attitudes is the three-factor model (Eagly & Chaiken 1993, Rosenberg & Hovland 1960), which theorized attitudes as composed of three different dimensions: cognitive (beliefs, ideas, perceptions, opinions), affective (positive/negative feelings and emotions), and behavioral (intentions and covert actions). Attitudes may be explicit or implicit, conscious or unconscious (Eagly & Chaiken 1993, 2007).

The purpose of this review is to explore the attitudes of physicians toward intellectual disability using the three-factor model of attitudes, which will precisely identify problematic attitudes and to tailor interventions accordingly. This work aimed to review the studies of the last 20 years on attitudes of physicians toward ID,

individuals with ID, and the health care practices performed toward them to investigate the quality of the attitudes (i.e., positive, negative, neutral) and to examine them using the three-factor model of attitudes.

METHODS

The review was performed following the *Preferred Reporting Items for Systematic Reviews and Meta-Analyses* (PRISMA) guidelines (Moher et al. 2009) on the articles published in English from 2000 to October 2021.

Search Strategy

The search was conducted in the Scopus and Web of Science databases specifying the search terms for Population, Intervention/Exposure, and Comparison and Outcome in agreement with the PICO approach (Liberati et al. 2009). *Population* was represented by physicians, either attending or resident, with or without previous training on ID, and having or not patients with ID; *Exposure* was represented by ID, people with ID or with a condition always associated with ID (i.e., Down syndrome), or health care practices toward patients with ID; and *Outcome* included any dimension (i.e., cognitive, affective, behavioral) of attitudes considering the above-mentioned Population and Exposure criteria. Table 1 presents an overview of the search terms used for both databases and, as an example of the search string used, the one inserted in Scopus.

Study Selection

The studies identified were assessed by one of the authors for eligibility following the inclusion and exclusion criteria reported in Table 2.

Table 1. Search Strategy: Search Terms Identified Based on the PICO Approach and Searched in Scopus and Web of Science, and the Search String Used in Scopus

	Population: Physicians	Exposure: Intellectual disability	Outcome: Attitudes
Search terms (not truncated)	Doctors; med staff; physicians; residents; md residents; health staff; health personnel; health providers; health professionals; psychiatrists; family medicine; general practice	Down syndrome; developmental delay; developmental disability; intellectual challenges; mental deficiency; mental handicap; mental retardation	Attitudes; awareness; behaviors; beliefs; bias; discrimination; emotions; experience; feelings; opinions; perceptions; perspectives; prejudices; stereotypes; stigma; view; assumptions; knowledge
Example: search string for SCOPUS	TITLE-ABS-KEY ((attitud* OR awar* OR behav* OR belief* OR bias* OR discrimin* OR emotion* OR experience* OR feeling* OR opinion* OR perception* OR perspective* OR prejudice* OR stereotyp* OR stigma* OR view* OR assumption* OR knowledge) AND ("down* syndrome" OR "developmental* delay*" OR "developal* disab*" OR "intellect* challeng*" OR "intellect* disab*" OR "mental* deficien*" OR "mental* handicap*" OR "mental* retard*") AND (doctor* OR "med staff" OR physician* OR resident* OR "md resident*" OR "health staff" OR "health personnel" OR "health provider*" OR "health professional*" OR "psychiatrist*" OR "family med*" OR "general practi*")) AND PUBYEAR > 1999 AND (LIMIT-TO (DOCTYPE, "ar")) AND (LIMIT-TO (LANGUAGE, "English"))		

Table 2. Inclusion and Exclusion Criteria for the Selection of the Studies

	Inclusion	Exclusion
Population	Attending or resident physicians	Studies focused only on medical students Studies with physicians with a specialization on ID ^a Studies with physicians working only with individuals with ID Studies in which the sample included other health care professionals and separate statistics on physicians were not provided
Exposure	Individuals with ID	Studies focused on individuals with other neurodevelopmental disorders which not necessarily are associated with ID (e.g., Autism Spectrum Disorder) Studies focused on disability in general which did not provide separate statistics for ID
Outcome	Individuals with a condition associated with ID (i.e., Down syndrome, Fragile-X syndrome, Edwards syndrome) Cognitive, affective, and/or behavioral dimension of attitudes toward ID, individuals with ID, or specific health care practices toward individuals with ID (e.g., screening examinations, managing of challenging behaviors)	Studies focused only on physicians' perceptions regarding their training needs Studies that used ad hoc developed instruments without providing the range of possible scale scores and therefore not allowing to properly determine the level of attitudes Studies not focused on attitudes toward people with ID themselves Studies focused only on barriers for the health care access for people with ID without attention to physicians' attitudes Studies examining physicians' attitudes only with qualitative methods

^a A specialization on ID is intended as a three-year specific educational and training program to work with individuals with ID

Mendeley was used to exclude duplicates, screen titles and abstracts, and read the full text of the preliminarily identified studies to evaluate whether or not they met the criteria. The references of the included papers were manually screened to identify other possible eligible investigations. Studies in which the participants were presented in the abstract as health professionals with an unspecified specialization (e.g., nurse, physicians, etc.) were screened in full-text to determine if the participants included physicians and, if so, whether separate statistics were provided for this sub-group. Finally, ambiguities were resolved through discussions among authors.

Data Extraction, Collection, and Summary Measures

For each identified eligible study, the following information was extracted and collected in an Excel sheet: general information about the study (i.e., year and country), number and characteristics of physicians (i.e., age, gender, attending or in residency, medical specialization), object of the attitude outcome (e.g., attitudes toward the health care of people with ID), ascribed dimensions of attitude (i.e., cognitive [e.g., knowledge, beliefs], affective [e.g., emotions], behavioral [e.g., willingness to interact]), the instrument used to measure the attitudes, and results in terms of measured attitude.

To quantify the level (i.e., low, medium, or high) and type of attitudes (i.e., positive or negative, favorable or unfavorable, neutral), two summary measures were computed: descriptive statistics (i.e., mean and standard deviation) and/or frequency (i.e., percentage of physicians) of the answer categories of the Likert scale used.

The overall quality of the included papers was not assessed; however, all studies were published in peer-reviewed journals.

RESULTS

Results of the Literature Search

The flow diagram (Figure 1) depicts the selection process and includes the number of studies screened, assessed for eligibility, and included in the review. From a total of 5483 studies initially identified through the literature search, 14 were included in this review.

Overview of Studies

The included studies were conducted between 2000 and 2020 in Australia ($n = 3$), Canada ($n = 2$), Israel ($n = 2$), Netherlands ($n = 1$), Singapore ($n = 1$), United Kingdom ($n = 1$), and United States ($n = 4$). In total 3624 participants were involved (studies' sample size: mean = 259; standard deviation = 386; median = 136; range = 17-1500 individuals). Not all the studies provided the information about age (missing for seven studies) and gender (missing for four studies) of participants, and those that did used different indices (e.g., age range or average, frequency percentage without the exact number of males/females for gender). Therefore, age and gender are not included in this review as overall indicators (but gender was indicated only for the studies which provided it, see Table 3).

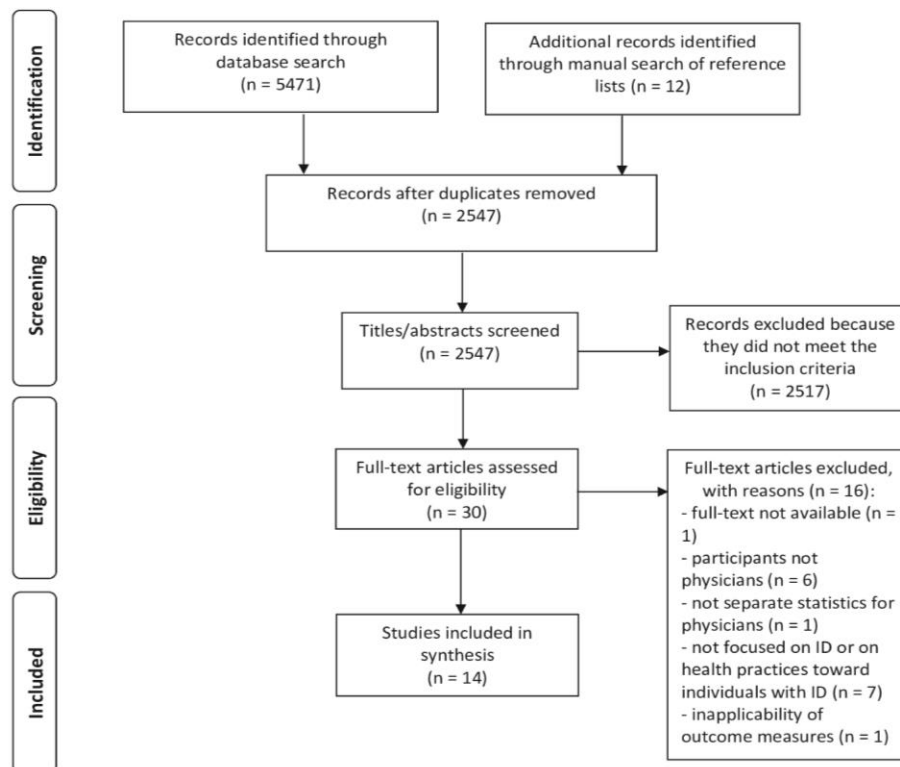


Figure 1. PRISMA Flow Chart: Number of Studies Identified, Screened, Assessed for Eligibility, and Included in the Review

Table 3. Characteristics of Studies Included in the Review

Study	Participants			Object (i.e., attitudes toward)	3-Fm ^b	Attitudes		Main results ^c
	Country	N (males, %) ^a	Career level			Medical specialty	Measurement	
Bekkema et al. 2014	Netherlands	107 (n.r.)	Attending physicians	General practice	Cognitive	Use of burdensome medical interventions in the end-of-life care for people with ID	11 items developed ad hoc; 5-point Likert scale: 1 = Strongly disagree - 5 = Strongly agree	On average, physicians agree that patients' quality of life is the most important consideration in deciding on medical intervention. Physicians show a medium level of agreement with statements concerning the decision-making capacity of the person with ID, and the right of patients with ID to be informed about options for intervention.
Breau et al. 2019	Canada	58 (n.r.)	Attending physicians	Family medicine	Cognitive	Inclusion of people with ID in their community	CLAS-ID; 6-point Likert scale: 1 = Strongly disagree - 6 = Strongly agree	Positive attitudes in all scales except Sheltering (people with ID are vulnerable): Empowerment ($M = 4.09$; $SD = 0.58$), Similarity ($M = 5.03$; $SD = .41$), Exclusion ($M = 1.56$; $SD = 0.52$), Sheltering ($M = 2.98$; $SD = 0.73$).
Edwards et al. 2007	Australia	175 (55%)	Attending physicians	Psychiatry	Cognitive; Behavioral	Care of patients with ID and comorbid mental health problems	16 items adapted from Lennox and Chaplin (1996); 5-point bipolar response-formatted Likert scale: Agree - Disagree	Psychiatrists think that patients with dual diagnosis: need investigation of psychiatric symptoms (90%), benefit from psychotherapy (78%), are overtreat with antipsychotics (75%), receive a poor standard of care (68%), are exploited by other patients during inpatient admission (81%). Psychiatrists would prefer not to treat adults with ID (58%).
Ferguson et al. 2006	USA	30 (23%)	Resident physicians	Obstetrics and gynecology; Pediatrics	Cognitive; Affective	Down syndrome (DS) and counseling parents with a newborn with DS	Two measures developed ad hoc. Knowledge: 15 multiple-choice items with one correct option; Comfort: 20 items, 5-point Likert scale: 1 = Not at all uncomfortable - 5 = Extremely uncomfortable	Physicians demonstrated a good level of knowledge of genetics, diagnosis of DS, secondary conditions commonly associated with DS, life outcomes (M correct answers = 9.47; $SD = 1.55$; range = 7-13) and a medium level of comfort in counseling parents of children with DS ($M = 51.93$; $SD = 10.75$; range = 35-78).
Jacobs et al. 2016	USA	407 (47%)	Both attending (91%) and resident physicians	Neonatology	Cognitive	Infants with Edwards syndrome (ES)	10 items developed ad hoc following a clinical vignette; 5-point Likert scale: 1 = Strongly disagree - 5 = Strongly agree	Neonatologists think that ES is a lethal condition (83%), expected a 5-20% chance of the newborn living beyond 1 year (72%), and profound ID as an outcome if the child survives (75%).
Kaushal et al. 2020	UK	107 (n.r.)	Both attending and resident physicians	Psychiatry	Cognitive; Affective; Behavioral	Care of patients with ID and comorbid mental health problems	12 items adapted from Lennox and Chaplin (1996); 6-point Likert scale: 1 = Strongly disagree - 6 = Strongly agree	On average, psychiatrists think that: mental health problems are frequent in adults with ID, antipsychotics are overused in case of comorbid challenging behaviors, and it is important to know the behavioral phenotypes of ID. Psychiatrists feel a medium level of confidence in assessing patients with ID and mental health problems. Psychiatrists would prefer to not treat people with ID.

^a n.r. = not reported; ^b 3-Fm = 3-Factor model related dimension; ^c The percentages indicated in parenthesis correspond to the frequencies of agreement/disagreement answers reported by the study

Table 3. Continues

Study	Participants			Attitudes				
	Country	N (males, %) ^a	Career level physicians	Medical specialty	Object (i.e., attitudes toward)	3-Fm ^b	Measurement	Main results ^c
Kemper & Bailey 2009	USA	165 (n.r.)	Attending physicians	Pediatrics	Fragile X-syndrome (FXS) and its screenings	Cognitive	25 items developed ad hoc following two clinical scenarios; multiple-choice items with one correct option or Likert scales of agreement (not stated levels and answer options)	Pediatricians know that: FXS causes ID (98%), diagnosis is often delayed (87%), females could be affected (53%), and carriers can have health problems as adults (28%). Less than 40% of pediatricians know enough to discuss with parents about FXS and FXS screenings. Pediatricians believed that newborn FXS screenings are beneficial (78%) and they should be offered as part of well-child care (55%). Few pediatricians (8%) reported not supporting FXS screenings because of carrier detection.
Lennox et al. 2000	Australia	526 (68%)	Attending physicians	General practice	Health care of people with ID	Cognitive; Behavioral	4 items developed ad hoc: two about beliefs on nine health care practices (e.g., health screens) and role of physicians to facilitate their achievement (6-point Likert scale: 1 = Agree strongly - 6 = Disagree strongly), and two about the actual facilitation and intentions to facilitate the achievement of the health care practices in the future (5-point Likert scale: 1 = Never - 6 = Always)	Physicians consider important the achievement of each health care practice in people with ID (93-100%), generally agree that they have roles and responsibilities in assuring this achievement (62-99%). There is variability with whom physicians often or always ensure the achievement of each health care practice (14-73%), but generally they have the intention to ensure it in their future practice (53-91%).
Morad et al. 2004	Israel	17 (82%)	Attending physicians	General practice; Pediatrics	Care of people with ID	Cognitive	22 items developed ad hoc; agreement/disagreement scale (not stated levels and answer options)	All physicians agreed that most people with ID should be included in the community, deserve equal health care, have the right to receive special care for their unique needs. Physicians think that people with ID could express their needs, expectations, attitudes, and satisfaction with the care provided to them (94%) and that informed consent is an essential component in the care process (84%).
Quellette-Kuntz et al. 2003	Canada	58 (n.r.)	Resident physicians	Psychiatry	Inclusion of people with ID in their community	Cognitive	CLAS-ID; 6-point Likert scale: 1 = Strongly disagree - 6 = Strongly agree	Positive attitudes in all scales except Sheltering (people with ID are vulnerable): Empowerment ($M = 4.32$; $SD = 0.65$), Similarity ($M = 5.30$; $SD = 0.61$), Exclusion ($M = 1.75$; $SD = 0.71$), Sheltering ($M = 3.63$; $SD = 0.75$).

^a n.r. = not reported; ^b 3-Fm = 3-Factor model related dimension; ^c The percentages indicated in parenthesis correspond to the frequencies of agreement/disagreement answers reported by the study

Table 3. Continues

Study	Participants			Attitudes				
	Country	N (males, %) ^a	Career level	Medical specialty	Object (i.e., attitudes toward)	3-Fm ^b	Measurement	Main results ^c
Pace et al. 2011	USA	1500 (75%)	Attending physicians	Obstetrics and gynecology; Pediatrics; Internal medicine; Family medicine	People with DS	Cognitive; Affective	4 items retrieved by the 2008 DocStyles survey; 5-point Likert scale: 1 = Strongly agree - 5 = Strongly disagree	Some physicians think that children with DS should attend special schools (18%), including students with DS in classes with typically developing students causes distractions (24%), most individuals with DS are not able to work (2%). Some physicians do not feel comfortable in providing medical care to patients with DS (10%).
Sajith et al. 2017	Singapore	48 (54%)	Both attending and resident physicians	Psychiatry	Care of patients with ID and comorbid mental health problems	Cognitive; Behavioral	10 items adapted from Lennox and Chaplin (1996); 5-point Likert scale: 1 = Strongly agree - 5 = Strongly disagree	Psychiatrists think that people with ID are more likely to have mental health problems (79%), develop mood disorders (92%), psychotic disorders (73%), are vulnerable to exploitation by other patients during inpatient admission (90%), deserve the same level of care as other patients (83%) and medications (77%), physical restraint to manage behavior problems are overused (75%). Some psychiatrists would prefer not to see patients with ID (15%).
Torr et al. 2008	Australia	170 (69%)	Attending physicians	Psychiatry	Care of patients with ID and comorbid mental health problems	Cognitive; Affective; Behavioral	34 items adapted from Lennox and Chaplin (1996); 6-point Likert scale: 1 = Disagree very much - 6 = Agree very much	On average, psychiatrists think that they should know behavioral phenotypes of ID and that patients with ID are more likely to have mental health problems, need investigation of psychiatric symptoms, vulnerable to exploitation by other patients, receive poor standard of care, benefit from psychotherapy, are overtreat with antipsychotics if present aggressivity. Psychiatrists feel a medium level of confidence managing adults with ID and comorbid mental health needs, epilepsy or dementia. Psychiatrists express a medium level of avoidance from working with adults with ID.
Werner et al. 2013	Israel	256 (54%)	Both attending and resident physicians	Psychiatry	People with ID	Cognitive; Affective; Behavioral	11 items overall: four items from the <i>Psychiatric Disability Attribution Questionnaire</i> (Corrigan et al. 2001), one item from Lennox & Chaplin (1996), six items developed ad hoc; 4-point Likert scale: 1 = Strongly disagree - 4 = Strongly agree	Psychiatrists think that people with ID can benefit from consultation services guidance (98%), public funding intended to improve services for them (95%), medical (93%) and non-medical treatment (95%), and they should not live outside the community in institutional settings (87%). Psychiatrists experience negative emotions toward people with ID: pity (62%), frustration (46%), unsatisfaction (50%). Some psychiatrists avoid people with ID (14%) or prefer to treat another kind of patient (60%).

^an.r. = not reported; ^b3-Fm = 3-Factor model related dimension; ^cThe percentages indicated in parenthesis correspond to the frequencies of agreement/disagreement answers reported by the study

Concerning the career level of physicians, eight studies involved only attending physicians, two only residents, and four included both attending and resident physicians. The medical specialties of physicians were family medicine or general practice ($n = 5$), psychiatry ($n = 6$), obstetrics-gynecology ($n = 2$), pediatrics ($n = 4$), neonatology ($n = 1$), internal medicine ($n = 1$); three studies involved physicians from more than one medical specialties (ranging from 2-4).

A variety of instruments were used to measure the outcome. In some cases (studies $n = 6$), the instrument was developed ad hoc. Other studies used adapted versions of the survey developed by Lennox and Chaplin (1996) on the perceptions of psychiatrists regarding the care of people with ID ($n = 4$ studies); *The Community Living Attitudes Scale, Mental Retardation Form* (CLAS-ID, Henry et al. 1996; $n = 2$ studies); items selected from large-scale national investigations ($n = 1$ study); or a mix of existing (Corrigan et al. 2001, Lennox & Chaplin, 1996) and ad hoc developed items ($n = 1$ study). All these instruments were self-report, asking participants to express their level of agreement/ disagreement (generally using a 4, 5, or 6-point Likert scale) with a series of statements presented concerning the outcome. Table 3 summarizes all the above-mentioned information and attitudes outcomes for each study included.

All the included studies addressed only explicit attitudes. To date, no research has been published investigating physicians' implicit attitudes toward ID, individuals with ID, or health care practices toward this population.

Content of Studies

The content of the studies will be discussed following the three-factor model of attitudes.

Cognitive Dimension: Knowledge and Expected Capabilities

Compared to other ID etiologies, physicians demonstrated a slightly higher than average knowledge of Down syndrome's genetics, diagnosis, secondary associated conditions, and life outcomes (Ferguson et al. 2006), and only 2% of them believed that adults with Down syndrome should work (Pace et al. 2011). Concerning the Edwards syndrome (trisomy 18), 83%, 72%, and 75% of neonatologists knew that it represents a generally fatal condition, that only around 10% of children live beyond one year of chronological age, and that it is associated with profound ID, respectively (Jacobs et al. 2016). Regarding the knowledge of Fragile-X syndrome (FXS), almost all pediatricians reported knowing that it represents one of the most common causes of ID and that its diagnosis is often delayed. However, only half of them knew that females could be affected, and about a quarter knew

that carriers could have health problems as adults. Moreover, only 39% and 33% of pediatricians reported that they knew enough about FXS to discuss FXS with the parents of a child who might have the condition or counsel them to take the FSX newborn screening, respectively (Kemper & Bailey 2009).

Most psychiatrists recognized that adults with ID are more likely to have mental health problems and develop mood and psychotic disorders (Kaushal et al. 2020, Sajith et al. 2017, Torr et al. 2008). Most of them agreed that physicians should receive specific training on ID and should know the behavioral phenotypes of ID to properly investigate psychiatric symptoms in this population (Edwards et al. 2007, Kaushal et al. 2020, Torr et al. 2008).

The vast majority, 94%, of family physicians and pediatricians considered people with ID capable of expressing their needs, expectations, attitudes, and satisfaction with the care provided to them (Morad et al. 2014). Furthermore, 84% of physicians agreed that informed consent is an essential and eminent component in the care process for persons with ID, who always should be informed about options regarding interventions (Bekkema et al. 2014, Morad et al. 2004). Bekkema et al. (2014) detected average neutral attitudes of family physicians toward the decision-making of patients with ID noting potentially burdensome interventions.

A significant percentage of family doctors and psychiatrists thought that individuals with ID are vulnerable and should be protected (Breau et al. 2019, Ouellette-Kuntz et al. 2003). Most psychiatrists considered people with ID vulnerable to exploitation by other patients during inpatient admission (Edwards et al. 2007, Sajith et al. 2017, Torr et al. 2008).

Cognitive Dimension: Beliefs about Social Inclusion

Family doctors and psychiatrists showed favorable attitudes, believing that individuals with ID should be empowered to take control of their lives, that individuals with ID have the same human rights as people without ID, and should be included in the community life (Breau et al. 2019, Morad et al. 2004, Ouellette-Kuntz et al. 2003) without living in institutional settings (Werner et al. 2013). Moreover, to foster inclusion in the community, 95% of psychiatrists and 88% of family physicians and pediatricians thought that public funding should be invested to allocate more time and resources (e.g., shelter accommodations, employment opportunities) to people with ID (Morad et al. 2004, Werner et al. 2013). On the other hand, almost a quarter of physicians believed that children with Down syndrome should attend special schools and that including them in classes with typically developing students would cause distraction (Breau et al. 2019, Ouellette-Kuntz et al. 2003, Pace et al. 2011).

Cognitive Dimension: Beliefs about Health Care Practices

Morad et al. (2004) found that the totality of physicians agreed that people with ID deserve quality health care equal to the general population and require special care for their unique needs and health problems. Similarly, Bekkema and colleagues (2014) found that, on average, family physicians considered the quality of life of the patient with ID the most important aspect to take into account in deciding on potentially burdensome medical intervention at their end of life. All or almost all physicians were aware that individuals with ID should regularly receive health care examination regarding several health care issues (e.g., hearing and vision assessment, dental care, review of medication, health screening, psychiatric disorders, nutritional and lifestyle advice), and recognized their fundamental role in facilitating the addressing of these health care issues (Lennox et al. 2000, Morad et al. 2004). Among pediatricians, 78% believed that newborn screening for FXS would be beneficial, and about half of them believed that parents should be offered FXS screening as part of well-child care; however, 8% reported that they would not support FXS newborn screening or screening during well-child care at all because of carrier detection (Kemper & Bailey 2009). Almost all psychiatrists agreed that this population benefits from medical consultation, services, treatment, either medical or not, and psychotherapy (Edwards et al. 2007, Torr et al. 2008, Werner et al. 2013). Psychiatrists agreed that medications like antipsychotics and physical restraint are overused in patients with ID and co-occurrent challenging behaviors (Edwards et al. 2007, Kaushal et al. 2020, Sajith et al. 2017).

While Torr et al (2008) found that, on average, psychiatrists were aware of the lower standards of health care received by adults with ID, Edwards et al. (2007) showed that not all physicians were aware of this disparity with 25% of psychiatrists disagreeing with the statement that adults with ID and co-occurring psychiatric conditions received a relatively poor standard of psychiatric care.

Affective Dimension: Feelings, Emotions, and Confidence

Only half of psychiatrists felt satisfaction in treating individuals with ID, while 46% of them considered this practice frustrating (Werner et al. 2013). While only 10% of physicians felt uncomfortable toward patients with Down syndrome (Pace et al. 2011), on average, they showed only a medium level of comfort in communicating with parents of children with Down syndrome (Ferguson et al. 2006). Similarly, on average, psychiatrists expressed a medium level of confidence in assessing a person with ID and a comorbid mental health problem (Kaushal et al. 2020), dementia, or epilepsy (Torr et al. 2008). Finally, 62% of psychiatrists felt pity toward individuals with ID (Werner et al. 2013).

Behavioral Dimension: Interaction and Facilitating Health Care Access

Although physicians recognized that they play a role in facilitating the health care access of their patients with ID, only 14% of them actually ensured regular dental care examination. In contrast, almost half and three-quarters of them, respectively, facilitated health care screenings and ensured that the medication plan was revised regularly (Lennox et al. 2000). However, between 53% and 91% of physicians, respectively, expressed favorable dispositions to increase the facilitation of regular dental care examinations and to regularly review the medication plan of patients with ID in their future practices.

The tendency to avoid individuals with ID emerged in several studies, and around half of the psychiatrists expressed their preference to treat other patients than those with ID (Edwards et al. 2007, Kaushal et al. 2020, Sajith et al. 2017, Torr et al. 2008, Werner et al. 2013).

DISCUSSION

This paper describes the systematic review of 14 studies aimed to evaluate attitudes of physicians toward ID, individuals with ID, and/or health care practices performed by physicians toward this population. Results were structured according to the three-factor model of attitudes (Eagly & Chaiken 1993, Rosenberg & Hovland 1960). Much of the evidence reviewed explored the cognitive dimension of attitude: physicians' knowledge of ID or conditions associated with ID (Ferguson et al. 2006, Jacobs et al. 2016, Kemper & Bailey 2009, Pace et al. 2011), capabilities of individuals with ID (e.g., Lennox et al. 2004, Morad et al. 2004, Torr et al. 2008), beliefs about social inclusion of individuals with ID (e.g., Breau et al. 2019, Ouellette-Kuntz et al. 2003, Werner et al. 2013) and concerning the health care practices that people with ID currently received and have the right to receive (e.g., Bekkema et al. 2014, Edwards et al. 2007, Morad et al. 2004). All the studies found that physicians had a medium to a good, although incomplete, level of knowledge about this population. There is a general agreement for the social inclusion of individuals with ID and their right to receive the same high quality health care as people without ID. However, the studies also revealed stigmatizing attitudes and no awareness about the challenges that patients with ID face, especially if they have a co-occurring psychiatric disorder. Concerning aspects ascribed to the affective dimension of attitudes, negative emotions and feelings, such as pity, dissatisfaction, frustration, discomfort, and lack of confidence were expressed in about half of physicians surveyed across the majority of studies (e.g., Ferguson et al. 2006, Kaushal et al. 2020, Werner et al. 2013). Similarly, the studies that investigated aspects of the behavioral dimension of attitudes found unfavorable

attitudes, most notably that about half of physicians preferred to avoid caring for patients with ID (e.g., Edwards et al. 2007, Sajith et al. 2017, Werner et al. 2013).

Interestingly, our findings are consistent with a recent study of physicians' attitudes toward patients with all types of disabilities that found a reluctance to welcome patients with disabilities into their practice and a lack of confidence in providing high quality health care to this population (Iezzoni et al. 2021). Likewise, similar findings emerged from studies examining the attitudes of other health care providers toward individuals with ID (e.g., Desroches 2020, Pelleboer-Gunnink et al. 2017, Ryan & Scior 2014). These findings point to a clear and strong need to improve physicians' attitudes toward individuals with ID, especially the affective and behavioral aspects of attitudes, to improve the quality of health care provided to individuals with ID.

Encouragingly, physicians are interested in further training to reduce their discomfort and frustration in caring for patients with ID (Edwards et al. 2007, Wilkinson et al. 2012). This is especially important because previous studies showed that higher perceived knowledge and training on ID was associated with more positive attitudes toward people with ID (Arcangeli et al. 2020, Desroches 2020; Werner et al. 2013), especially if the intervention involved interactions with this population (Crane et al. 2021, Ryan & Scior 2014).

Applying the three-factor model lens to twenty years of research on physician attitudes toward ID revealed specific problematic beliefs and attitudes that warrant intervention. These findings can inform a path toward physician education and training programs (Ankam et al. 2019, Ioerger et al. 2019, Haverkamp et al. 2021) focused on affective and behavioral dimensions of attitudes toward ID. Indeed, the presence of positive attitudes toward people with ID would imply that physicians are aware of the rights and capabilities of individuals with ID and they can adapt the medical services provided to the specific needs of this population of patients. Consequently, individuals with ID would receive a better quality of health care.

This review has limitations that should be considered when interpreting findings. Most of the studies included in this work lack the conceptualization of a theoretical model of attitudes. A limitation in the attitudes literature is that the majority of the studies developed ad hoc instruments and provided no information on their psychometric properties. Moreover, given that cultural differences affect attitudes (Scior et al. 2013), it is important to note that all the studies took place in western countries (except three research conducted in Israel and Singapore) and, thus, lack cultural diversity. None of the studies included an instrument to detect physicians' social desirability, which may impact self-reported attitude measures. Finally, English language and years restrictions were imposed for this review, thereby excluding possible relevant articles.

Therefore, further research should be conducted in different countries to examine physicians' explicit attitudes toward ID, using instruments with a clear conceptualization of the attitude construct and psychometrically sound (e.g., *Attitudes Toward Intellectual Disability Questionnaire*, Morin et al. 2013), and implicit attitudes to figure out possible differences among these two components.

CONCLUSIONS

This systematic review identified that physicians show generally more favorable attitudes in the cognitive dimension, and negative attitudes in the affective and behavioral dimensions. These findings are particularly relevant for the development of interventions for physicians aimed to foster their attitudes and dismantle this health care barrier faced by individuals with ID.

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Contribution of individual authors:

Alice Bacherini contributed to the design of the study, methodology, literature searches and analyses, interpretation of the data, manuscript writing, and review and editing of the manuscript.

Susan M. Haverkamp contributed to the supervision, review and editing of the manuscript.

Giulia Balboni contributed to the design of the study, methodology, supervision, review and editing of the manuscript. All authors read and approved the final manuscript.

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