Sex Disabil (2017) 35:245–260
DOI 10.1007/s11195-017-9484-x

ORIGINAL PAPER

The Impact of Culture on Attitudes Toward the Sexuality of People with Intellectual Disabilities

Nicole Ditchman[1] · Amanda B. Easton[2] · Elisabeth Batchos[1] · Sean Rafajko[1] · Noopur Shah[1]

Published online: 7 April 2017

Abstract Although sexuality is a central component of human life, it is often discouraged and inaccessible to many adults with intellectual disabilities (ID). Common misperceptions and stereotypes of people with ID, such as being asexual, childlike, or innocent, impact the provision of sexual education, opportunities, and rights for many people with ID. The aim of this study was to examine the impact of gender, familiarity with ID, and cultural orientation on predicting attitudes towards the sexuality of people with ID. Participants included 227 students from two U.S. universities with a large international student population. Collectively, predictors explained 32% of the variance in attitudes towards sexuality, with cultural orientation variables accounting for the greatest amount (27%). Using Triandis' four-factor conceptualization of culture, horizontal individualism and horizontal collectivism were associated with more positive attitudes, and vertical individualism was associated with more negative attitudes. Results highlight the impact of individual and societal characteristics on attitudes, suggesting that cultural orientation plays a role in mitigating and perpetuating stigma toward individuals with ID. Implications for research and practice are provided.

Keywords Intellectual disability · Sexuality · Culture · Attitudes · Stigma · United States

✉ Nicole Ditchman
nditchma@iit.edu

[1] Department of Psychology, Illinois Institute of Technology, 3105 S. Dearborn, Chicago, IL 60616, USA

[2] Department of Disability and Psychoeducational Studies, University of Arizona, 1430 E. Second Street, Tucson, AZ, USA

Introduction

Intellectual disability (ID) is characterized by limitations in intellectual functioning and adaptive behavior [1]. Individuals with ID face a number barriers in their lives due to societal attitudes and stigma [2, 3]. Stereotypical characterizations of ID often elicit perceptions of vulnerability, childlike innocence, and dependency [4, 5]. These beliefs and related attitudes influence a range of domains across the lifespan, including education, employment, health, and housing [3]. Sexuality is one such domain that has received less attention.

Although sexuality is a central component of human life, it is often discouraged and inaccessible to many adults with ID. Sexuality is a broad domain that encompasses areas related to sex, gender, intimacy, dating, parenting, health, and birth control. Persistent societal beliefs that individuals with ID are childlike and asexual have had a negative impact on opportunities for intimate relationships, procreation, and the promotion of sexual health and safety [6–9]. Attitudes toward the sexuality of people with ID are less positive than those toward typically developing adults, particularly in the area of parental rights [10]. These attitudes have resulted in limited access to sexual health information and exclusion from sex education programs [11]. Additionally, individuals with ID often lack safe, private places to engage in partnered or individual sexual activities [12], and reproductive and parenting rights of people with ID are often viewed negatively by family members, service providers, and the greater community [13].

Esmail et al. [6] cautions that this limited access to information can further perpetuate misperceptions among individuals with disabilities, potentially engraining such stigmatizing beliefs of asexuality into one's self-concept, affecting self-confidence, sexual functioning, and relationships. Additionally, situational factors associated with sexuality, such as the use of contraceptive devices or parenting factors, have been shown to play a role in impacting attitudes towards sexuality for individuals with ID; and it has been suggested that the true issue may relate more specifically to attitudes toward reproduction and parenting [13, 14]. Nevertheless, factors that impact the general public's attitudes and perceptions towards the sexuality of individuals with ID generally remain not well understood. The purpose of the present study was to examine the impact of predictors of these attitudes among college students. Specifically, variables related to gender, familiarity with people with ID, and cultural orientation variables are examined.

Gender

Gender is one potential predictor impacting attitudes toward the sexuality of people with ID. However, there are conflicting findings in the literature regarding this relationship. With regard to overall attitudes toward people with ID, females have generally displayed more positive attitudes [15]. Among college students in particular, a study by Griffin et al. [16] found that female students perceived higher abilities of people with ID, identified more benefits from their inclusion, and were more willing to interact with them on campus. However, it is less clear if this relationship exists when attitudes specifically toward the sexuality of people with ID are considered. In studies involving attitudes of service staff members, a review by Trudel and Desjardins [17] revealed that male staff were associated with more permissive attitudes towards sexual behaviors among individuals with ID. Other studies have failed to replicate associations between gender and attitudes towards sexuality in support staff samples [18, 19] and a Greek community sample [20]. A study by Cuskelly

and Gilmore [21] found no differences between the attitudes of men and women in a general sample of Australians, but did find that women endorsed greater openness to sexuality in general than did men. Further, Morales et al. [22] reported no effect of participants' gender in their study of acceptability of sexual intercourse among people with ID with French and Mexican samples. Given these inconsistent findings, further exploration of the impact of gender on attitudes in community samples is necessary.

Familiarity

Another variable supported in the literature is that of familiarity, or how much contact one may have with people with ID. There is some support that greater contact with people with ID is a predictor of more positive attitudes [16]; however, not all studies have supported this association [23]. Further, studies examining the effect of contact on attitudes have also been problematic due to limited results in light of methodological constraints and confounding variables [15]. Although results are inconsistent and limited, it is suggested that familiarity has a positive impact on attitudes especially when experiences have been generally positive.

Particular to attitudes regarding sexuality, one study sought to compare three samples in various roles and levels of exposure to people with ID, including staff members from institutional settings and community-based programs and college students [24]. Findings indicated that there were few significant differences between the three groups and their attitudes towards acceptable sexual behaviors across people with and without ID. However, the study did not specifically control for familiarity, and there were surprisingly similar ranges across all three groups (including the college student control group). A similar study comparing samples of caregivers, staff, and community controls also found negligible significant differences in attitudes [10]. Future research is needed that specifically controls for levels of familiarity with people with ID to better examine its role in fostering attitudes toward sexuality.

Cultural Orientation

The primary contribution of this study is to examine the extent to which cultural orientation impacts attitudes toward the sexuality of people with ID. This is an area that has received little attention in the extant literature related to disability attitudes. Only a few studies have sought to explore the impact of culture on general attitudes towards people with disabilities. Of the limited few that have, more negative attitudes and higher degrees of social distance toward people with ID are typically associated with Asian cultural groups [25–27]. However, the impact of culture on attitudes towards the sexuality of people with ID has received very little attention in the existing literature and warrants further investigation. One notable study did compare attitudes toward sexuality (specifically sexual intercourse of people with ID) between community samples from Mexico and France [22]. Counter to the researchers' hypothesis, Mexican participants, considered to reflect the more collectivist and conservative culture, were actually found to be more accepting of the sexuality of people with ID than their French counterparts. However, one of the limitations of this study was that no measures were included to assess and validate participants' adherence to collectivist or individualist values at the individual level.

Examining constructs of individualism and collectivism has been one of the most fundamental ways to examine culture. The conceptualizations of these constructs have been broad and multidimensional [28–30]. For individualism, researchers typically ascribe

attributes such as emotional detachment from the in-group, the primacy of personal goals over in-group goals, and behaviors regulated by attitudes and cost-benefit analyses. Conversely, characteristics comprising collectivism generally include an emphasis on family integrity, defining the self by the in-group, behavior regulated by in-group norms, and adhering to strong in-group/out-group distinctions [30]. However, according Traindis et al. [29, 31–33] these are multifaceted constructs that have nested within them distinct relational orientation types. Specifically, there are vertical (regard for hierarchy) and horizontal (valuing equality) cultural dimensions reflective of degrees of power and equality [34]. In vertical individualist (VI) orientations, people tend to be concerned with bettering individual status and with recognition of achievements (e.g., U.S., Great Britain, France). However, in horizontal individualist (HI) cultural contexts (e.g., Denmark, Sweden), people generally prefer to view themselves as equal to others [35]. In vertical collectivist (VC) contexts (e.g., Korea, India), people emphasize status and compliance with authority, even when that requires giving up personal goals. Finally, in horizontal collectivist (HC) societies (e.g., Israeli kibbutz), interdependence and egalitarianism are valued [36].

Although these four orientations are often discussed in relation to specific countries or regions, this often masks the heterogeneity that occurs within cultures. Triandis [29] has argued that individuals ascribe to some degree to all four cultural orientations, albeit they may use them at different rates depending on the situation and generally in correspondence with their dominant cultural pattern. Research has suggested that these orientations may differ on account of gender, with males generally seen as more individualistic or independent, whereas females are seen as more collectivist or valuing interdependency [35, 37, 38]. Furthermore, these cultural orientations are associated with differences in individuals' self-presentation, attitudes, and behaviors [39]. Research suggests that individuals with a high HC cultural orientation, who emphasize sociability, benevolence, and normative appropriateness, have a greater tendency to engage in impression management strategies (e.g., pleasing others) compared to people with a VC orientation who value a sense of duty and deference [40]. It has been posited that people high in HC tend to adjust to norms associated with benevolent peer interactions [39], whereas VC orientations have been associated with higher levels of prejudice and hostile treatment of out-groups [29]. It has also been suggested that people high in VI, who perceive power in personalized terms, are more easily able to activate a stereotyping frameworks compared to other cultural orientations [39]. In contrast, people high in HC appear more likely to activate cognitive processes that facilitate helping others, including forming careful impressions [41].

Cultural orientation can shape how people respond to marginalized groups of people. Studies examining attitudes toward disability generally have found conflicting findings. There has been some evidence of more positive attitudes toward disability among employers with collectivist orientations [42], but there are also findings suggesting individuals with VI orientations demonstrate less stigma toward individuals with mental illness [43]. With regard to attitudes toward sexuality, one study in the UK found that compared to White Westerners, individuals who were from a South Asian ethnic group were more negative in their attitudes toward the sexual rights of men and women with ID [44]. However, to our knowledge, no published study to date has examined Triandis' [29] four factor conceptualization of culture on the attitudes toward ID, and not in the specific domain of sexuality.

Study Purpose

Sexual and romantic experiences are essential for promoting quality of life and emotional well-being and should not be contingent on one's cognitive functioning [13]. Yet, people with ID frequently report frustration due to denial of sexual rights, especially in the areas of privacy and intimacy [45]. Previous studies on attitudes toward the sexuality of people with ID have primarily included caregiver and staff perceptions. In order to more accurately address the societal beliefs and stigma surrounding the sexuality of people with ID, more research is needed examining attitudes among community samples as positive attitudes are essential for facilitating full inclusion in society for people with ID.

Understanding predictors of attitudes regarding sexuality will allow for the development of targeted individual and community-level preventative education and interventions to address the current environment of stigma. Previous research has not been clear regarding the impact of familiarity/contact and gender on shaping these attitudes. Moreover, only limited research has assessed the impact of culture on these attitudes. To address these gaps, the purpose of this study was to investigate the attitudes toward the sexuality of people with ID in a U.S. college sample with a large international student population. Using hierarchical regression analyses, this study specifically examined the incremental impact of gender, familiarity with ID, and cultural variables (HC, HI, VC, and VI) on predicting attitudes toward the sexuality of people with ID.

Methods

Participants and Procedures

Data for this study were collected during the 2013–2014 academic year through an anonymous online survey study. Participants were recruited from two medium-sized universities in the Midwest United States. Initially, 267 individuals initiated the study. Of those participants, 40 were excluded due to missing data, leaving a total of 227 participants for the present study. Characteristics of the study sample are summarized in Table 1. Participants ranged in age from 18 to 58 years ($M = 20.67$, $SD = 4.66$) and were fairly evenly split between males (51.1%) and females (48.9%). Less than half (43.6%) of the participants identified as White, followed by Asian (30.8%), Hispanic/Latino (16.3%), and Black/African-American (11.0%). Over one-third (36.6%) of the participants reported having spent most of their lives outside of North America. The majority (87.2%) of participants reported having had experiences with people with disabilities in general (not specific to ID), with 40.5% reporting at least on a monthly basis.

Measures

Attitudes Towards Sexuality of People with ID

Attitudes toward the sexuality of people with ID was the outcome variable of interest and was measured using the Attitudes Towards Sexuality Questionnaire (ASQ). The original ASQ introduced by Cuskelly and Bryde [10] was developed to assess attitudes towards sexuality as related to sexual expression. Later, Cuskelly and Gilmore [21] modified the original scale to measure the attitudes of sexuality towards individuals with ID in

Table 1 Participant demographic characteristics ($N = 227$)

Variable	*n*	(%)
Gender		
Female	111	(48.9)
Male	116	(51.1)
Race/ethnicity[a]		
African American	25	(11.0)
Asian American	70	(30.8)
White	99	(43.6)
Hispanic/Latino	37	(16.3)
Native American	1	(0.4)
Pacific Islander/Hawaiian	4	(1.8)
Not reported	4	(1.8)
Primary place of residence (longest tenure)		
Africa	7	(3.1)
Asia	39	(17.2)
Central America/Caribbean	6	(2.6)
Europe	8	(3.5)
Middle East	6	(2.6)
North American	144	(63.4)
South America	5	(2.2)
Southeast Asia	7	(3.1)
Home town characterization		
Upper class, affluent	15	(6.6)
Upper middle class	59	(26.0)
Middle Class	120	(52.9)
Low-middle class	29	(12.8)
Poverty	3	(1.3)
Other	1	(0.4)
Relationship status		
Never married	206	(90.7)
Married/partnered/co-habitating	15	(6.7)
Divorced/separated	6	(2.6)
Frequency of experience with disability		
Daily	23	(10.1)
Weekly	28	(12.3)
At least once a month	41	(18.1)
At least once every 3 weeks	35	(15.4)
At least once per year	35	(15.4)
Less than once per year	20	(8.8)
Never	11	(4.8)

[a] More than one category could be coded, resulting in totals exceeding 100%

particular. The ASQ is a 34-item scale that generates an overall score as well as subscale scores. For this study, the overall score was used for the primary analysis. Four subscale scores were also used in follow up analyses. These included sexual rights (13 items, e.g., "Sexual intercourse should be permitted between consenting adults with ID"), parenting (7

items, e.g., "Adults with ID should be permitted to have children within marriage"), non-reproductive sexual behavior (5 items; e.g., "Masturbation in private for adults with intellectual disability is an acceptable form of sexual expression"), and self-control (3 items, e.g., "Medication should be used as a means of inhibiting sexual desire in adults with an intellectual disability"). Response options range from *strongly agree* (6) to *strongly disagree* (1), with several items reverse coded so that higher scores indicate more positive attitudes. Cronbach's alpha in the present study was .93 for the total scale. Cronbach's alphas for the subscales used in this study were as follows: sexual rights ($\alpha = .84$), parenting ($\alpha = .86$), non-reproductive sexual behavior ($\alpha = .77$), and self-control ($\alpha = .74$).

Familiarity/Contact

The Level of Familiarity Questionnaire (LFQ) was originally developed by Holmes et al. [46] as a measure of individuals' level of contact with mental illness. For this study it was modified to reference ID. This scale is a rank order measure of an individual's level of familiarity with ID by listing 12 situations of increasing intimacy with individuals with ID, ranging from "I have never observed a person that I was aware had an ID" (1 point) to "I have an ID" (12 points). Higher scores indicate greater familiarity with ID. The original version of this scale has shown strong inter-rater reliability [46] and correlations with measures of stigma [47].

Cultural Orientation

Cultural orientation was measured using the four subscales of the Individualism-Collectivism scale [33]: horizontal-individualism (HI), horizontal-collectivism (HC), vertical-individualism (VI), and vertical-collectivism (VC). First developed by Singelis et al. [31] as a 32-item scale, Triandis and Gelfand [33] validated a 16-item version using international samples. Factor analyses of the shortened scale substantiated the four, 4-item subscales, with factor loadings ranging from .40 to .68. The 16-item scale uses 9-point Likert-type responses reflecting agreement with qualities characterizing each of the four cultural orientations. The HI scale is characterized by values of self-reliance and social equality (e.g., "My personal identity, independent of others, is very important to me"). The HC scale represents a more collective focus and emphasis on equality (e.g., "I feel good when I cooperate with others"). The VI scale is characterized by recognition of hierarchy and self-focus (e.g., "It is important that I do my job better than others"). Items on the VC scale indicate adherence to collectivist ideology with an emphasis on hierarchy (e.g., "It is important to me that I respect the decisions made by groups"). Cronbach's alphas for the four scales used in this study were as follows: HI ($\alpha = .73$), HC ($\alpha = .76$), VI ($\alpha = .70$), and VC ($\alpha = .65$).

Data Analysis

Hierarchical regression analysis (HRA) was used to measure the incremental variance accounted for by each predictor set and to determine the unique contribution of each predictor variable to the variance of the dependent variable (attitudes toward the sexuality of people with ID). The change in R^2 (ΔR^2) was examined as a measure of each predictor set's contribution. Three blocks were entered to address the study aims: (a) gender;

(b) familiarity with ID, and (c) cultural orientation variables (HI, HC, VI, and VC). This order of blocks was used to facilitate more accurate understanding of the effect of the cultural variables (both collectively and individually) while controlling for the other predictors. Significance tests for the regression coefficients for each predictor variable were assessed at each block and at the final model to assess unique relationships to the dependent variable. The primary analysis examined the variance accounted for regarding the total scores on the ASQ. Follow up analyses were conducted to regress each of the four subscales of the ASQ (sexual rights, parenting, non-reproductive sexual behavior, and self-control) onto the predictors. Prior to the analyses, zero-order correlations were examined for correlations of .80 or larger and Variance Inflation Factors (VIF) were examined for scores of 10 or greater [48]. VIF scores in this study did not exceed 2.0 suggesting multicollinearity was not a concern.

Results

Descriptive Statistics

Mean scores on all measures were computed, with the exception of the familiarity measure that was based on ranking and gender (coded as female = 0 and male = 1). Means, standard deviations and correlations are summarized in Table 2. On average, participants reported moderate levels of positive attitudes toward the sexuality of people with ID as measured by the ASQ ($M = 4.3$; $SD = 0.6$; 3.2 to 5.7 range). Among the subscales of the ASQ, mean scores on the parenting ($M = 4.5$, $SD = 0.9$) and sexual rights ($M = 4.42$, $SD = 0.7$) subscales were the highest; while non-reproductive sexual behavior ($M = 4.13$, $SD = 0.6$) and self-control ($M = 4.3$, $SD = 0.9$) were somewhat lower. With regard to familiarity, participants typically endorsed higher levels of familiarity, with approximately half of the sample indicating they had a friend of the family or relative with ID or lived with someone with ID. Of the four cultural orientation scales, the mean scores were lowest for the VI scale ($M = 5.56$, $SD = 1.33$). Significant correlations among scores on the various measures included as predictors were generally small to medium, with none exceeding $r = .57$. As would be expected, correlations among outcome variables (ASQ total score and the four subscale scores) were generally high, ranging from .12 to .89.

Hierarchical Regression Analyses

To examine the predictive utility of gender, familiarity, and cultural orientation in accounting for attitudes toward the sexuality of people with ID, a series of hierarchical regression analyses with the overall ASQ scale and its four subscales were conducted. Results of these regression analyses are presented in Table 3. Findings from the primary analysis indicate that the predictor sets collectively explained 32% of the total variance in attitudes toward sexuality scores. In the first block, gender was a significant predictor ($\beta = -.13$, $p = .05$), with females showing more positive attitudes than males. In the second step, the addition of familiarity with ID explained an additional 3% of the variance, $\beta = .16$, $p < .05$. In the final step, the addition of the four cultural orientation variables collectively explained an additional 27% of the variance in attitudes toward sexuality. In particular, three of the four cultural orientation scales were significant independent predictors: HI ($\beta = .35$, $p < .001$), HC ($\beta = .20$, $p < .01$), and VI ($\beta = -.36$, $p < .001$).

Table 2 Means, standard deviations, and correlations of study variables ($N = 227$)

Variables	*M*	(*SD*)	1	2	3	4	5	6	7	8	9	10
1. Gender	0.51	0.50	–									
2. Familiarity	7.10	2.97	−.07	–								
3. Horizontal individualism (HI)	6.79	1.20	−.12	.02	–							
4. Horizontal collectivism (HC)	6.69	1.21	−.21**	.15*	.33***	–						
5. Vertical individualism (VI)	5.56	1.33	.07	−.09	.30***	.02	–					
6. Vertical collectivism (VC)	6.61	1.19	−.07	.14*	.35***	.57***	.20**	–				
7. Attitudes toward sexuality	4.31	0.58	−.13*	.17**	.34***	.36***	−.25***	.25***				
8. Parenting subscale	4.50	0.90	−.09	.18**	.28***	.33***	−.26***	.23**	.89***			
9. Sexual rights subscale	4.42	0.67	−.14*	.21**	.32***	.37***	−.21**	.24**	.95***	.81***		
10. NR Sexual behaviors subscale	4.13	0.60	−.08	.01	.32***	.26***	.05	.13	.55***	.36***	.46***	
11. Self-control subscale	4.29	0.90	−.06	.09	.13*	.20**	−.28***	.16*	.66***	.53***	.61***	.12

NR non-reproductive

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 3 Results of hierarchical regression analyses ($N = 227$)

Outcome and predictors	R^2	ΔR^2	*B*	*SE B*	β	*p*
ASQ (total score)						
Step 1: Gender (1 = male)	.02*	–	−.15	.08	−.13	.050*
Step 2: Familiarity	.04**	.03*	.03	.01	.16	.014*
Step 3: Cultural orientations	.32***	.27***				
Horizontal individualism (HI)			.17	.03	.35	.000***
Horizontal collectivism (HC)			.10	.03	.20	.005**
Vertical individualism (VI)			−.16	.03	−.36	.000***
Vertical collectivism (VC)			.04	.04	.07	.304
Subscales:						
Parenting						
Step 1: Gender (1 = male)	.01	–	−.16	.12	−.09	.183
Step 2: Familiarity	.04*	.03*	.05	.02	.17	.011*
Step 3: Cultural orientations	.27***	.24***				
Horizontal individualism (HI)			.23	.05	.30	.000***
Horizontal collectivism (HC)			.14	.06	.19	.012*
Vertical individualism (VI)			−.25	.04	−.37	.000***
Vertical collectivism (VC)			.06	.06	.07	.314
Sexual rights						
Step 1: Gender (1 = male)	.02*	–	−.19	.09	−.17	.038*
Step 2: Familiarity	.06**	.04**	.05	.02	.20	.002**
Step 3: Cultural orientations	.29***	.23***				
Horizontal individualism (HI)			.18	.04	.32	.000***
Horizontal collectivism (HC)			.12	.04	.22	.003**
Vertical individualism (VI)			−.15	.03	−.31	.000***
Vertical collectivism (VC)			.03	.04	.05	.457
Non-reproductive sexual behavior						
Step 1: Gender (1 = male)	.01	–	−.10	.08	−.08	.221
Step 2: Familiarity	.01	.00	.00	.01	.01	.872
Step 3: Cultural orientations	.13***	.12***				
Horizontal individualism (HI)			.14	.04	.28	.000***
Horizontal collectivism (HC)			.10	.04	.21	.010*
Vertical individualism (VI)			−.01	.03	−.02	.752
Vertical collectivism (VC)			−.04	.04	−.07	.382
Self-control						
Step 1: Gender (1 = male)	.00	–	−.12	.12	−.06	.336
Step 2: Familiarity	.01	.01	.03	.02	.09	.203
Step 3: Cultural orientations	.16***	.15***				
Horizontal individualism (HI)			.13	.05	.17	.018*
Horizontal collectivism (HC)			.06	.06	.08	.344
Vertical individualism (VI)			−.24	.05	−.36	.000***
Vertical collectivism (VC)			.10	.06	.13	.096

ASQ Attitudes toward Sexuality Questionnaire (Intellectual Disability)

* $p < .05$, ** $p < .01$, *** $p < .001$

While HI and HC were associated with more positive attitudes, individuals endorsing stronger VI were associated with more negative attitudes. In the final model, gender and familiarity did not explain any additional variance over and above what was explained by the cultural orientation variables.

Four additional regression analyses were conducted to examine whether these patterns remained for the subscales of the ASQ (see Table 3). Gender was only associated with attitudes toward sexual rights ($\beta = -.17$, $p < .05$) at entry into the models. Familiarity significantly accounted for variance in attitudes related to parenting ($\beta = .17$, $p < .05$) and sexual rights ($\beta = .20$, $p < .01$). The collective contribution of the cultural orientation variables was significant for all subscale outcome scores, ranging from $\Delta R^2 = .12$ to .24; however, the unique contributions of the individual orientation scores varied. HI was a significant independent predictor of attitudes toward parenting ($\beta = .30$, $p < .001$), sexual rights ($\beta = .32$, $p < .001$), non-reproductive sexual behavior ($\beta = .28$, $p < .001$), and self-control ($\beta = .17$, $p < .05$). HC was a significant independent predictor of attitudes toward parenting ($\beta = .19$, $p < .05$), sexual rights ($\beta = .22$, $p < .01$), and non-reproductive sexual behavior ($\beta = .21$, $p < .01$), but not for self-control. Controlling for all other variables, VI was negatively associated with attitudes towards parenting ($\beta = -.37$, $p < .001$), sexual rights ($\beta = -.31$, $p < .001$), and self-control ($\beta = -.36$, $p < .001$). VC was not associated with any of the ASQ subscale scores.

Discussion

Understanding factors that impact attitudes toward the sexuality of people with ID is needed to inform strategic and targeted intervention approaches to address disparities as this group of individuals continue to face denial of sexual rights and limited opportunities for sexual expression. This study examined the impact of gender, familiarity with ID, and cultural orientation variables on attitudes regarding the sexuality of individuals with ID among a diverse college student sample. This study is novel because it is to our knowledge the first to examine the impact of cultural orientation at the level of the individual on attitudes toward the sexuality of people with ID. Findings provide support to Triandis' cultural framework [29] as a more specific avenue by which to explore culture, sexuality and disability. Specifically, results indicate that cultural orientation variables were the strongest predictors of attitudes toward sexuality. In particular, controlling for all other variables, HI and HC were associated with more positive attitudes, while VI was associated with more negative attitudes.

Given the literature examining Triandis' four cultural orientations, it is not surprising that HC and HI were associated with positive attitudes in this study for the total ASQ attitudes scale as well as for the majority of the subscales. People high in HC focus on helping others and generally oppose social inequalities [49]. They have also been shown to take time to form careful and accurate impressions, which may prevent them from adhering to basic stereotypes [41]. At the same time, there is some evidence from the consumer psychology literature to suggest that individuals high in HC are more likely to engage in impression management strategies and are drawn to conveying socially appropriate images of themselves [39]. People high in HI value self-reliance, but, similar to those high in HC, also display universalistic values and are more oriented toward social justice and equality [35, 50]. Thus, it is not surprising that both HI and HC may translate into more acceptance

of equality related to parenting and sexual rights and expression for all people regardless of disability.

Conversely, individuals who scored high on VI were associated with more negative attitudes towards the sexuality of people with ID. Individuals adhering to a VI orientation typically value autonomy and accept inequality among people. There is also literature to suggest that individuals high in VI may more easily activate stereotyping mindsets, which align with a personalized view of status and power [39]. VI was a negative predictor of attitudes for the overall attitudes scale, as well as for all the subscales except for the non-reproductive sexual behaviors scale. It is not clear why this is the case. Items on this scale generally deal with acceptance of masturbation among people with ID. It is possible that given the independent nature of masturbation it did not elicit the same connotation of hierarchical structures as might items from other scales (e.g., "Adults with intellectual disability should be involved in the decision about being sterilized").

In this study, VC was not associated with attitudes toward the sexuality of people with ID. This is surprising given that of the limited studies examining differences among cultural groups on general attitudes toward disability, South Asians—typically associated with VC orientation—in the UK were found to hold more negative views than White individuals [44]. However, samples from this study and in the present study include participants from cultural backgrounds associated with high VC who may be outliers as they are currently living in Western contexts. For instance, the present study, includes a number of international students who have chosen to travel to the U.S. for education. It is also important to note that of the four cultural orientation scales, VC was associated with the poorest internal consistency which may have limited the reliability of this measure to adequately capture the construct of interest. Alternatively, this may be due to the fact that there is research suggesting that people high in VC (typically associated with Eastern cultures) are more open to ambiguity and acceptance of mixed emotions [39, 51], which may be why VC was not found to associate with attitudes in a clear direction.

Findings from our study also showed that females were associated with more positive overall attitudes toward the sexuality of adults with ID. This is in line with existing research indicating females are associated with more positive attitudes toward ID in general [15], but does not align with the studies by Cuskelly and Gilmore [21] and Morales et al. [22] that found no differences based on gender regarding attitudes toward the sexuality of people with ID in community samples. At the subscale analysis, gender was only significant for the sexual rights subscale controlling for all other variables. Items from this subscale generally ask about rights of people with ID to marry, have access to sexual education, and engage in intimacy and sexual expression. It is possible that the college females in this study may identify as a historically sexually suppressed group themselves and consequently are more likely to promote such rights among others; however, more research is needed in this area.

Familiarity had only a small association with attitudes toward the sexuality of people with ID. It was significant only in the parenting and sexual rights subscale analyses. Parenting items generally reflect the parenting and reproductive rights of people with ID. Individuals who endorse greater familiarity with ID appear to be more positive and have higher expectations regarding their ability to parent and rear children with the right supports. It is unclear if individuals with greater familiarity specifically had contact with individuals with ID who were parents. Contact, especially in the context of positive interactions, may lead to higher expectations for people with ID, including parenting rights. On the other hand, contact has not consistently been associated with improved attitudes [27, 52]. Moreover, familiarity is a complex and multifaceted construct, and there has been

concern expressed that ID should not be treated as a homogenous group. For example, one Mexican study found that caregivers of children with Down Syndrome had more positive attitudes toward sexual relationships among people with ID than did parents of children with neuromotor disorders [53]; however, it is unclear if this pattern emerges for other relationship types (e.g., classmates, coworkers). As recommended by Scior et al. [27], future research is needed to investigate the mediating mechanisms, such as quality and context of interactions along with the affective response to such interactions.

Limitations

There are several limitations of the current study that can guide future research. First, the sample used for this study was from a U.S. college-based population and represents a restricted age range which may not be generalizable to other populations. Future studies should consider using a normative sample in order to better generalize estimates of the public perceptions of people with ID. It is also important to consider the impact of gender and culture on attitudes among specific populations, such as clinicians, service providers, and families, as these individuals often serve as gatekeepers and facilitators of sexual expression for individuals with ID. Second, although the study was anonymous, questions used in the study may elicit socially desirable responses from participants. Stigma and personal biases are often difficult to acknowledge in oneself, or a person may be completely unaware of deeper-rooted, implicit biases. This tendency may be further complicated by the cultural orientation of the individual as evidenced in some studies suggesting people high on HC tend to engage in more impression management strategies [39]. Future research should take into consideration the potential for social desirability biases and explore strategies to account for these.

Third, the cultural orientation scales used in this study have not been applied widely in the disability literature. Clearly, an individual's culture is complex and multifaceted. Although there is support for the psychometric properties and validity of the cultural orientation measure used in this study across cultural and national groups [33, 54], it is impossible to capture all the facets of an individual's cultural identity. Fourth, the rank order measure of familiarity used in this study is limited in capturing the frequency and quality of interactions with people with ID. For example, it does not assess the positive or negative valence ascribed to these interactions. An additional concern is that the measure assessed one's familiarity with ID broadly and did not reflect the vast heterogeneity of etiologies that comprise the true population. Finally, the cross-sectional nature of this study does not allow for the establishment of causality. Future research should explore the longitudinal effects of culture, gender, familiarity, and perceptions of sexuality of people with ID. For example, a longitudinal study could compare college students' perceptions of ID prior to interventions designed to increase the contact and familiarity with individuals with this disability. This would be particularly useful in the clinical field and could be applicable to students training in the areas of psychology, rehabilitation, or medicine who have little experience and familiarity with people with ID.

Implications

In this study, our goal was to examine predictors of attitudes toward the sexuality of people with ID, with a particular emphasis on the impact of cultural orientations. Given our finding that 27% of the variance in attitudes could be explained by cultural orientation, it is important that health and service professionals working with individuals with ID faced

with sexual issues be aware of the extent to which conservative views of the sexuality of people with ID may be associated with individuals and groups with high VI. This has a number of implications for practice and research. First, it is important for providers and policy makers to understand that providing education and training around ID and sexuality might require different approaches depending on the cultural context. For example, individuals high in VI may respond more positively to efforts that frame sexual education and rights in the context of promoting autonomy. It is also important that practitioners recognize the family and social context of the individuals with ID with whom they work to evaluate potential risk for stigmatizing attitudes toward their sexuality. In other words, the better we understand how culture impacts attitudes in this domain, the greater likelihood of matching the needs of the culture when attempting to debunk stereotypes and myths related to sexuality and ID. Additionally, individuals from groups having stronger HI or HC may be more receptive to strategies and efforts to promote equality and willing to advocate for policies promoting attitudes change.

Second, additional studies are needed that explore the impact of culture on attitudes towards sexuality of other disability populations. Considering that stigma weighs more heavily for people with ID and people with psychiatric diagnoses in comparison to those with physical disabilities [55, 56], it would be worthwhile to examine the impact of culture across various disability groups. For example, it is possible that there may different outcomes when applying Triandis' cultural framework to different disabilities or across cultural groups or countries. Additionally, comparing different types of samples on their attitudes may also be helpful, such as the general population, staff, caregivers, and people with disabilities themselves.

Finally, this model could also be used with professionals to evaluate their own cultural identity and belief systems. Self-awareness of cultural values may help to address any implicit biases, and help providers become cognizant of these beliefs and their effect on clients. This would be particularly helpful for training purposes in order to address the necessity for awareness of individual values that can have implications on one's relationship with clients. Sexuality is often reported as an uncomfortable area for disability providers to address with clients [57, 58]. Moreover, understanding the impact the provider's culture may have on exacerbating this discomfort would be useful for increasing self-awareness and promoting a strong working alliance to ensure all needs of the client are addressed.

Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

References

1. American Association on Intellectual and Developmental Disabilities: Definition of Intellectual Disability. http://aaidd.org/intellectualdisability/definition#.VgcwMbT4vHg(2013). Accessed 8 Aug 2015
2. Ditchman, N., Werner, S., Kosyluk, K., Jones, N., Elg, B., Corrigan, P.W.: Stigma and intellectual disability: potential application of mental illness research. Rehabil. Psychol. **58**(2), 206–216 (2013)
3. Ditchman, N., Lee, E., Kosyluk, K., Jones, N.: How stigma effects the lives of people with intellectual disabilities: an overview. In: Scior, K., Werner, S. (eds.) Intellectual Disability and Stigma: Stepping Out From the Margins, pp. 31–47. Palgrave Macmillan, London (2016)

4. Jahoda, A., Wilson, A., Stalker, K., Cairney, A.: Living with stigma and self-perceptions of people with mild intellectual disabilities. J. Soc. Issues **66**, 521–534 (2010)
5. Scheerenberger, R.C.: A History of Mental Retardation. Brookes Publishing Co., Baltimore (1983)
6. Esmail, S., Darry, K., Walter, A., Knupp, H.: Attitudes and perceptions towards disability and sexuality. Disabil. Rehabil. **32**(14), 1148–1155 (2010)
7. Isler, A., Beytut, D., Tas, F., Conk, Z.: A study on sexuality with the parents of adolescents with intellectual disability. Sex. Disabil. **27**(4), 229–237 (2009)
8. Murphy, N., Young, P.C.: Sexuality in children and adolescents with disabilities. Dev. Med. Child Neurol. **47**(9), 640–644 (2005)
9. Scotti, J.R., Slack, B.S., Bowman, R.A., Morris, T.L.: College student attitudes concerning the sexuality of persons with mental retardation: development of the perceptions of sexuality scale. Sex. Disabil. **14**, 249–263 (1996)
10. Cuskelly, M., Bryde, R.: Attitudes towards the sexuality of adults with an intellectual disability: parents, support staff, and a community sample. J. Intellect. Dev. Disabil. **29**(3), 255–264 (2004)
11. World Health Organization: World Report on Disability. World Health Organization, Geneva (2011)
12. Di Giulio, G.: Sexuality and people living with physical or developmental disabilities: a review of key issues. Can. J. Hum. Sex. **12**, 53–68 (2003)
13. Aunos, M., Feldman, M.: Attitudes towards sexuality, sterilization and parenting rights of persons with intellectual disabilities. J. Appl. Res. Intellect. Disabil. **15**, 285 (2002)
14. Esterle, M., Sastre, M., Mullet, E.: Judging the acceptability of sexual intercourse among people with learning disabilities: French laypeople's viewpoint. Sex. Disabil. **26**, 219–227 (2008)
15. Scior, K.: Public awareness, attitudes and beliefs regarding intellectual disability: a systematic review. Res. Dev. Disabil. **32**(6), 2164–2182 (2011)
16. Griffin, M.M., Summer, A.H., Mcmillan, E.D., Day, T.L., Hodapp, R.M.: Attitudes toward including students with intellectual disabilities at college. J. Policy Pract. Intellect. Disabil. **9**(4), 234–239 (2012)
17. Trudel, G., Desjardins, G.: Staff reactions toward the sexual behaviors of people living in institutional settings. Sex. Disabil. **10**(3), 173–188 (1992)
18. Gilmore, L., Chambers, B.: Intellectual disability and sexuality: attitudes of disability support staff and leisure industry employees. J. Intellect. Dev. Disabil. **35**, 22–28 (2010)
19. Meaney-Tavares, R., Gavidia-Payne, S.: Staff characteristics and attitudes towards the sexuality of people with intellectual disability. J. Intellect. Dev. Disabil. **37**(3), 269–273 (2012)
20. Karellou, J.: Laypeople's attitudes towards the sexuality of people with learning disabilities in Greece. Sex. Disabil. **21**, 65–84 (2003)
21. Cuskelly, M., Gilmore, L.: Attitudes to sexuality questionnaire (individuals with an intellectual disability): scale development and community norms. J. Intellect. Dev. Disabil. **32**(3), 214–221 (2007)
22. Morales, G., Ramirez, E., Esterle, M., Sastre, M., Mullet, E.: Judging the acceptability of sexual intercourse among people with learning disabilities: a Mexico–France comparison. Sex. Disabil. **28**, 81–91 (2010)
23. McConkey, R., Leavey, G.: Irish attitudes to sexual relationships and people with intellectual disability. Br. J. Learn. Disabil. **41**(3), 181–188 (2013)
24. Adams, G.L., Tallon, R.J., Alcorn, D.A.: Attitudes toward the sexuality of mentally retarded and nonretarded persons. Educ. Train. Ment. Retard. **17**(4), 307–312 (1982)
25. Choi, G., Lam, C.S.: Korean students' differential attitudes toward people with disabilities: an acculturation perspective. Int. J. Rehabil. Res. **24**, 79–81 (2001)
26. Saetermore, C.L., Scattone, D., Kim, K.H.: Ethnicity and the stigma of disabilities. Psychol. Health **16**, 699–713 (2001)
27. Scior, K., Kan, K.Y., McLoughlin, A., Sheridan, J.: Public attitudes toward people with intellectual disabilities: a cross-cultural study. Intellect. Dev. Disabil. **48**, 278–289 (2010)
28. Ho, D.Y., Chiu, C.Y.: Component ideas of individualism, collectivism, and social organization: an application in the study of Chinese culture. In: Kim, U., Triandis, H.C., Cigdem, K., Choi, S., Yoon, G. (eds.) Individualism and Collectivism: Theory, Method, and Applications, pp. 137–156. Sage, Thousand Oaks (1994)
29. Triandis, H.C.: Individualism & Collectivism. Westview Press, Boulder (1995)
30. Triandis, H.C., McCusker, C., Hui, C.H.: Multimethod probes of individualism and collectivism. J. Pers. Soc. Psychol. **59**(5), 1006 (1990)
31. Singelis, T.M., Triandis, H.C., Bhawuk, D.P., Gelfand, M.J.: Horizontal and vertical dimensions of individualism and collectivism: a theoretical and measurement refinement. Cross-Cult. Res. **29**(3), 240–275 (1995)
32. Triandis, H.C., Chen, X.P., Chan, D.K.: Scenarios for the measurement of collectivism and individualism. J. Cross-Cult. Psychol. **29**(2), 275–289 (1998)

33. Triandis, H.C., Gelfand, M.J.: Converging measurement of horizontal and vertical individualism and collectivism. J. Pers. Soc. Psychol. **74**(1), 118–128 (1998)
34. Hofstede, G.H.: Culture's Consequences: Comparing Values, Behaviors, Institutions and Organizations Across Nations. Sage, Thousand Oaks (2001)
35. Nelson, M.R., Shavitt, S.: Horizontal and vertical individualism and achievement values: a multimethod examination of Denmark and the United States. J. Cross-Cult. Psychol. **33**(5), 439–458 (2002)
36. Erez, M., Earley, P.C.: Comparative analysis of goal-setting strategies across cultures. J. Appl. Psychol. **72**(4), 658–665 (1987)
37. Cross, S.E., Madson, L.: Models of the self: self-construals and gender. Psychol. Bull. **122**(1), 5–37 (1997)
38. Wood, W., Eagly, A.H.: A cross-cultural analysis of the behavior of women and men: implications for the origins of sex differences. Psychol. Bull. **128**(5), 699–727 (2002)
39. Shavitt, S., Torelli, C.J., Riemer, H.: Horizontal and vertical individualism and collectivism. In: Gelfand, M.J., Chiu, C., Hong, Y. (eds.) Advances in Culture and Psychology, vol. 1, pp. 309–350. Oxford University Press, New York (2010)
40. Lalwani, A.K., Shavitt, S., Johnson, T.: What is the relation between cultural orientation and socially desirable responding? J. Pers. Soc. Psychol. **90**(1), 165–178 (2006)
41. Goodwin, S.A., Gubin, A., Fiske, S.T., Yzerbyt, V.Y.: Power can bias impression processes: stereotyping subordinates by default and by design. Group Process. Intergr. Relat. **3**(3), 227–256 (2000)
42. Rao, D., Horton, R.A., Tsang, H.W., Shi, K., Corrigan, P.: Does individualism help explain differences in employers' stigmatizing attitudes toward disability across Chinese and American cities? Rehabil Psychol. **55**(4), 351–359 (2010)
43. Papadopoulos, C., Foster, J., Caldwell, K.: "Individualism–collectivism" as an explanatory device for mental illness stigma. Commun. Ment. Health J. **49**(3), 270–280 (2013)
44. Sankhla, D., Theodore, K.: British attitudes towards sexuality in men and women with intellectual disabilities: a comparison between White Westerners and South Asians. Sex. Disabil. **33**, 429–445 (2015)
45. LöfgrenMårtenson, L.: "May I?" About sexuality and love in the new generation withintellectual disabilities. Sex. Disabil. **22**(3), 197–207 (2004)
46. Holmes, E.P., Corrigan, P., Williams, P., Canar, J., Kubiak, M.A.: Changing attitudes about schizophrenia. Schizophr. Bull. **25**(3), 447–456 (1999)
47. Corrigan, P., Edwards, A.B., Green, A., Diwan, S.L., Perm, D.L.: Prejudice, social distance, and familiarity with mental illness. Schizophr. Bull. **27**(2), 219–226 (2001)
48. Belsley, D.A., Kuh, E., Welsch, R.E.: Regression Diagnostics: Identifying Influential Data and Sources of Collinearity. Wiley, New York (1980)
49. Torelli, C.J., Shavitt, S.: Culture and concepts of power. J. Pers. Soc. Psychol. **99**(4), 703–723 (2010)
50. Schwartz, S.H., Bilsky, W.: Toward a theory of the universal content and structure of values: extensions and cross-cultural replications. J. Pers. Soc. Psychol. **58**(5), 878–891 (1990)
51. Williams, P., Aaker, J.L.: Can mixed emotions peacefully coexist? J. Consum. Res. **28**(4), 636–649 (2002)
52. Yazbeck, M., McVilly, K., Parmenter, T.: Atttitudes twoards people with intellectual disability: an Australian perspective. J. Disabil. Policy Stud. **15**, 97–111 (2004)
53. Morales, G.E., Lopez, E.O., Mullet, E.: Acceptabiltiy of sexual relationships among people with learning disabilities: family and professional caregivers' views in Mexico. Sex. Disabil. **29**, 165–174 (2011)
54. Paquet, S.L., Kline, T.J.: Uncovering the psychometric properties of scales measuring individualist and collectivist orientations. Int. J. Test. **9**(3), 260–270 (2009)
55. Miller, E., Chen, R., Glover-Graf, N.M., Kranz, P.: Willingness to engage in personal relationships with persons with disabilities: examining category and severity of disability. Rehabil. Couns. Bull. **52**, 211–224 (2009)
56. Wang, M., Thomas, K.R., Chan, F., Cheing, G.: A conjoint analysis of factors influencing American and Taiwanese college students' preferences for people with disabilities. Rehabil. Bull. **48**, 195–201 (2003)
57. Juergens, M.H., Smedema, S.M., Berven, N.L.: Willingness of graduate students in rehabilitation counseling to discuss sexuality with clients. Rehabil. Couns. Bull. **53**, 34–43 (2009)
58. Kazukauskas, K.A., Lam, C.S.: Disability and sexuality: knowledge, attitudes, and level of comfort among certified rehabilitation counselors. Rehabil. Couns. Bull. **54**, 15–25 (2010)