

### Abstract

**Background:** Although sexuality is a ubiquitous human need, recent empirical research has shown that people without disabilities attribute fewer sexual rights and perceive sexual healthcare to benefit fewer people with disabilities, compared to non-disabled people. Within a global context, such misperceptions have tangible, deleterious consequences for people with disabilities (e.g., exclusion from sexual healthcare), creating an urgent need for effective strategies to change misperceptions.

**Methods:** To lay the groundwork for developing such strategies, we examined predictors of the recognition of sexual rights of people with physical disabilities within the South African context, derived from three key social psychological literatures (prejudice, social dominance orientation & intergroup contact), as well as the relationship between sexual rights and beliefs about sexual healthcare. Data were obtained through a cross-sectional survey, given to non-disabled South Africans ( $N = 1989$ ).

**Results:** Findings indicated that lack of recognition of the sexual rights for physically disabled people predicted less positive beliefs about the benefits of sexual healthcare. In turn, high levels of prejudice (both cognitive & affective) toward disabled sexuality predicted less recognition of their sexual rights, while prejudice (both forms) was predicted by prior contact with disabled people and possessing a social dominance orientation (cognitive prejudice only). Evidence was also obtained for an indirect relationship of contact and social dominance orientation on sexual healthcare beliefs through prejudice, although these effects were extremely small.

**Conclusion:** Results are discussed in terms of their implications for rehabilitation, as well as national-level strategies to tackle negative perceptions of disabled sexuality, particularly in contexts affected by HIV.

Keywords: disability; sexuality; HIV; prejudice; intergroup contact; social dominance

Although sexuality is a ubiquitous human need, its expression, including the act of sex, eroticism and reproduction, along with broader sexual beliefs, values and practices [1] is not experienced equally or equitably worldwide. In particular, although people with disabilities comprise approximately 15% of the global population [2], a pervasive myth of non-sexuality continues to surround disability [3, 4]. For example, a survey among 1044 members of the British public found that 70% of respondents would not consider having sex with a person who had a physical disability [5], while Rohleder, Braathen and Carew [6] highlight how portrayals of disabled sexuality are usually either absent from popular mass media or laden with stereotypical expectations (for example disability constructed as a burden incompatible with romance as in the 2016 film “Me before You”). That ascriptions of disabled non-sexuality are a myth has been attested to by a growing body of literature, in particular qualitative and participatory work with people with disabilities, which demonstrates that these individuals are sexual and express their sexuality in a multitude of ways just like any person [7, 8, 9, 10, 11]. As such, there exists a gap between public belief about disabled sexuality and how it is experienced by people with disabilities.

One recent study from South Africa showed that the societal negation of disabled sexuality extended to a lack of recognition of sexual rights of people with disabilities (e.g., sexuality as a basic need). Hunt et al. [12] found that sexual rights were ascribed to a lower percentage of people with disabilities, compared to people without disabilities. However, as of yet, there has been no investigation into both what the potential consequences of this lack of recognition may be and what factors may predict such (lack of) recognition of sexual rights. Empirical investigation of the latter is especially important in order to discern what interventions may work to ameliorate erroneous public beliefs about disabled sexuality.

In the present paper we have sought to understand both these predictors and the potential consequences that lack of recognition of sexual rights may have for social and

sexual relationships between people with and without disabilities, through an empirical test of correlates of the recognition of sexual rights in the South African context. Specifically, we examined to what extent lack of recognition of sexual rights predicted perceived benefits derived from sexual health services, as an important pre-cursor to real-world sexual exclusion. Crucially, we also aimed to disentangle direct and indirect predictors of recognition of sexual rights for disabled people, by testing the predictive validity of several psychological factors operating in this context, derived from key social psychological literatures (prejudice, intergroup contact, & social dominance theory). In particular, we wanted to discern whether different forms of prejudice (cognitive and affective) would operate as mediators between recognition of sexual rights and the other predictors. The integration of these key perspectives allows for a systematic understanding of where future interventions should be applied in order to improve sexual and social relations between people with and without disabilities.

### **Recognition of sexual rights and perceived benefit of access beliefs**

The working definition of the World Health Organisation [1] defines sexual rights as “the application of existing human rights to sexuality and sexual health”, whose function is “to protect all people's rights to fulfil and express their sexuality and enjoy sexual health, with due regard for the rights of others and within a framework of protection against discrimination”. Consequently, sexual rights outlined by the WHO working definition include “the right to equality and non-discrimination”, “the right to marry and found a family”, “the right to the highest attainable standard of health (including sexual health)” and “the right to information, as well as education” [1]. Against the on-going dialogue in the global community as to what specifically constitutes sexual rights, there is a general need to understand their place and relevance in the daily lives of communities [13]. This is especially applicable to people with disabilities whose sexuality is either absent within mass media

portrayals of disabled characters or depicted according to popular stereotypes, for example non- or hyper-sexuality [4, 6, 14]. Moreover, given that media may both direct and reflect societal attitudes [4], it is thus unsurprising that people with disabilities face ingrained negative attitudes to sexuality and accessing sexual health services within their communities, see for example [15, 16, 17]. However, despite a growing body of literature [10, 11] which has sought to clarify and advocate via empirical means that people with disabilities have the same sexual needs as people without disabilities there has been relatively little research into the extent that sexual rights are recognised for disabled people. The few studies that have been conducted on this topic tend to explore beliefs about the sexual rights of people with intellectual disabilities, particularly regarding their right to parenthood [18, 19, 20] and have not substantively investigated what may predict these beliefs. Moreover, we are aware of only one publication (from our own research) that directly assesses recognition of the sexual rights of people with physical disabilities among a group of non-disabled people [12]. However, this publication did not assess what factors may predict recognition of these sexual rights.

It is also worth considering the consequences that a lack of recognition of sexual rights may have. Situated within a global context, the extant literature has documented instances of sexual exclusion of people with disabilities that are grossly incompatible with the human rights perspective, including within low- and middle-income countries [21] where the majority of the global population and 80% of the world's disabled people reside [2]. For example, disabled youth may be excluded from sexual education [22, 23, 24] and such exclusion can have tangible and deleterious consequences. In sub-Saharan Africa where there is a HIV epidemic, it may place people with disabilities at higher odds of engaging in risky sexual behaviour [25] due to a lack of knowledge about safe sexual practices, for example condom use [26]. In other instances, people with disabilities may avoid seeking

sexual healthcare services due to problems accessing facilities or negative attitudes present among healthcare workers [15, 27, 28]. It has been suggested that a key driver of the exclusion of people with disabilities from sexual healthcare services is that, as others do not recognise how these services are of benefit to them, little attention is paid to making healthcare facilities and professional practices inclusive and accessible [15]. Hunt et al. [12] contribute evidence consistent with this underlying misconception, finding that non-disabled people view sexual healthcare services as benefitting a lower percentage of people with disabilities, relative to people without disabilities. As such, in this publication, we expected lack of recognition of the sexual rights of people with disabilities to predict a lower perceived benefit of sexual healthcare services to them.

### **Predictors of recognition of sexual rights**

We now turn to examine hypothesised predictors of recognition of sexual rights in the disability context.

### **Prejudice**

In line with the extant literature, we have noted that the societal negation of disabled sexuality, which extends to a lack of recognition of sexual rights [12] is related to widespread adverse societal attitudes, notably the myth of non-sexuality [4, 6]. At a broader level, such myths and more nuanced beliefs like people with disabilities constructed as innocent and sexually passive [7] may be conceptualised as prejudice, commonly defined as attitudes, emotions or behaviour towards members of a group that implies negative antipathy toward that group [29, p. 7]. Moreover, prejudice must be thought of as multifaceted, comprising cognitive, affective and behavioural components that act together to create an overall prejudiced orientation [29]. Consequently, Paluck [30] has highlighted the need to understand the functional interdependence of these components in the design of interventions. It follows

that to inform such intervention design in the present context of sexuality and disability, the predictive validity of multiple facets of prejudice on recognition of sexual rights should be tested. It seems reasonable to assume that individuals holding more prejudiced beliefs toward sexual/romantic relations with disabled people (e.g., that they are unable to provide sexual satisfaction or be a good parent) may be less likely to recognise the sexual rights of people with disabilities (i.e. their need and capacity for sexuality and parenthood). That is, like Crowson, Brandes and Hurst [31] we view individuals' perceptions of the rights of the target social group to be an outcome of more fundamental prejudice-related processes. In a similar vein, we find it plausible that affective discomfort about sexual/romantic relations with people with disabilities may also predict a lack of recognition of their sexual rights. This is consistent with Crowson et al. [31] who found that affective prejudice predicts (explicit) opposition to human and civil rights for people with disabilities. We therefore suggest that, concurrently with cognitive prejudice, affective prejudice toward people with disabilities will predict lack of recognition of their sexual rights as an indirect expression of antipathy.

### **Social dominance orientation**

According to social dominance theory, societies seek to minimise conflict by promoting ideologies that assert the superiority of one group over another [32]. These group-based hierarchies are thought to be produced and maintained by several factors including individual traits. The most widely known of these, social dominance orientation, is a personality trait which denotes an individual's preference for the consequent inequality among social groups and specifically that one's own group dominates the hierarchy over other groups [32, 33]. Empirical evidence has highlighted that social dominance orientation predicts prejudice and opposition to rights within a variety of group settings, including both the disability and the sexuality (e.g., sexist) contexts [31, 34, 35, 36, 37]. For instance, in the case of the former, Crowson and Brandes [34] found that social dominance orientation

predicted opposition to the inclusion of disabled pupils within mainstream classrooms among student teachers. Moreover, they identified that the relationship between social dominance orientation and opposition to inclusion was mediated by an increase in general prejudice toward students with disabilities. A later study assessed explicit opposition toward broader disability, human and civil rights of people with physical and intellectual disabilities among community members in the United States [31]. Findings provided converging evidence as to the positive relationship between social dominance orientation and opposition to the rights of people with disabilities, although the study did not measure sexual rights specifically. In light of the extant research, it is plausible that possessing a high social dominance orientation would predict a lack of recognition of the sexual rights of people with physical disabilities both directly and indirectly, the latter through increasing both cognitive prejudice and affective prejudice toward disabled people.

### **Intergroup contact**

Intergroup contact theory postulates that, under the right conditions, (e.g., equal status) greater quality and quantity of contact between groups will lead to positive attitudes [38]. Overall, mainly beneficial effects of contact for relations between social groups have been observed across a wide variety of settings [39, 40]. Specifically, contact that is of high quality and to a lesser extent, a greater frequency of contact has generally been shown to form an integral part of such positive relations between groups [41], for example by reducing prejudice and increasing empathy towards members of outgroups [39]. As such, contact-based interventions could potentially be useful in the disability and sexuality context to challenge prejudiced misconceptions about disabled sexuality. However, although there have been several hundred studies which investigate contact, the impact of contact on social relationships, including prejudice reduction, between people with and without disabilities remains understudied in comparison to other social groups. A meta-analysis of half a century

of contact research illustrates that the majority of empirical assessments of contact on prejudice have been carried out among racial groups [40]. Notwithstanding, there is evidence for the effectiveness of contact with people with disabilities in positively shifting the attitudes of people without disabilities towards them. For instance, Krahe and Altwasser [42] showed that contact (i.e. both quality and quantity) with disabled athletes resulted in reduced prejudice towards people with disabilities among a group of non-disabled school students. In line with these findings, we expected greater quality and quantity of contact with people with disabilities to predict reduced cognitive and affective prejudice about sexual relations with people with disabilities. Given that intergroup contact has been found to confer benefits beyond prejudice reduction [39] we did not formulate a specific prediction about any direct relationships between either contact quantity or contact quality and recognition of the sexual rights of people with physical disabilities.

### **The South African context**

South Africa is a middle-income country with a population of approximately 57 million people. Recent nationally representative estimates place the disability prevalence rate at 7.5% and note that where households are headed by a person with a disability they experience greater marginalisation (e.g., in terms of less access to basic services), compared to other households [43]. Like in other low- and middle-income countries disability and sexuality is understudied in South Africa [21], although the evidence base continues to grow quite rapidly in comparison to other countries in the region, see for example [8, 44, 45, 46]. A contributing factor for this research interest may be that South Africa has the largest HIV epidemic in the world [47]. As such, exclusion from sexual healthcare can have dire and potentially fatal consequences for people with disabilities in HIV affected areas as they may not receive vital care and medication [48]. In light of this, the need to understand what predicts recognition of the sexual rights of people with physical disabilities is pressing, in



order to inform action to ensure their inclusion in all aspects of sexual health on an equitable basis to the rest of the population. This paper helps to address this gap.

## **Method**

### **Participants**

The sample consisted of 1989 South African respondents. One hundred and twenty-five respondents who met the Washington Group criteria for having a disability using the recommended cut-off (i.e., a response of “*a lot of difficulty*” or “*cannot do at all*” on any question [49]) were excluded from the sample (because we wished to focus on the views of people without disabilities). An additional 47 participants, for whom there were missing data on the below measures were excluded (Final  $N = 1817$ ). The mean age of our respondents was 26.10 years ( $SD = 9.14$ ; range = 18 to 76) and there were roughly equal numbers of females (57%) to males (43%). The majority of the sample were Black African (45%) or White (40%) and just over half held a school leavers certificate (51%). Comparison with census data [43] suggested that our sample overrepresented White respondents (22% in general population) and were better educated (only 29% of the general adult population possess a school leavers certificate).

### **Design**

The present study adopted a cross-sectional design, in which a survey was administered among a community sample of South Africans.

### **Procedure**

The survey respondents were primarily recruited through the use of social media (e.g., Facebook pages) and other social networks. We also advertised the survey on two of South Africa’s most popular online news sites and through student mailing lists of two large urban universities, in Gauteng and the Western Cape provinces of South Africa respectively. The

survey was available in multiple languages (Afrikaans, English, Isi-Xhosa, Isi-Zulu), taking into account the most widely spoken languages in South Africa.

To help counteract biasing the sample towards educated people, a small number of pen and paper surveys were administered at two peri-urban settlements in the Western Cape province by trained data collectors ( $N = 92$  of the total 1817; 5%). This ensured that the sample was more representative than otherwise, although it still overrepresented White and educated South Africans.

### **Measures**

All measures were assessed on a seven-point Likert scale unless otherwise stated.

**Contact quantity.** Quantity of contact was assessed via four items. Specifically, participants were asked to rate the extent they mixed with people with physical disabilities (1 = *Not at all*, 7 = *A great deal*): “...in the area you live in”, “...when socialising”, “...when engaging in leisure activities” and “...within your friendship group or family” (adapted from Lolliot et al. [50];  $\alpha = .89$ ). High scores reflected greater reported contact quantity.

**Contact quality.** Quality of contact was assessed via four items. Participants were asked to rate what extent their past interactions with people with physical disabilities had been (1 = *Not at all*, 7 = *Very much so*): “enjoyable”, “personal”, “positive”, and “worthwhile” (adapted from Lolliot et al. [50] ;  $\alpha = .86$ ). High scores reflected greater reported contact quality.

**Social dominance orientation.** Four items assessed social dominance orientation.

Participants were asked to what extent they favoured or opposed the following ideas (1 = *Strongly oppose*, 7 = *Strongly favour*): “We should do what we can to equalize conditions for different groups” (reverse-coded), “We should work to give all groups an equal chance to succeed” (reverse-coded), “Group equality should not be our primary goal”, and “It is unjust

*to try to make groups equal*” (adapted from Ho et al. [51];  $\alpha = .65$ ). High scores indicated a greater pro-dominance orientation.

**Cognitive prejudice.** Eight items measured cognitive prejudice about disabled sexuality through assessing beliefs held by participants about why they would not date someone with a physical disability (1 = *Strongly oppose*, 7 = *Strongly favour*): “...*I think having to take care of them might be too much work*”, “...*I do not think they would be able to satisfy me sexually*”, “...*I am just not attracted to people who have physical disabilities*. These were adapted from Marini, Chan, Feist and Flores-Torres [52];  $\alpha = .84$ ). All items were reverse-coded so that high scores indicated more cognitive prejudice (i.e. negative beliefs).

**Affective prejudice.** Affective prejudice toward people with physical disabilities was measured using four items assessing discomfort about close relationships with them. Specifically, participants were asked to what extent they would feel comfortable (1 = *Very uncomfortable*, 7 = *Very comfortable*): “...*befriending a person who has a physical disability?*”, “...*going on a date with a person who has a physical disability?*”, “...*being in a relationship with a person who has a physical disability?*” and “...*if a person who has a physical disability married into your family?*” (adapted from Coleman, Brunell, & Haugen [53];  $\alpha = .84$ ). All items were reverse-coded so that high scores indicated more affective prejudice.

**Recognition of sexual rights.** Recognition of the sexual rights of people with physical disabilities were measured using three items. Participants were asked to estimate the percentage (i.e. 0 to 100) of people with physical disabilities: “...*that are capable of expressing sexuality*”, “...*for whom expressing sexuality is a basic human need*” and “...*who should be allowed to have children*”;  $\alpha = .77$  [12].

**Benefit of sexual healthcare beliefs.** Perceptions of the benefit of sexual healthcare for people with physical disabilities were measured using three items. Participants were asked to estimate the percentage (i.e. 0 to 100) of people with physical disabilities: “...*who benefit from sexual health care services (e.g., HIV testing) in your area*”, “...*who benefit from reproductive health care services (e.g., pregnancy screening) in your area*” and “...*who benefit from sexual education services (e.g., classes providing information about HIV) in your area*”;  $\alpha = .92$  [12].

We also assessed participants’ recognition of the sexual rights and sexual healthcare beliefs about people without disabilities [12] in order to ensure we could disentangle perceptions about disabled people from general beliefs about sexual rights and sexual healthcare. Finally, we measured key demographics including disability status (via the Washington Group Short-Set [49]), gender, age, and level of education.

## Results

Correlations between average scores on each variable and their means and standard deviations are presented in Table 1.

We tested the relationships between variables using PROCESS analyses (Model 80; [54]), which allows for the assessment of mediational pathways, including indirect effects.

Specifically, we tested a model in which three first-order variables (contact quantity, contact quality, and social dominance) predicted two second-order variables (cognitive prejudice, affective prejudice; Step 1a and Step 1b). These second-order variables were tested as predictors of a third-order variable (recognition of the sexual rights of people with physical disabilities; Step 2), which in turn was tested as predictor of a fourth-order variable (sexual healthcare beliefs about people with physical disabilities; Step 3). Moreover, we assessed both of the second order variables (cognitive prejudice and affective prejudice) as parallel

mediators of the relationship between the three first-order variables (contact quantity, contact quality, and social dominance) and the fourth-order variable (sexual healthcare beliefs about people with physical disabilities) through the third order variable (recognition of the sexual rights of people with physical disabilities). The model tested is shown in Figure 1. All variables were standardised before inclusion (i.e. were rescaled to have a mean of 0 and a standard deviation of 1).

Table 2 presents the results of the analyses, including a summary of the variables included in each step of the model. Step 1a of the obtained model was significant,  $F(8, 1808) = 23.38, p < .001, R^2 = .09$ . Both contact quantity and contact quality were negative predictors of cognitive prejudice (i.e. the less contact had, the higher the level of cognitive prejudice reported). Conversely, social dominance orientation was a positive predictor, with participants high in social dominance orientation displaying more cognitive prejudice.

Step 1b of the obtained model was also significant,  $F(8, 1808) = 30.67, p < .001, R^2 = .12$ . Similar to cognitive prejudice, low levels of both contact quantity and contact quality were associated with high levels of affective prejudice. However, there was no significant association between social dominance orientation and affective prejudice.

Step 2 of the obtained model was also significant,  $F(10, 1806) = 108.90, p < .001, R^2 = .38$ . Contact quantity positively predicted recognition of the sexual rights of persons with physical disabilities (i.e. Less contact with physically disabled people predicted a lesser percentage of persons with physical disabilities being ascribed sexual rights). However, there was no significant association between either contact quality or social dominance orientation and recognition of sexual rights. Both cognitive and affective prejudice negatively predicted recognition of sexual rights. That is, participants who displayed more cognitive and affective

prejudice about close relationships with people with physical disabilities ascribed a lower percentage as having sexual rights.

Step 3 of the obtained model was also significant,  $F(11, 1805) = 168.39, p < .001, R^2 = .51$ . Greater contact quantity predicted a lesser percentage of people with physical disabilities being estimated to benefit from sexual healthcare. Neither contact quality, social dominance orientation, cognitive prejudice nor affective prejudice significantly predicted sexual healthcare beliefs about people with physical disabilities. However, recognition of sexual rights was a positive predictor. That is, where participants ascribed sexual rights to a lesser percentage of people with physical disabilities, a lesser percentage were thought to benefit from sexual healthcare.

Next, we examined the direct and indirect effects (standardised) of each of our first-order variables (contact quantity, contact quality, and social dominance) in turn on our fourth-order variable (recognition of the sexual rights of people with physical disabilities and sexual healthcare beliefs about people with physical disabilities) through each of our parallel second-order variables (cognitive prejudice and affective prejudice) and our third-order variable.

For contact quantity, there was a significant direct effect on sexual healthcare beliefs about people with physical disabilities, [ $\beta = .04, SE = .02, 95\% CI (.0083, .0814)$ ] and significant indirect effects through both cognitive prejudice, [ $\beta = .002, SE = .001, 95\% CI (.0004, .0046)$ ] and affective prejudice, [ $\beta = .003, SE = .001, 95\% CI (.0009, .0055)$ ].

For contact quality, there was no significant direct effect on sexual healthcare beliefs about people with physical disabilities, [ $\beta = -.002, SE = .02, 95\% CI (-.0398, .0350)$ ] but there were significant indirect effects through both cognitive prejudice, [ $\beta = .01, SE = .002, 95\% CI (.0045, .0122)$ ] and affective prejudice, [ $\beta = .01, SE = .003, 95\% CI (.0063, .0165)$ ].

Similarly, regarding social dominance orientation, there was no significant direct effect on sexual healthcare beliefs about people with physical disabilities, [ $B = .02$ ,  $SE = .02$ , 95% CI (-.0093, .0590)]. Further, there was a significant indirect effect of social dominance orientation on sexual healthcare beliefs through cognitive prejudice, [ $B = -.003$ ,  $SE = .001$ , 95% CI (-.0056, -.0012)], but not affective prejudice, [ $B = -.002$ ,  $SE = .001$ , 95% CI (-.0037, .0002)].

Following Hayes (2009), we characterise these relationships as indirect effects rather than mediation because no total effects on sexual healthcare beliefs toward people with physical disabilities were detected for contact quantity,  $B = .03$ ,  $SE = .02$ , LLCI = -.0105, ULCI = .0668, contact quality,  $B = .03$ ,  $SE = .02$ , LLCI = -.0070, ULCI = .0696, or social dominance orientation,  $B = .03$ ,  $SE = .02$ , LLCI = -.0072, ULCI = .0652.

A final point and crucial point to note is that all significant direct effects and indirect effects obtained are extremely small in size (i.e.  $\beta < .10$ ; see Cohen [55]) and only detectable due to our large sample size. We discuss our results below with this in mind.

## **Discussion**

This study sought to disentangle predictors, derived from key social psychological literatures (prejudice, intergroup contact, & social dominance theory), of non-disabled people's recognition of the sexual rights of people with physical disabilities and discern whether this lack of recognition predicted beliefs about sexual healthcare for disabled people. Such beliefs about disabled sexuality can precede real-world sexual exclusion and are thus an important step in understanding how to modify societal perceptions to more accurately reflect the experiences and needs of disabled people.

Specifically, lack of recognition of the sexual rights of people with physical disabilities predicted less positive beliefs about the perceived benefits of sexual healthcare, while lack of recognition of the sexual rights of people with physical disabilities was predicted by both increased cognitive and affective prejudice toward their sexuality. In turn, low levels of both contact quantity and contact quality predicted increased cognitive and affective prejudice, while possessing high levels of social dominance orientation predicted more cognitive prejudice, but not affective prejudice. Finally, both forms of contact exerted an indirect impact on benefits of sexual healthcare beliefs through both forms of prejudice, while social dominance orientation had a concurrent indirect impact through cognitive prejudice only.

That both cognitive and affective prejudice about disabled sexuality predicted beliefs about the sexual rights of people with physical disabilities is consistent with prior research which has found that (affective) prejudice predicts opposition to the civil rights of disabled people [31]. This is likely because denying that people with physical disabilities have sexual rights is functionally consistent with both cognitive prejudice (i.e. negative beliefs) and affective prejudice (i.e. emotional discomfort) about disabled sexuality. Similarly, the findings that contact quantity, contact quality and social dominance orientation predict forms of prejudice toward disabled people is consistent with prior research within intergroup contact theory [40, 42] and social dominance theory [31]. Moreover, our findings suggest that lack of recognition of disabled sexual rights is associated with viewing sexual healthcare as of less benefit to physically disabled people. Such beliefs may be a pre-cursor to actual exclusion from sexual healthcare, particularly as barriers to sexual healthcare services (e.g., inaccessible equipment) often appear alongside negative attitudes (e.g., from healthcare providers; [14]). As such, this highlights the need to address lack of recognition of the sexual rights of physically disabled people, particularly within healthcare services, where



rehabilitative pathways to regaining sexual health can be closed off by stigma and discrimination from healthcare workers. More broadly, Peta [56] suggests that when the sexual rights of people with disabilities fail to be recognised in national and international policymaking, (e.g., inclusion of sexual assistive devices in the World Health Organisation's list of priority assistive technology), this will ultimately lead to their exclusion from sexual rehabilitation. Our research sheds light on some of the psychological predictors of this lack of recognition of sexual rights. There are also wider implications within countries such as South Africa where negative attitudes toward disability and sexuality contribute to the HIV epidemic. As part of addressing lack of recognition of sexual rights, future research should focus on elucidating what other factors, aside from prejudice, predict recognition of the sexual rights of people with physical disabilities.

Our findings further suggest some promising routes by which this denial of disabled sexual rights can be challenged, though with qualifications necessary due to the extremely small size of the direct and indirect effects observed on sexual healthcare beliefs. In particular, while encouraging non-disabled people to engage in frequent, high quality contact with people with physical disabilities may help ameliorate prejudice about disabled sexuality, our findings suggest that focusing on dedicated contact interventions are unlikely to have a practically meaningful follow-on impact on the recognition of sexual rights of physically disabled people. However, contact has also been shown to reduce prejudice towards groups if facilitated through indirect forms such as the media [57]. In regions and countries which are affected by an HIV epidemic like South Africa, a valuable approach may therefore be to ensure to include media portrayals of physically disabled people into future national-level HIV campaigns. That is, our findings suggest that contact may have a positive, yet extremely small impact on sexual health beliefs toward people with physical disabilities through reducing prejudice and increasing recognition of their sexual rights. Applied uniformly to a

population through a low-cost modification to a national level campaign, this may nevertheless be an effective method to help combat negative beliefs about disabled sexuality and sexual rights. Our results also highlight a potential boundary condition for interventions in that it may be more challenging to encourage individuals high in social dominance orientation to recognise the sexual rights and endorse sexual healthcare for people with disabilities.

As this was a cross-sectional study, we first caution that our findings represent a snapshot of correlates of disabled sexual rights in the South African context and as such does not constitute causal evidence. As such evidence is generally lacking within empirical work conducted on disability and sexuality, particularly in low- and middle-income countries [21], it would be beneficial for future research to adopt such designs (e.g., longitudinal evaluations) to further strengthen the evidence base. Second, given that our sample over-represents South Africans who are both White and better educated, due caution should be applied when generalising our findings to other population groups within South Africa.

In conclusion, our study sheds light on predictors and a consequence of lack of recognition of the sexual rights of physically disabled people within the South African context. Specifically, we find that cognitive and affective prejudice predicts less recognition of sexual rights, which in turn predicts less positive sexual healthcare benefit beliefs. Further, our findings suggest that high contact quantity and contact quality and possessing a social dominance orientation exerts a very small impact on sexual healthcare beliefs through prejudice and recognition of sexual rights. While likely not a meaningful avenue for dedicated interventions, national-level strategies targeting societal perceptions of disabled sexuality may benefit from low-cost modifications that adapt contact-based strategies.

### References

1. WHO Developing sexual health programmes A framework for action. Geneva: World Health Organization; 2010.
2. WHO World report on disability. Geneva: World Health Organisation; 2011.
3. Di Giulio G. Sexuality and people living with physical or developmental disabilities: A review of key issues. *Can. J. Hum. Sex.* 2003;12(1): 53-68.
4. Milligan MS, Neufeldt AH. (2001). The myth of asexuality: A survey of social and empirical evidence. *Sex Disabil.* 2001;19(2): 91-109.
5. Sex uncovered poll: Education and ethnicity. *The Guardian.* 2008 Oct 26 [cited 2019 Mar 12<sup>th</sup>]. Available from: <https://www.theguardian.com/lifeandstyle/2008/oct/26/observer-sex-poll-20082>
6. Rohleder P, Braathen SH, Carew MT. Disability and sexual health: A critical exploration of key issues. London: Routledge; 2018.
7. Chappell, P. Secret languages of sex: disabled youth's experiences of sexual and HIV communication with their parents/caregivers in KwaZulu-Natal, South Africa. *Sex Ed.* 2016;16(4): 405-417.
8. Hunt X, Braathen SH, Swartz L, Carew MT, Rohleder P. Intimacy, intercourse and adjustments: Experiences of sexual life of a group of people with physical disabilities in South Africa. *J Health Psych.* 2018;23(2): 289-305.
9. Peta C, McKenzie J, Kathard H. Voices from the periphery: A narrative study of the experiences of sexuality of disabled women in Zimbabwe. *Agenda.* 2015;29(2): 66-76.
10. Peta C, McKenzie J, Kathard H, Africa A. We are not asexual beings: disabled women in Zimbabwe talk about their active sexuality. *Sex Res Soc Pol.* 2017;14(4): 410-424.
11. Shuttleworth RP. The search for sexual intimacy for men with cerebral palsy. *Sex Disabil.* 2000;18(4): 263-282.
12. Hunt X, Carew MT, Braathen SH, Swartz L, Chiwaula M, Rohleder P. The sexual and reproductive rights and benefit derived from sexual and reproductive health services of people with physical disabilities in South Africa: beliefs of non-disabled people. *Reprod Health Matters.* 2017;25(50): 66-79.
13. Standing H, Hawkins K, Mills E, Theobald S, Undie CC. Introduction: contextualising "rights" in sexual and reproductive health. *BMC Int Health Hum Rights.* 2011;11: S1.
14. Batchelor SA, Kitzinger J, Burtney E. Representing young people's sexuality in the 'youth' media. *Health Edu Research.* 2004;19(6), 669-676.
15. Anderson P, Kitchin R. Disability, space and sexuality: access to family planning services. *Soc Sci Med.* 2000;51(8), 1163-1173.
16. Esmail S, Darry, K, Walter, A, Knupp, H. Attitudes and perceptions towards disability and sexuality. *Dis Rehab,* 32(14), 1148-1155.

17. McKenzie JA, Swartz L. The shaping of sexuality in children with disabilities: A Q methodological study. *Sex Disabil.* 2011;29(4):363-76.
18. Aunos M, Feldman, MA. Attitudes towards sexuality, sterilization and parenting rights of persons with intellectual disabilities. *J App Res Intell Disabil*, 2002; 15(4), 285-296.
19. Cuskelly M, Bryde R. Attitudes towards the sexuality of adults with an intellectual disability: parents, support staff, and a community sample. *J Intell Develop Disabil.* 2004; 29(3): 255-264.
20. Gilmore L, Malcolm L. "Best for everyone concerned" or "Only as a last resort"? Views of Australian doctors about sterilisation of men and women with intellectual disability. *J Intell Develop Disabil.* 2014;39(2): 177-187.
21. Carew MT, Braathen SH, Swartz L, Hunt X, Rohleder P. The sexual lives of people with disabilities within low-and middle-income countries: a scoping study of studies published in English. *Glob Health Act.* 2017;10(1): 1337342.
22. East LJ, Orchard TR. Somebody else's job: Experiences of sex education among health professionals, parents and adolescents with physical disabilities in Southwestern Ontario. *Sex Disabil.* 2014;32(3): 335-350.
23. Nguyen TTA, Liamputtong P, Monfries M. Reproductive and sexual health of people with physical disabilities: a metasynthesis. *Sex Disabil.* 2016;34(1): 3-26.
24. Rohleder P, Swartz L. Providing sex education to persons with learning disabilities in the era of HIV/AIDS: Tensions between discourses of human rights and restriction. *J. Health Psych.* 2009;14(4): 601-10.
25. Maart, S, Jelsma J. The sexual behaviour of physically disabled adolescents. *Dis Rehab*, 2010;32(6): 438-443.
26. Mall S, Swartz L. Attitudes toward condom education amongst educators for Deaf and hard-of-hearing adolescents in South Africa. *Afr J Prima Health Care Fam Med.* 2014;6(1):1-4.
27. Mavuso SS, Maharaj P. Access to sexual and reproductive health services: experiences and perspectives of persons with disabilities in Durban, South Africa. *Agenda.* 2015; 29(2): 79-88.
28. Smith E, Murray SF, Yousafzai AK, Kasonka L. Barriers to accessing safe motherhood and reproductive health services: the situation of women with disabilities in Lusaka, Zambia. *Dis Rehab.* 2004;26(2): 121-7.
29. Brown R. *Prejudice: Its social psychology.* Princeton (NJ): Wiley-Blackwell; 2010.
30. Paluck EL. Reducing intergroup prejudice and conflict using the media: a field experiment in Rwanda. *J Per Soc Psych.* 2009;96(3):574-587.
31. Crowson HM, Brandes JA, Hurst RJ. Who opposes rights for persons with physical and intellectual disabilities?. *J App Soc Psych.* 2013;43(S2), E307-E318.
32. Pratto F, Sidanius J, Levin S. Social dominance theory and the dynamics of intergroup relations: Taking stock and looking forward. *Eur Rev Soc Psych.* 2006;17(1):271-320.

33. Pratto F, Sidanius J, Stallworth LM, Malle BF. Social dominance orientation: A personality variable predicting social and political attitudes. *J Per Soc Psych.* 1994; 67(4):741-763.
34. Brandes JA, Crowson HM. Predicting dispositions toward inclusion of students with disabilities: The role of conservative ideology and discomfort with disability. *Soc Psych Edu.* 2009;12(2):271-89.
35. Kteily NS, Sidanius J, Levin S. Social dominance orientation: Cause or 'mere effect'? Evidence for SDO as a causal predictor of prejudice and discrimination against ethnic and racial outgroups. *J Exp Soc Psych.* 2011;47(1):208-14.
36. Sibley CG, Duckitt J. The ideological legitimization of the status quo: Longitudinal tests of a social dominance model. *Pol Psych.* 2010;31(1):109-37.
37. Sibley CG, Wilson MS, Duckitt J. Antecedents of men's hostile and benevolent sexism: The dual roles of social dominance orientation and right-wing authoritarianism. *Per Soc Psych Bull.* 2007;33(2):160-72.
38. Allport GW. *The nature of prejudice.* Cambridge, MA: Addison-Wesley; 1954.
39. Hewstone M, Lolliot S, Swart H, Myers E, Voci A, Al Ramiah A, Cairns E. (2014). Intergroup contact and intergroup conflict. *J Peace Psych,* 20(1), 39-53.
40. Pettigrew TF, Tropp LR. A meta-analytic test of intergroup contact theory. *J Pers Soc Psych.* 2006;90(5):751-783.
41. Binder J, Zagefka H, Brown R, Funke F, Kessler T, Mummendey A, Maquil A, Demoulin S, Leyens JP. Does contact reduce prejudice or does prejudice reduce contact? A longitudinal test of the contact hypothesis among majority and minority groups in three European countries. *J Pers Soc Psych,* 2009;96(4), p.843-856.
42. Krahe B, Altwasser C. Changing negative attitudes towards persons with physical disabilities: An experimental intervention. *J Comm Appl Soc Psych.* 2006; 16(1):59-69.
43. Statistics South Africa. *Census 2011: Census in brief.* Pretoria: Statistics South Africa; 2012.
44. Hanass-Hancock J, Chappell P, Johns R, Nene S. Breaking the Silence through delivering comprehensive sexuality education to learners with disabilities in South Africa: Educators experiences. *Sex Disabil.* 2018;36(2):105-21.
45. Hunt X, Swartz L, Rohleder P, Carew M, Hellum Braathen S. Withdrawn, strong, kind, but de-gendered: non-disabled South Africans' stereotypes concerning persons with physical disabilities. *Disabil Soc.* 2018;26 :1-22.
46. Kahonde CK, McKenzie J, Wilson NJ. Discourse of needs versus discourse of rights: family caregivers responding to the sexuality of young South African adults with intellectual disability. *Cul Health Sex.* 2018; (18):1-5.
47. UNAIDS *Ending AIDS: Progress towards 90-90-90 targets.* Geneva: UNAIDS; 2017.

48. Tun W, Okal J, Schenk K, Esantsi S, Mutale F, Kyeremaa RK, Ngirabakunzi E, Asiah H, McClain-Nhlapo C, Moono G. Limited accessibility to HIV services for persons with disabilities living with HIV in Ghana, Uganda and Zambia. *J Int AIDS Soc.* 2016; 19:20829.
49. Loeb M. International census/survey data and the short set of disability questions developed by the Washington group on disability statistics. In: *International Measurement of Disability: Purpose, Method and Application – The work of the Washington Group on Disability Statistics.* In: Altman, B. Editor. Switzerland: Springer; 2016. p. 255-304.
50. Lolliot S, Fell B, Schmid K, Wölfer R, Swart H, Voci A, Christ O, New R, Hewstone M. Measures of intergroup contact. In: Boyle, G, Saklofske, D, Matthews, G, editors. *Measures of personality and social psychological constructs.* London, UK: Academic Press; 2015. p. 652-683.
51. Ho AK, Sidanius J, Pratto F, Levin S, Thomsen L, Kteily N, Sheehy-Skeffington J. Social dominance orientation: Revisiting the structure and function of a variable predicting social and political attitudes. *Per Soc Psych Bull.* 2012;38(5):583-606.
52. Marini I, Chen R, Feist A, Flores-Torres L. Student attitudes toward intimacy with persons who are wheelchair users. *Rehab Res, Pol Ed.* 2011;25:15-26.
53. Coleman JM, Brunell AB, Haugen IM. Multiple forms of prejudice: How gender and disability stereotypes influence judgments of disabled women and men. *Curr Psych.* 2015;34(1):177-89.
54. Hayes AF. *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach.* New York: Guilford Publications; 2017.
55. Cohen J. The world is round ( $p < .05$ ). *Am Psych.* 1994;49(12):997-1003.
56. Peta C. Deafening silence on a vital issue: The World Health Organization has ignored the sexuality of persons with disabilities. *Afr. J. Disabil.* 2017; 7(0):a474.
57. Dovidio JF, Eller A, Hewstone M. Improving intergroup relations through direct, extended and other forms of indirect contact. *Group Process Intergroup Relat.* 2011 14(2):147-60.

Table 1. Correlations and means and standard deviations of all measured variables.

Variable	1	2	3	4	5	6	7
1. Contact quantity							
2. Contact quality	.40***						
3. Social dominance	.01	-.12***					
4. Cognitive prejudice	-.14***	-.26***	.13***				
5. Affective prejudice	-.18***	-.32***	.09***	.59***			
6. Sexual rights	-.05**	.10***	-.09***	-.25***	-.24***		
7. Sexual healthcare	.06*	.08**	-.06*	-.09***	-.13***	.40***	
Mean	2.83	5.11	2.00	2.66	2.69	67.87	60.50
Standard Deviation	1.60	1.39	1.05	1.21	1.33	25.04	32.29

*Note.* Correlations are computed between mean scores.  $N = 1817$ . \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

Table 2. *Co-efficients for the model testing mediation of the relationship between contact quantity, contact quality, social dominance orientation and sexual healthcare beliefs toward people with physical disabilities by cognitive prejudice and affective prejudice*

<b>Step 1a: Cognitive prejudice</b>	$\beta$	SE	$t$	$p$	LLCI	ULCI
Age	.03	.03	1.09	.276	-.0225	.0788
Gender	-.06	.02	-2.55	.011	-.1025	-.0134
Education	-.09	.03	-3.55	< .001	-.1444	-.0416
Sexual rights (General population)	-.07	.03	-2.71	.007	-.1245	-.0200
Sexual healthcare (General population)	.04	.03	-1.59	.112	-.0097	.0929
Contact quantity	-.06	.02	-2.43	.015	-.1091	-.0116
Contact quality	-.22	.02	-8.86	< .001	-.2666	-.1700
Social dominance orientation	.09	.02	3.69	<.001	.0403	.1316
<b>Step 1b: Affective prejudice</b>	$\beta$	SE	$t$	$p$	LLCI	ULCI
Age	.03	.03	1.28	.202	-.0175	.0802
Gender	.001	.02	.030	.975	-.0434	.0447
Education	-.07	.03	-2.66	.008	-.1197	-.0181
Sexual rights (General population)	-.08	.03	-3.10	.002	-.1327	-.0294
Sexual healthcare (General population)	.02	.03	.584	.559	-.0356	.0658
Contact quantity	-.08	.02	-3.07	.002	-.1236	-.0273
Contact quality	-.28	.02	-11.51	< .001	-.3281	-.2326
Social dominance orientation	.04	.02	1.74	.082	-.0051	.0852
<b>Step 2: Sexual rights (PWD)</b>	$\beta$	SE	$t$	$p$	LLCI	ULCI
Age	-.01	.02	-.646	.518	-.0559	.0282
Gender	.05	.02	2.50	.012	.0103	.0843
Education	.09	.02	4.11	<.001	.0470	.1325
Sexual rights (General population)	.50	.02	22.49	<.001	.4547	.5416
Sexual healthcare (General population)	.06	.02	2.69	.007	.0157	.1008
Contact quantity	-.08	.02	-3.87	<.001	-.1205	-.0395
Contact quality	.01	.02	.646	.518	-.0279	.0553
Social dominance orientation	.03	.02	1.76	.078	-.0038	.0722
Cognitive prejudice	-.12	.02	-5.14	<.001	-.1661	-.0743
Affective prejudice	-.12	.02	-5.33	<.001	-.1725	-.0796
<b>Step 3: Sexual healthcare (PWD)</b>	$\beta$	SE	$t$	$p$	LLCI	ULCI
Age	-.04	.02	-1.98	.048	-.0758	-.0003
Gender	.01	.02	.792	.429	-.0199	.0468
Education	-.05	.02	-2.33	.020	-.0845	-.0073
Sexual rights (General population)	-.21	.02	-9.26	<.001	-.2526	-.1643
Sexual healthcare (General population)	.67	.02	34.07	<.001	.6268	.7034
Contact quantity	.04	.02	2.41	.016	.0083	.0814
Contact quality	-.002	.02	-.127	.899	-.0398	.0350
Social dominance orientation	.02	.02	1.43	.154	-.0093	.0590
Cognitive prejudice	-.003	.02	-.128	.898	-.0442	.0388
Affective prejudice	-.04	.02	-1.65	.100	-.0773	.0067
Sexual rights (PWD)	.31	.02	14.58	<.001	.2668	.3497

Note. Total  $N = 1817$ .



