

Bibles and Bathrooms: Intersex Variation Awareness Among College-Aged American Christians

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Abstract

The extant literature concerning the existence and experience of the LGBTQIA+ community in the United States sometimes overshadows that of people with intersex variations (Jones, 2018). While many people with intersex variations identify within the binary, these variations directly challenge belief systems conforming to the existence of only two sexes, and thus, only two relative genders. This research attempts to gain a greater understanding of American awareness, acceptance, and attitudes concerning intersex variations, and how these beliefs fit into or challenge conservative views of gender. More specifically, we focus on the relationship between religiosity and views of homosexuality, and how these variables may influence and/or be influenced by intersex variation awareness and acceptance. Using a survey of 146 American college students, we find that overall intersex variation is viewed with more acceptances and comfort than homosexuality, and that Christians (in particular, those leaning toward biblical literalism) are more likely to express views that those with intersex variations should adhere to sex and gender binaries.

Keywords

intersex, sexuality, LGBTQIA, religion, Christianity, literalism

Introduction

The atmosphere surrounding gender identity and sexual preference in the United States is a peculiar one; from triumphs regarding same sex marriage, transgender public service, and increased LGBTQIA+ representation in mainstream media and television (GLAAD, 2018) to congregations with doctrines that disregard heteronormative teachings (Brownson, 2013; Vines, 2015), one might assume that the US is steadily approaching a post-heteronormative society. And, while public opinions do support movement in a progressive direction (according to General Social Survey data, the percentage of Americans who “strongly agree or agree” that “homosexual couples should have the right to marry” rose from 35% in 2006 to 59% in 2016, doubling in only a decade; Smith et al., 2017), contradictory trends continue to undermine real change in attitudes. Issues like the “bathroom bills” that began to surface to mainstream media in 2016, when several states began restricting access to public restrooms and sex-segregated entities to the sex binary that is assigned to an individual at birth, attempt to create a clear-cut division and categorization within the bounds of the heteronormative sex and gender binary. The primary targets of these bathroom bills are obviously those marginalized groups who identify as transgender (or any other gender identity deviating from an acceptable cisgender male/cisgender female dichotomy).

Gender verification in sports, is another example (or biological testing used to “detect biological indicators” of women and men), highlighting the difficulties that can accompany strict regulation based on a faulty sex and gender binary (Brömdal et al., 2017; Henne, 2014). Considering the overlapping ties between such political agendas, socially conservative beliefs, and conservative Christianity, this paper aims to identify understanding and acceptance of intersex variations in the context of religious, social, and sexual identity beliefs.

We find that these examples of discrimination suggest that gender and sexual identities are in some way a public matter and perhaps warrant a look into the awareness and opinions of the public—particularly in regard to intersex variations. Without increasing awareness of intersex variation, stigmatization and related harassment, unnecessary medical intervention, and reproductive health violations remain undeterred (Carpenter, 2020). Given the public nature

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that gender identity has taken in recent years, a true understanding of intersex variations can add to the conversation, which is often binary in nature, and potentially reduce discrimination in the future. Extant literature based in theory and debate provide some insight, yet there remains a noticeable lack of opinion research on the topic; the General Social Survey (GSS) itself, while a prominent and thorough collection of opinion data, does not explore much beyond attitudes concerning homosexuality and same sex marriage (Smith et al., 2017). This study attempts a quantitative survey research methodology for data collection on attitudes specific to intersex variation. Previous research yields a contrast between perceptions of deviant sexual orientation versus deviant sexual identification, particularly congenital biological difference (Brownson, 2013; Carpenter, 2018b; Cornwall, 2015; Gross, 1999); in a survey delivered to a sample of young Japanese respondents, many expressed greater levels of acceptance of intersex variations than homosexuality (Lusk, 2017). Thus, this study builds on a narrative of the public view of intersex in the US, centered around the social construction of gender and sex identity as well as the influence of religious beliefs on this construction.

Literature Review

Intersex Variation and Prevalence

While often characterized with the divisive diagnostic “disorder of sex development” (DSD; Davis, 2014; Lee et al., 2006), intersex variation is actually a unique categorization, as it challenges both socially constructed gender norms and biological medically constructed sex norms. In an early attempt to suggest that intersex variation might undermine the conscripted sex and gender binaries, *More Sexes Please?* by Felicity Haynes offers a basic definition of intersex variation determined by atypical biological traits such as chromosomal variation, abnormal hormone imbalance, or “ambiguous genitalia” (Haynes, 1999, p. 194). However, contemporary definitions of intersex variation have grown more inclusive. According to InterACT, a self-described network of “advocacy for intersex youth,” the label “intersex” can encompass a wide variety of variations in sex traits or reproductive anatomy, including variations that are present from birth and those that may develop during adolescence or puberty (InterACT, 2020). Intersex variations can include difference in hormones, chromosomes, internal reproductive anatomy, and/or external reproductive anatomy (Jones et al., 2016). More recently, many researchers have opted to employ a definition of intersex variation that incorporates more conditions than earlier definitions, including those with PCOS (polycystic ovarian syndrome) induced hyperandrogenism and others (Huang et al., 2010).

According to researcher Sharon Preves, intersex variations occur at an incidence comparable to better known

conditions like cystic fibrosis and Down syndrome (Preves, 2002). The most widely agreed upon incidence rate for intersex variation estimates that about 1.7% of all births result in some form of intersex variation or characteristics (Carpenter, 2018a; Fausto-Sterling, 2008; Jones, 2018; Jones et al., 2016). As InterACT (2020) notes, this prevalence rate is higher than one’s chance of giving birth to identical twins. That being said, one of the main points of contention when it comes to intersex variation is that it is problematized and pathologized, along with subsequent attempts to “correct” or “cure” these natural variations that present little or no danger. Much of the research on intersex variation is Western and uses medical positioning, frequently framing intersex variation as aforementioned DSDs (Davis, 2015; Jones, 2017; Jones et al., 2016). As DSDs in particular, intersex variation is often unnecessarily medicalized, one of the reasons why DSD nomenclature is “not uniformly accepted by those whose bodies the terminology describes” (Davis, 2014, p. 24; Davis, 2015). One usual approach to addressing intersex is to treat it as an illness that requires “correction.” From birth, if gender is imperceptible due to underdeveloped or ambiguous genitalia, physicians have responded immediately by using emergency protocol; while this seems appropriate in some cases where the condition is linked to a potentially life-threatening illness, it is unclear as to why intersex continues to be seen as a medical emergency once these threats are ruled out (InterACT, 2020; Intersex Society of North America, 2006).

Perhaps the emergency here is a need to conform to cis-norms, or cissexism; that is, “the belief that gender is authentic only when it is neatly aligned with sex and sexuality” (Davis, 2015). Like Haynes, Preves (2002) also suggests that intersex variation presents a direct challenge to “prevailing binary understandings of sex and gender,” by “queering” those understandings with nonconforming bodies (p. 523). There is a medical assumption that nonconforming bodies—even those which are able-bodied, pain-free, and nonpathological—are destined for a “life of alienation and despair” (Preves, 2002, p. 524). This is a limited framing of intersex variation, since, as Kessler (1990, 2002) points out, in reality we don’t truly determine gender based on sex, genitalia, or chromosomes; gender is instead a social construct, determined by how it is performed and communicated through clothing, hairstyles, gestures, speech, and other outward appearances. Medicine has certified the normalization of a binary system and continues to cut and morph bodies to fit into that system whenever possible. Clitoridectomy surgeries on children with intersex variations don’t seem too foreign from genital mutilation or even breast enlargement surgeries; these procedures may be seen as a medicalization of gender, a violence against the body to force it into a normalized, binary gender paradigm that does not need to be so. As Fausto-Sterling (2008) points out, it takes a “surgical shoe horn” to force these bodies into

binary submission. (p. 8). Her suggested reasoning is simple and direct, as seen here:

“Why must we amputate or surgically hide that “offending shaft” found on an especially large clitoris? The answer: to maintain gender divisions, we must control those bodies that are so unruly as to blur the borders. Since intersexuals quite literally embody both sexes, they weaken claims about sexual difference.” (Fausto-Sterling, 2008, p. 8)

Instead of recognizing the futility of this blind attachment to a gender paradigm, we instead insist that all bodies adhere, and the earlier the better. We begin to mold our children to the gender dichotomy earlier and earlier. Our culture reinforces this normative regard to gender, seen in anticipation for second trimester ultrasounds to determine sex and gender reveal parties to publicly announce the gender of the unborn baby using a pink or blue cake filling. At birth, we need not worry if the doctor was wrong, or if the 50/50 chance was missing a disclaimer; these “emergencies” call for immediate “corrective” surgery and therapy.

While the majority of people who identify with some intersex characteristic(s) identify along the gender binary, this is not the case for all (Jones et al., 2016); thus, a person experiencing any of the conditions identified by the more inclusive definitions of intersex variation could reasonably have difficulty fully aligning with one gender due to their biological condition, even when chromosomal and phenotypic sex are not in contrast or when the phenotype is classifiable. The secondary conditions expressed through these conditions can influence one’s identification with gender stereotypes as they are ascribed by society (Preves, 2002). Intersex variation is indeed a challenge to this expected normative display of gender; for people with intersex variations, lining up completely with a socially constructed gender may be complex, therefore making these cues unreliable determining factors of gender identification. As such, the queering of sex and gender identification may prove helpful.

Where law, society, and religion attempt to reinforce dual sex sorting, intersex variation asserts a haze of doubt and obscurity. Pundits can argue the existence of evidence and science behind many ostensible DSDs for infinity, but intersex variation offers a unique opportunity for dialogue that defies these limitations. Some individuals with intersex variations may find that they do not fit into the sex-gender binary because they simply cannot under the rigid definitions of sex. For many people with intersex variations, it may be difficult to comfortably identify with a definitive sex or gender binary, whether based on cytogenetics, primary and secondary sex characteristics, or any other known measure. While the medicalization of intersex variation debatably claims to attempt to normalize these conditions, the legal and social policies have yet to do the same (Carpenter, 2018b). For the most part, the othering and stigmatization of those with

intersex identities has been consistently perpetuated and reinforced (Carpenter, 2018a, 2018b; Jones et al., 2016).

While our initial interest in studying the challenge of intersex variation in a binary sex and gender system emerged from interest in the debate between Title IX and bathroom bills, said interest developed into more theoretical applications, particularly within (1) the queering of dichotomous sex and gender systems (Bornstein, 2016) and (2) the intersection of religiosity and sex and gender ambiguity (Seidman, 1996). The primary questions of interest here are as follows:

RQ1: Does Christian affiliation influence awareness of, acceptance of, or comfort with people with intersex variations?

RQ2: Does homosexual acceptance influence awareness of, acceptance of, or comfort with people with intersex variations?

RQ3: Does biblical literalism influence awareness of, acceptance of, or comfort with people with intersex variations?

The Case of Intersex Variation in Christianity

Christianity is often linked with socially conservative ideologies (Johnson et al., 2016). Moral foundations theory studies find that various measures of Christian faith, including religious commitment, attendance, beliefs, and literalism support connections between Christianity and conservatism (Graham & Haidt, 2010; Johnson et al., 2016). The latter, biblical literalism, is often used as a predictor of religious attitudes and beliefs. Typically, the more literally one interprets biblical text, the more one is expected to adhere to fundamentalist (and therefore conservative) moral beliefs, particularly in the case of sexuality (Gross, 1999; Whitehead, 2010). Research finds that biblical literalism more often than not predicates conservatively traditional views of sex and gender (Ogland & Bartkowski, 2014). Thus, our current research takes interest in not only the influence of Christian affiliation on intersex variation awareness, acceptance, and comfort, but also on the character of that affiliation as well.

Literally or otherwise, Christianity, in particular, has a long history of imposing heteronormative and binary restrictions on acceptable human behavior, despite some interesting idiosyncrasies in intersex variation appearance in doctrine and scripture. Fausto-Sterling (2008, p. 32) notes that early biblical interpreters suggested that Adam (in Hebrew “ha’adam” or human) “began his existence as a hermaphrodite and that he divided into two individuals, male and female, only after falling from grace.” In Judaism, religious texts actually include not only acknowledgement of bodies with intersex variations, but also regulations and allowances for these groups as well.

DeFranza (2015) offers additional support through the use of the “eunuch” to represent the non-conforming bodies in

the biblical canon. She explains that similarly to “intersex,” “eunuch” was used as a term to describe a spectrum of diverse sex and gender identities. Eunuchs are key in this biblical recognition, because of their acknowledgment in texts and by Jesus himself as seen here:

“For there are eunuchs who have been so from birth, and there are eunuchs that have been made eunuchs by man, and there are eunuchs who have made themselves eunuchs for the sake of the kingdom of heaven. Let the one who is able to receive this receive it.” Matthew 12:19 ESV

There are even mentions of eunuchs being offered preferential treatment, as in Isaiah 56:3-7, where eunuchs are encouraged and promised “a monument and a name, better than sons and daughters” (ESV, 2008).

Intersex variation supplies a direct challenge to this static description of not only gender, but sex overall. In addition, Christian theology likewise suggests that those falling outside of this binary must conform to the limitations of such a paradigm and subscribe to whichever of the two genders and sexes that they most neatly fit into (Cornwall, 2014, 2017). Queer theologian Susannah Cornwall asks whether gender assignment a necessity for a healthy lifestyle (Cornwall, 2015). One of the reasons why intersex variation presents a unique challenge to even the most conservative and fundamentalist theologian, is that while other variations in gender and sex identity do not have a clear “cause,” intersex variation provides an obvious variety of binary expectations for anatomy (despite the fact that physicians in the 1800s believe that homosexuality itself was a variation of “hermaphroditism” (Dreger, 1999). As there is of yet no clear evidence of difference in the bodies of transgender and non-transgender individuals, it has been easy for theorists to categorize these characteristics as contradictory and sinful; in turn that means that, traditionally, Christianity has given itself permission to ignore the LGBTQIA+ question. Here, variations of gender and sex identity are seen as a challenge to the *imago dei* (that is, the view that humans are created in God’s image and that this image is a male/female binary), and an affront to God himself.

Intersex variation, however, does not afford Christianity this luxury, and forces the question—where do these individuals fit into doctrine? What are their rights and responsibilities? The most interesting conflict here concerns the involvement of individuals with intersex variations in marriage and sexual encounters. As Fausto-Sterling (2008) supposes “the debates over intersexuality are inextricable from those over homosexuality; we cannot consider the challenges one poses to our gender system without considering the parallel challenge posed by the other” (p. 112). The Bible does not give clear instruction when it comes to defining either sex or gender, let alone where those who identify in the paradigms of neither Adam nor Eve should align. Here, the typically prescribed to doctrine concerning the wrongness of

same-sex relationships provided by the Church of England is absolutely useless when one cannot be categorized into the binary. Who can they marry? Where do they fit into arguments of Natural Law and the “orders of creation?” Cornwall presents this dilemma here:

“The existence of intersex may raise problems for theologians who assert that marriage may only occur between men and women, since some intersex people will, for example, be legally classified as women despite having XY (‘male’) chromosomes. If an intersex woman with Androgen Insensitivity Syndrome married a non-intersex XY man, this would be two XY people marrying, which some Christians might class as a same-sex marriage.” (Cornwall, 2014, p. 669)

This vignette presents an interesting paradox; likewise, a congregation might be surprised to find this same person with androgen insensitivity syndrome and, in turn, her wife, a non-intersex XX woman, joining them for Sunday morning service—despite the fact that technically this hypothetical XY–XX couple is indeed not of the same (chromosomal) sex. Cornwall challenges Christianity to decide how sex is defined, knowing that—for people with intersex variations—chromosomes or genital appearance alone still do not cover the spectrum of variations and factors involved.

Whereas some theologians take a liberal approach to the task of discerning the necessity and logic of sex differentiation others do not. In his 2009 book, *The Meaning of Sex: Christian Ethics and the Moral Life*, Dennis Hollinger suggests this controversial explanation for intersex:

There are some sexual states deviating from the creational norms that are hardwired into a given person. What are we to make of these phenomena theologically and ethically? From a theological standpoint we can understand these conditions as results of the fallen condition of our world, including the natural world. . . We should also understand that such natural sexual conditions and anomalies in no way undermine the creational norms. All distortions in the world are to be judged against the divine creational givens. In a fallen world there will be chaos and confusion that extends even to human sexuality. But the normative structure toward which God calls humanity is not the fallenness of nature; it is, rather, God’s created designs.” (Hollinger, 2009, p. 84)

Thus, Hollinger (2009) suggest that intersex variation is outside of the will of God, and is not a desired state. Instead, according to Hollinger (2009), intersex variation is a chaotic and confusing sexual condition resulting from the sin of man, of the entire “fallen world” (p. 84). Although Hollinger (2009) is not alone in this presumption, his explanation is lacking. As Hare (2015) points out, Talmudic writers note the existence of individuals ambiguously gendered from birth, or the *saris khama*, as mentioned in the New Testament. The *saris khama*, the *aylonith*, the *andoginos*, the *tumtume*, and plausibly other seemingly groups with intersex variation

were recognized as existing somewhere between male and female (and were permitted to marry under some Hebrew guidelines; Hare, 2015). This is further backed by “one-seed” and “two-seed” theories earlier than the fourth century BCE; the latter suggesting that hermaphroditic assumptions of intersex variation were the result of a conflict between male and female seed in the conception process (Hare, 2015). As we are not theologians ourselves, we do not begin to approach these questions from the position of religious interpretation. However, this research presents an opportunity to present the opinions of young Christians in the United States; this includes their awareness, acknowledgement, and acceptance of intersex variation.

Methodology

Study Sample

An online survey was delivered to a convenience sample of college aged students at two universities in the US; one university was a private, Christian university in Texas, the other a public, state university in Pennsylvania with no religious affiliation. Prior to initiating data collection, permission from Institutional Research Boards of both universities was sought and received. Combined there was a total n of 146 respondents: 70.5% of these representing the Christian university in Texas, and the remaining 29.5% representing the state university in Pennsylvania.

Survey Instrument and Data Collection

The present research models a previous pilot study regarding intersex awareness among a similar population in Japan; with the prospect of comparison in mind this study closely follows the 12-item online survey instrument utilized in that analysis (Lusk, 2017). The survey was distributed using the Qualtrics analytic suite and made available to students at each university via their campus email accounts and/or learning management systems in October of 2016. The survey remained open for 8 weeks, and reminder emails were sent to students during collection. The survey questionnaire was comprised of three sections:

- Demographic questions, including age, gender, political affiliation, religious affiliation, and religiosity measures.
- Questions about homosexual acceptance and awareness of intersex.
- Questions about the attitudes toward intersex.

The survey began with the appropriate request for voluntary consent, followed by screeners for age and school affiliation. Students were asked about their political affiliation, religious affiliation, and interpretation of the Bible; these questions were taken from the GSS. Next, using GSS items once again,

attitudes concerning homosexual acceptance were captured, followed by inquiry about the respondents’ familiarity with the term “intersex.” Regardless of their reported familiarity, each respondent was provided with the below definition of intersex variation as based on previous literature (Haynes, 1999), followed by items adapted from Landen and Innala’s (2000) survey. The Haynes definition was selected in an effort to replicate the instrument used in a previous study on intersex variation, drawn from a sample of non-native English speakers with little familiarity with intersex variation (Lusk, 2017):

“‘Intersex’ means someone who is born with biological traits that make it hard to determine whether they are conclusively male or female (Haynes, 1999). This could mean some variance of chromosomes beyond the dichotomous 46XX or 46XY, abnormal hormone balance, or difference in appearance of genitalia.” (Lusk, 2017, p. 619)

This explanation was followed by further questioning about respondents’ understanding of the term intersex in light of the given definition, perceived stigma attached to intersex, and their comfort and acceptance in relationships with individuals with intersex characteristics. The respondents were made aware of the voluntary natures of the study. No incentives or rewards for participation were offered beyond an offer to receive a report of the analysis at a later time.

Statistics

As the first survey of our knowledge for this population, we explore the awareness of and attitudes toward intersex variation among young adults.. Statistical analysis was done using STATA 15 software. Pearson’s Chi square test was used in search of any statistical significance in the tested relationships with a semi-conservative p -value of $p < .05$ enforced.

Results

Study Sample and Background

Religious affiliation. As shown in Table 1, the sample of 146 American respondents was largely composed of young adults that were female (78.8%), Christian (79.5%), and 18 years of age (57.5%). All respondents were currently enrolled university students, and of these 70.5% were enrolled in the private, Christian university. All students were asked their religious affiliation through a closed ended question containing major world religions. Of the students enrolled in the private, Christian university, 86.4% percent reported Christian affiliation, while 62.8% of the public, non-Christian university respondents reported Christian affiliation. Outside of Christian affiliations reported, the second largest religious affiliation reported was no religious affiliation/no answer (15.8%). It should be noted that due to the small sample size, we utilize a

Table 1. Sample Descriptives.

	% Overall (n = 146)	% GSS (2016)
% Female	78.8	55.0
Age		
18	57.5	
19	18.5	
20	16.4	
21+	7.6	
Political affiliation		
Republican	52.1	22.9
Independent	11.6	41.8
Democrat	32.9	32.7
Other political affiliation	3.4	2.7
Religious affiliation		
Christian	79.5	49.0
Non-or Inter-denominational	28.8	
Protestant	18.5	
Catholic	19.9	23.3
Other	12.3	
Hindu	2.7	0.5
Islam	1.4	0.7
Judaism	0.7	2.0
No religious affiliation/no answer	15.8	

binary variable for religious affiliation, which includes those who we label as “Christian” due to their response selections (28.8% nondenominational Christians, 19.9% Catholic, 18.5% Protestant Christians, and 12.3% other Christians) and all others who we label as “non-Christian” (including Hindu (2.7%), Islam (1.4%), Judaism (0.7%), as well as non-affiliated/no answer (15.8%)). In addition to the affiliations selected, the list also included Buddhist, Shinto, and a free-text Other category, all of which were not selected by any students.

Political affiliation. When asked about their political party affiliation, 22.6% stated that they are strong republicans, followed by 12.3% being strong democrats, and 11.6% being independents. However, due to our small sample size, we collapsed those with less concentrated political leanings into three distinct categories: “*republican*,” “*independent*,” and “*democrat*.” For instance, those who report being “*strong republican*,” “*not strong republican*,” or “*independent, leaning republican*” were collapsed into “*republican*.” In these collapsed categories, 52.1% of respondents are republicans, while 11.6% are independents and 32.9% are democrats (see Table 1).

Homosexual acceptance. Homosexual acceptance is measured by the respondents’ beliefs that sexual relations between two adults of the same sex is “*always wrong*,” “*wrong only sometimes*,” or “*not wrong at all*.” Of the entire sample,

about half (50.7%) believe that sexual relations between two adults of the same sex is “not wrong at all”; however, there is a large difference by religion, where 90.0% of non-Christian respondents state that homosexuality is “*not wrong at all*” in contrast to 40.5% of Christians (see Table 2). While the sample is more conservative in political ideology, views toward sexuality in general seem comparably liberal. When compared to the 2016 GSS, our overall sample is nearly the same with 51.3% of the 2016 GSS sample believing that sexual relations between two adults of the same sex is “*not wrong at all*.” Additionally, 67.1% of our sample overall felt that homosexual couples have the right to marry, compared to 59.2% of US adults overall according to the 2016 GSS (Smith et al., 2017).

Awareness of Intersex Variation, Acceptance, and Comfort

When asked if they knew what the word “*intersex*” means, two-thirds (67.7%) reported having some familiarity with the term; this familiarity includes the 30.8% of the overall sample that stated “*yes, I know what this means*” and the 36.9% that stated “*no, but I’ve seen or heard this word before*” (only one-third stated “*no, I don’t know what this means*”). Following this question, all respondents were presented with the aforementioned explanation of the term (see Survey Instrument and Data Collection). Over half of all respondents stated that this term was new information to them; only a marginal proportion remained unsure of the term’s meaning (4.1%). A little over 10% (11.1%) of those respondents who initially stated that they knew what the term intersex means admitted that the explanation was new information in the follow up question. Therefore, 60.2% of the sample overall had a clear understanding of intersex variation before being exposed to the definition in this survey.

Following the introduction to intersex, respondents were asked about their opinions of intersex using a standard Likert-scale of response choices (“*strongly agree*,” “*agree*,” “*neither agree nor disagree*,” “*disagree*,” and “*strongly disagree*”). The vast majority of respondents (71.1%) disagreed (disagree or strongly disagree) with the notion that people with intersex variations are disabled, with only 7.8% in agreement; however, only 21.1% of the sample believed that there are “*more than two sexes, more than male or female*.” Still, the majority disagreed with people with intersex variations being treated as if they were homosexual (74.0%) or transgender (57.8%) and agreed that people with intersex variations should be able to marry whomever they please (75.2%). When it comes to medical treatment of people with intersex variations, 31.7% believed that they should be encouraged to receive corrective surgery and 33.6% believed that they should be encouraged to receive corrective hormone treatment, yet only 26.8% believed that “*parents of intersex children should choose one sex for their child, either male or female*.”

Table 2. Religion, Religiosity, Homosexual Acceptance, Intersex Acceptance, and Comfort.

	% Christian (n = 116)	% Non-Christian (n = 30)	% Overall (n = 146)	% GSS 2016
Religiosity				
Bible is literal word of God	21.6	0.0	18.3	31.9
Bible is inspired by God, but not everything is literal	73.9	55.0	71.0	44.2
Bible is an ancient book of fables	1.8	35.0	6.9	22.6
Other biblical interpretation	2.7	10.0	3.8	1.3
Homosexual acceptance				
Always wrong	44.0	3.3	35.6	39.6
Wrong only sometimes	15.5	6.7	13.7	9.1
Not wrong at all	40.5	90.0	50.7	51.3
Homosexual couples should have the right to marry	59.5	96.7	67.1	59.2
Homosexual people should be allowed to teach elementary school	74.1	90.0	77.4	
Homosexual people should be allowed to teach in kindergarten or nursery	70.7	90.0	74.7	
Intersex acceptance				
Agree with intersex being described as disabled	8.8	3.6	7.8	
Agree with intersex being treated as if they're homosexual	3.5	0.0	2.8	
Agree with intersex being treated as if they're transgender	7.9	10.7	8.5	
Agree that parents should choose one gender for intersex child	31.6	7.1	26.8	
Agree that there are more than two sexes, more than male and female	11.4	60.7	21.1	
Agree that intersex should have corrective surgery	34.2	21.4	31.7	
Agree that intersex should have corrective hormone treatment	36.0	24.1	33.6	
Agree intersex should marry whomever they please	70.8	92.9	75.2	
Intersex comfort				
Comfortable with intersex coworker	47.4	71.4	52.1	
Comfortable with intersex professor	47.4	60.7	50.0	
Comfortable with intersex friend	50.9	71.4	54.9	
Comfortable with intersex child	40.4	57.1	43.7	
Comfortable with intersex significant other	16.7	14.3	16.2	

Finally, respondents were asked to describe their level of comfort in specific relationships with an openly presenting person with intersex variations. Again, respondents were asked to make selections using a Likert scale of response choices (“*extremely comfortable*,” “*slightly comfortable*,” “*neither comfortable nor uncomfortable*,” “*slightly uncomfortable*,” and “*extremely uncomfortable*”). About half of respondents indicated they would be at least slightly comfortable with an openly presenting person with intersex variations as a coworker (52.1%), professor (50.0%), or friend (54.9%). In fact, about one-third of respondents stated that they would be “extremely comfortable” with an openly presenting person with intersex variations as a coworker (34.5%), professor (34.5%), or friend (35.2%). Less than half of respondents (43.7%) indicated that they would be comfortable having an openly presenting child with intersex variations (26.1% indicating they would be extremely comfortable). Moreover, only 16.2% of respondents indicated comfort with an openly presenting significant other or partner with intersex variations (with 6.3% indicating extremely

comfortable). In fact, 46.5% of the sample stated that they would be “extremely uncomfortable” with an openly presenting significant other or partner with intersex variations.

The Impact of Religion on the Acceptance of and Comfort With Individuals With Intersex Variations

Religious affiliation. To examine the difference that religion makes on the acceptance of and comfort with individuals with intersex characteristics we used the binary Christian variable. In this analysis we also collapsed the Likert scales used to measure acceptance and comfort to broader “*agree*,” “*neither agree or disagree*,” and “*disagree*” categories for acceptance and “*comfortable*,” “*neither comfortable or uncomfortable*,” and “*uncomfortable*” for the comfort questions. Table 3 represents the results of the Pearson’s chi square test for the variables of interest. While there is no statistical difference in intersex variation awareness between Christians and non-Christians, there are statistically significant relationships between identifying as Christian

and belief that parents should choose one gender for their child(ren) with intersex variation(s; $p < .05$), where Christians were more likely to agree that parents should choose one gender. Similarly, Christians are less likely to believe that there are “*more than two sexes, more than male and female*” ($p < .001$). There were also significant differences in what the sample believes people with intersex variations should “do” about their conditions, with Christians statistically more likely to agree that people with intersex variations should have corrective surgery ($p < .05$) or hormone treatments ($p < .05$). Christians were less likely to agree that that people with intersex variations should marry whomever they please ($p < .05$).

When asked about one’s comfort in relationships with openly presenting people with intersex variations, we found statistically significant relationships between Christian affiliation and one’s comfort with an openly presenting coworker ($p < .05$) and friend ($p < .05$). While Christians also reported less comfort than non-Christians with a professor or child with intersex variations, they were not statistically significantly different than non-Christians. Additionally, comfort with a significant other or partner with intersex variations was also not statistically significant, but in this case Christians and non-Christians alike expressed very low comfort levels (16.7% and 14.3%, respectively) and quite high levels of discomfort (72.0% and 64.3%, respectively).

Overall, we found here that Christians were not significantly different from non-Christians in their views of intersex variation being a separate category (as opposed to lumped together with homosexual or transgender) but they did seem to vary statistically when it came to believing that there should be a decision to adopt one sex/gender or the other (through the parents at birth, surgery, or hormone therapy). This could be due to the fact that Christians were less likely to believe that there are biologically more than two sexes.

Religious affiliation and the Bible. In an attempt to better understand some of the differences between Christians and non-Christians in the above categories of acceptance of and comfort with individuals with intersex characteristics, we also compared some of the items by how Christians understood the Bible. The majority (95.5%) of Christians in our sample believed the Bible to be either the literal word of God (21.6%) or inspired by God (73.9%). Therefore, we created a binary variable looking only at these two categories and whether they differed on the acceptance or comfort variables which proved significantly different between Christians and non-Christians. We found that those who understood the Bible to be the literal word of God were significantly more likely to say that parents of intersex kids should choose one sex for their kid ($\chi^2 = 9.29(2)$, $p < .05$). Those with a literal understanding of the Bible proved to have stronger beliefs about there being only two sexes. When asked 87.5% disagreed with the statement that there were more than two sexes, compared to 62.0% of Christians who believe the

Table 3. Intersex Acceptance and Intersex Comfort By Religion.

	χ^2 -statistic (df)	p-Value
Knows what “intersex” means	0.38(2)	.827
Definition was new information	4.39 (2)	.111
Believe intersex people are disabled	2.15 (2)	.341
Believe intersex people should be treated as homosexuals	1.03 (2)	.596
Believe intersex people should be treated as transgender	0.88 (2)	.643
Believe parents of intersex children should choose one sex for their child	11.32 (2)	.003*
Believe there are more than two sexes	36.56 (2)	.000*
Believe intersex people should receive corrective surgery	6.36 (2)	.042*
Believe intersex people should receive hormone therapy	11.49 (2)	.003*
Believe intersex people should marry whomever they please	6.10 (2)	.047*
Comfortable with intersex coworker	7.23 (2)	.027*
Comfortable with openly intersex professor	5.30 (2)	.071
Comfortable with openly intersex friend	6.08 (2)	.048*
Comfortable with openly intersex child	3.51 (2)	.173
Comfortable with openly intersex significant other	1.95 (2)	.377

* $p < .05$.

Bible is an inspired text but not literal, a difference that was statistically significant ($\chi^2 = 7.08(2)$, $p < .05$).

Christians were significantly different from non-Christians in their beliefs about actions that should occur related to people with intersex variations (both surgery and hormone treatments) as well as who they should be allowed to marry. When looking among Christians we did not find a statistically significant difference between Christians who had a literal or inspired interpretation of the Bible for these variables. In looking at the comfort variables, there was no difference between these two groups when it came to comfort with a coworker who openly presented intersex variations. However, those with a literal interpretation of the Bible were less likely to express comfort with an openly presenting child ($\chi^2 = 7.62(2)$, $p < .05$) or significant other or partner than those that believe the Bible to be inspired but not literal ($\chi^2 = 7.02(2)$, $p < .05$).

Overall, when looking at the variables by which Christians and non-Christians were significantly different, the difference between those who believe the Bible to be literal or inspired was mixed. While it might explain some of the Christian difference in the belief about their only being two sexes (and thus maybe why those with literal translations were more likely to also agree that parents should choose one

sex for their child), Christians did not differ on actions to take (surgery, hormone treatment).

Religion, politics, and homosexual acceptance. While the focus of our research was on the acceptance of and comfort with individuals with intersex variations by religious affiliation, we should note that religious affiliation, as measured in this paper, is correlated with political affiliation and homosexual acceptance. For example, Christians in our sample largely reported being republican (62.3%) compared to democrat (29.0%); and of Republicans, 93.4% indicate they are of a Christian faith. When it comes to views about gender, 78.1% of Republicans reported that they disagree that there are more than two sexes. Similarly, among respondents who thought homosexuality was always wrong, 88.0% disagreed that there are more than two sexes. The overlap between those who believe homosexuality is always wrong and religious and political affiliation was also stark in our sample, with 98.1% identifying as Christian and 84.0% identifying as Republican. Given the overlap of these three variables, political affiliation and homosexual acceptance also may influence views of and comfort with individuals with intersex variations. Understanding the differences and contributions of these three variables was beyond the scope of this research. However, future research on the connections between religion, politics, previous homosexual acceptance and intersex views and comfort is needed.

Discussion

The current study aimed to try to identify the awareness and understanding of intersex individuals among a young and upcoming generation as well as understand the difference that religion may make in feelings toward intersex variations. While we purposefully oversampled Christians in this study, our sample did not appear to be overly conservative when it came to the rights of homosexual individuals compared to the US (as per comparison to the 2016 GSS reporting on the right for gay marriage). What we did find is that even among this young generation, who we readily think of as being more aware of gender issues and variations in gender identity than previous generations, an overall familiarity with the term “intersex” is demonstrated though the majority of the individuals in our sample did not have a definitive understanding of intersex variations. It is important to note that our sample was quite young, even for college students, raising the question of when young adults truly begin to consider and form opinions about gender identity. Based on their familiarity but lack of understanding, we seem to capture here that intersex variation is not a common part of the widely held discourse among young college students in the United States about sex and gender identity in general. This is not surprising as it is largely not covered in the overall discourse or captured in public opinion research (Smith et al., 2017); yet this is important to note because it is clear that there must be specific

actions taken to introduce intersex variation into the conversation moving forward.

While there was a correlation between religion, politics, and views on homosexuality that was beyond the scope of this study, we did find evidence that religious affiliation (measured here by Christian vs non-Christian) did make a difference in how respondents view sex categories and thus the treatment of intersex individuals. As found in other literature (Johnson et al., 2016) Christians in our sample were more likely to hold more socially conservative ideologies. For example, Christians were more likely to subscribe to a binary definition of sex and gender, with those who believed in a literal translation of the Bible being even more likely to subscribe to this view. We found that biblical literalism made a difference within our sample, which largely aligns with research by Ogland and Bartkowski (2014) which finds that biblical literalism is correlated with traditional views of sex and gender. Though our sample was quite young, our findings mirror findings from other researchers that connect biblical literalism as an important part of forming attitudes and beliefs (Gross, 1999; Ogland & Bartkowski, 2014; Whitehead, 2010). The sample is admittedly small and looking at other factors related to religiosity (church attendance, prayer, etc.) and acceptance of and comfort with individuals with intersex variations is warranted.

Our findings suggest that Christians are more likely to see intersex variation as an illness that requires “correction” underscoring the challenge that intersex variation presents to Christian theology which suggest that those falling outside the binary understand of male/female must conform and subscribe to whatever sex they are most like (Cornwall, 2017). However, our study cannot draw conclusions about why Christians may be more likely to support “corrections” to fit people into the binary sex model. While it seems logical that the belief that there are only two sexes would be the main driver, a case could be made that this is due more to societal expectations and realities than individually held beliefs. For example, these individuals may be more likely to see the need for corrective action because they have a belief that even when nonconforming bodies are able-bodied they will lead a life of hardship, as suggested by Preves (2002). It was beyond the scope of this study to understand the “why” behind feeling there’s a need for corrective surgery or hormone therapy, but it raises the question for further research into this area; is it to adhere to strong beliefs about only identifying two sexes, or is it to prevent a life of hardship? Furthermore, our overall findings suggest that even though intersex variations present a clear challenge to the idea that all those falling outside the binary definition of sex and gender choose to do so, it is still associated with deviant gendered behavior in some way. Yet, much like the Japanese sample analyzed by Lusk (2017), this study revealed more acceptance of intersex variation than homosexuality. In fact, 75.2% of the sample overall felt that people with intersex variations should “*be allowed to marry whomever they*

please,” compared to 67.1% for homosexual individuals. Christians followed a similar pattern of being more accepting toward intersex variation. The idea that this is a biological issue may be why those in our sample were overall more accepting of intersex variations than homosexuality. Past research has touched on the contrast that congenital biological differences can yield between perceptions of deviant sexual orientation and deviant sexual identification (Brownson, 2013; Carpenter, 2018b; Cornwall, 2015; Gross, 1999). Our study also highlights the additional layer of consideration that people may add to those who are born outside of the binary model they may adhere to.

The fact that it is irrefutable that one is born with intersex variation rather than choosing it may be reason why those in our sample are more accepting of people with intersex variations (when it comes to their rights to marry whomever they please), even among Christians. Even among those in our sample who report homosexual relationships to be wrong (“*always*” or “*sometimes*”), a slight majority agree that people with intersex variations should be able to marry whomever they please. In fact, Christians seem to largely reject that people with intersex variations should be considered disabled or classified as homosexual or transgender (both potentially misconceived as possible gender choices). At the same time, very few of the Christians in our sample believe there are more than two sexes. This is perhaps due to this sample not having put previous thought into their views on people with intersex variations, leading to discrepancies in these beliefs. An alternative explanation may mimic the DSD protocol: where when there is an authoritative medical opinion about one’s identity, deviance can be overlooked.

Limitations of the Research

One obvious limitation of this data is the size and representativeness of the sample. Our sample was not large enough to sparse out some of the potentially interesting impacts of political affiliation among Christians/non-Christians. While those who identify as Republican are less accepting of both homosexuality and are more likely to see intersex variation as a condition that needs some sort of treatment or change, we were unable to understand the impact of these political views in light of religion. Additionally, the small sample did not allow us for distinguish between non-Christians who claimed another religion (Hindu, Islam, and Judaism) and those who identified as no affiliation or no answer. One might expect for those who are religiously affiliated to be more similar to Christians than those who are not. A larger, more diverse sample is needed to truly understand both the category of Christian (many denominational differences exist within the category) and that of non-Christian. As an introductory look into the awareness and views around intersex variation, we were only able to offer simple, chi-square analysis of differences between selected groups. A larger sample would give credence to the findings we found here as well as the ability to

run more sophisticated statistical analysis to better understand the connection between binary sex definitions and acceptance of other, non-binary gendered individuals. This connection continues to be a point of question, in both this study as well as the earlier study by Lusk (2017) among Japanese millennials. A larger sample would allow us to understand the impact of religion controlling for other important demographic factors as well as political orientation and views of other seemingly deviant gendered behavior.

As mentioned above, many in our sample didn’t have a correct understanding of intersex variations coming into this study. We acknowledge that the views seen here on intersex variation likely capture the first time many have thought about this subject and might be different given time to digest everything that being a person with intersex variations entails. Beyond the initial question of awareness with intersex variation, we did not include a measure to understand how much consideration and thought they had previously given to the topics of the survey, which would have been a useful measure to control for this. However, this study aimed to be a primary look into this topic among American young adults. While not a representative sample, it presents a first look into the understanding and awareness of people with intersex variations. The results also seem to point to the connection between belief in a binary sex and gender definition and acceptance of various non-binary individuals. Finally, we acknowledge that we neglect to ask whether or not respondents identify as persons with intersex variations themselves, and as a result miss the opportunities to distinguish any effects of this identity on one’s awareness and acceptance. This is a crucial misstep to be remedied in future iterations and subsequent study.

Conclusions

This paper draws upon extant literature regarding intersex variation and religion to provide an analysis of intersex awareness. We find the religious affiliation and biblical interpretation impact views of sex categories and awareness of intersex variations, with Christians reporting more conservative views than non-Christians, and being more likely to support medical interventions when faced with intersex variations. We also find that overall, respondents seem to be more accepting of intersex variations than non-heteronormative identities. We believe that this research is particularly useful for intersex variation advocates and those involved in LGBTQIA+ studies.

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