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Views of Asexuality and Transgender Individuals: The Role of Religious Beliefs

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VIEWS OF ASEXUALITY AND TRANSGENDER INDIVIDUALS: THE ROLE OF RELIGIOUS BELIEFS

by

ALLISON DAVIS

Under the Direction of Michael Nielsen

ABSTRACT

Asexuality is a lifelong, continuous lack of sexual attraction or the inability to feel sexual attraction. Asexuality is a naturally occurring sexual orientation thought to be present in 0.4-1.1% of the American population. However, asexuality is still relatively unknown by the general population and understudied by scientific researchers. Even less known is how religious individuals view asexuality. According to the 2020 US census, around 70% of American adults identify as Christian. The current study examined how degree of religiousness related to feelings toward sexuality and asexual individuals. Main hypotheses included: religious fundamentalism would predict negative attitudes toward asexual and transgender people; that Christians would demonstrate more bias against asexual and transgender people than would non-religious individuals; and that priming participants with positive or negative religious messages would differentially impact Christian and non-religious participants. Results confirmed the prediction regarding fundamentalism as well as the difference between Christian and non-religious biases. Results failed to support the effect of priming on attitudes toward asexual and transgender people.

INDEX WORDS: Asexuality, Religion, Sexual prejudice, Priming, Transgender

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CHAPTER 1

INTRODUCTION

Purpose of The Study

This study seeks to understand the role of religious affiliation and religious texts in anti-asexual and anti-transgender bias. It is widely known that sexual and gender minorities are frequent victims of prejudice, particularly by evangelical Christians. The author has conducted research to examine the role that the priming of religious texts has on religious and non-religious individuals' prejudice towards asexual and transgender individuals. The author here has conducted research that hopes to explain the sources of this prejudice, reasons that the prejudice may exist, and several ways to provoke an increase or decrease in prejudice. One significant finding was that religious fundamentalism significantly predicts both anti-asexual and anti-transgender bias. It is the belief of the author that the findings of this study will provide future students and researchers more data about anti-asexual and anti-transgender bias.

How This Study Is Original

The present study is the first study to measure priming in anti-asexual and anti-transgender bias. The author assumed that the large array of MTurk users would result in a wide participant base. Each of the participants in the study completed a permission form and was given a brief text and series of questionnaires to fill out. The participants were paid for their time by the researcher and were debriefed immediately following the study. All of the participants were enrolled as workers on Amazon Mechanical Turk.

CHAPTER 2

VIEWS REGARDING ASEXUALITY AND TRANSGENDER INDIVIDUALS: THE ROLE OF RELIGIOUS BELIEFS

Asexuality, a naturally occurring sexual orientation, is a lifelong lack of sexual attraction (Hille et al., 2020). It is unknown how many asexual individuals exist in the world, but estimates hold that 0.4-1.1% of individuals identify as somewhere on the asexual spectrum (Bogaert, 2004; Greaves et al., 2017; Rothblum 2019).

Some people consider asexuality to be a mental illness or a sign of hormone deficiencies. According to Brotto and Yule (2011), a few psychologists and public figures posit that asexuality does not actually exist. Rather than a sexual orientation, the lack of sexual attraction is described as either male hypoactive sexual desire disorder (HSDD) or female sexual interest/arousal disorder (FSIAD). These disorders are marked by “persistently or recurrently deficient (or absent) sexual/erotic thoughts or fantasies and desire for sexual activity” (p. 440) and “lack of, or significantly reduced, sexual interest/arousal” (p. 433) for men and women with HSDD or FSIAD, respectively, according to the Diagnosis and Statistical Manual-5-Text Revision (DSM-5-TR; APA, 2022, p. 489, 499). These symptoms must be present for six or more months and distress must be present to be diagnosed by a mental health or medical care professional (Brotto & Yule, 2011).

Both HSDD and FSIAD are real and affect people, but asexuality is not a physiological or psychological disorder. While individuals with lifelong HSDD/FSIAD may resemble asexual individuals due to a lack of sexual attraction, their distress marks them as different. The DSM-5-TR (APA, 2022) specifically excludes self-identified asexuals from having HSDD/FSIAD due to a lack of distress in this population; a clinician would not diagnose a non-distressed asexual with

either disorder (APA, 2022). For individuals with HSDD/FSIAD, the lack of attraction bothers the patient so much that they may seek clinical help if they wish to (APA, 2022).

The concept of asexuality has existed in the human sexuality field since its inception (Kinsey et al., 1948). Kinsey (1948) studied human sexuality and sexual orientation extensively and he noted a small population he labeled Group X, the subgroup known as asexual today. In his words, the X categorization was for those with "no socio-sexual contacts or reactions" i.e., were celibate for reasons he did not inquire about (Kinsey et al., 1948). Kinsey's research (1948) estimated that 1.5% of men belonged to Group X (Kinsey et al., 1948). Of the married women who participated in Kinsey's research, 1 to 3% were categorized as Group X, and unmarried women were classified as members of Group X at a rate of 14 to 19% (Kinsey et al., 1953). However, Kinsey categorized individuals based on their sexual behavior rather than their self-reported feelings, so these incidence rates may be inaccurate.

There is more research about the lives of self-identified asexuals in the modern day. As for the social and sexual lives of asexuals, Rothblum (2019) found that half of the asexuals surveyed reported having thriving yet very small social networks. Many self-identified asexual participants denied problems at work due to their asexual orientation, as this identity is not visible to others; some noted their orientation was helpful due to avoiding workplace romances (Rothblum, 2019). Participants also indicated that their asexual orientation did not affect their education in college, Others said it was an advantage due to more time to study and less drama, but also led to loneliness, stress, and anxiety. Asexuals tend to be more solitary and introverted and less likely to connect with others compared to their counterparts with other sexual orientations (Rothblum, 2019).

Asexuals vary in sexual and romantic activity (McInroy et al., 2021). McInroy et al. (2021) found that, among asexual-identified participants, 20.6% were sexually active at one point in their lives and approximately 27.1% never experienced romantic or sexual attraction (McInroy et al., 2021). Asexuals also varied in the degree to which they are open regarding their sexuality, with 14.3% of self-identified asexual participants being out to everyone in their social life and 2.4% being entirely in the closet; the remaining 83% were out to some but not all people they know (McInroy et al., 2021).

The reported isolation, loneliness, and stress may contribute to mental health issues within the asexual community (Rothblum, 2019; Yule et al., 2014). The mental health effects associated with self-identifying as asexual are not well-studied, but there is evidence that asexual people may be at a higher risk for mental illness compared to heterosexual individuals. Asexuals may be more likely to have depression, anxiety, or other mood disorders than their non-asexual counterparts (Yule et al., 2014). Asexual youth, like other sexual and gender minority youth, are at a greater risk of self-harm and suicide than their heterosexual peers (Hille et al., 2022).

Another potential contribution to mental health issues among asexual individuals is sexual prejudice. Herek (2000) defines sexual prejudice as negative feelings or attitudes toward a person due to their sexual orientation. Overwhelmingly, sexual prejudice originates from heterosexuals and is aimed at sexual minorities people identifying as lesbian, gay, bisexual, asexual, or another minority orientation. Strongly correlated with sexual prejudice is religious fundamentalism, right-wing political views, and conservatism (Herek, 2000). Those who are sexually prejudiced are also more likely to disapprove of same-sex marriage, discriminate against LGBTQIA+ individuals, and perform violence against sexual minorities (Herek, 2000).

Religion and Sexual Orientation Prejudice

Christianity

According to the Pew Research Center (2021), around 70% of American adults define themselves as of the Christian faith. Broadly, Christianity is a monotheistic religion based on the teachings of Jesus of Nazareth (Oxford English Dictionary, 2022). Evangelical Christians, Christians who typically hold more fundamentalist Christian views, make up approximately 15% of the US population and have been outspoken about conservative, right-wing, anti-LGBTQIA views (Herek, 2015; Herek, 2000; Lazar et al., 2015). Lazar and colleagues (2015) state fundamentalism is linked with more prejudicial views toward minority sexual orientation individuals.

Additionally, some Christians assert that only vaginal sex between married cisgender and heterosexual couples is morally acceptable (Moon, 2014). For example, evangelical American leader Jerry Falwell stated, “Any sex outside of the marriage bond between a man and a woman is violating God’s law” (Falwell, 2000).

Among those who advocate such a position is the “Quiverfull” movement. According to McGowin (2018), in the Quiverfull movement gender roles are traditional, with women seen as wives and mothers whose role is to have and raise as many Christian children as possible, a literal “quiver full” of children, for when the “Second Coming” of Jesus Christ arrives (McGowin, 2018). The Bible, in the view of those belonging to the Quiverfull movement, is the literal word of God that is to be followed as closely as possible. Birth control is forbidden in all forms, including natural family planning. To those in the Quiverfull movement, children are a blessing from God, and to not procreate is to deny his plan (McGowin, 2018). Although most

Christians are not as traditional in their beliefs as those in the Quiverfull movement, many Christians do hold that procreation is the purpose of sex and sexual attraction (McGowin, 2018), which may lead to negative feelings toward asexual individuals due to their unconformity (Hoffarth, 2015).

Islam

While religiosity is strongly associated with sexual prejudice towards lesbians and gay men, most of the research specifically focuses on prejudice among Christians. Some research examines these issues in other religions. For example, studies with Muslim participants found they tend to hold more negative beliefs regarding the LGBTQ+ community compared to non-Muslim and non-religious participants (Bratton et al., 2020; Yeck, 2019). According to Anderson and Koc (2015), Muslims were statistically more likely to hold anti-gay and anti-lesbian attitudes than their atheist counterparts. Atheists were more likely to have explicitly positive attitudes toward lesbians and gay men than Muslims (Anderson & Koc, 2015). Explicit negative attitudes among Muslims were higher toward gay men than lesbian women and Muslims were also more likely to hold implicit anti-gay bias toward gay men and lesbians than were atheists (Anderson & Koc, 2015). Within the Muslim sample, Muslims who scored higher in fundamentalism were more likely to hold anti-gay beliefs compared to Muslims with lower fundamentalism scores (Anderson & Koc, 2015).

Religious Priming

Priming refers to the activation of beliefs, thoughts, or ideas, with or without the individual's conscious realization. Priming can influence a person's actions, emotions, and behaviors (Gilad & Stepanova, 2015). The more subtle a priming, the more likely the person is to

ascribe the actions to their original thoughts and not the priming stimuli (Gilad & Stepanova 2015). Some researchers have explored the link between priming's effects on religious beliefs and sexual prejudice.

Past research suggests that anti-gay prejudice is strongly linked to religion and religious zeal (Anderson & Koc, 2015; Azyer & Lazar, 2015). Pang et al. (2014) investigated whether religiously priming students was an American phenomenon or whether it generalized to other religions and non-Western samples. At a Singaporean university, Buddhist and Christian students were primed with religion-specific words such as (church, God, Buddha, and temple) or neutral words (butter, shirt) in a word categorization task to see if anti-gay attitudes increased after the priming. After the word categorization task, all participants repeated the pre-experiment measures of sexual minority prejudice (Pang et al., 2014). Both the Christian and Buddhist participants primed with religion showed increases in prejudice toward gay men and lesbians, but this effect did not occur when they were primed with neutral words. These results suggest that anti-gay prejudice may be increased by priming religious individuals with religion-specific language (Pang et al., 2014).

Research has also investigated whether sexual prejudice can be lessened with positive priming. According to Gilad and Stepanova (2015), priming participants with religious messaging of various sentiments impacts their reported feelings regarding minority orientation individuals. In the study, undergraduate students identifying as either Christian or non-religious were randomly assigned to read one of three passages: a positive biblical passage, a negative biblical passage, or a report on a local state wildlife park (Gilad & Stepanova, 2015). It was expected that participants reading a negative biblical passage would report higher levels of negativity toward gays and lesbians, and that those in the positive prime condition would report

greater levels of positivity. Further, it was expected that Christian participants who reported higher levels of religious fundamentalism would report greater prejudicial feelings toward gay men and lesbians. Those in the negative prime condition who identified as Christian were expected to report the most negative feelings toward gays and lesbians (Gilad & Stepanova 2015). Contrary to expectations, priming had no effect on attitudes toward lesbians and gay men. However, results showed that, as predicted, Christian participants held more negative attitudes regarding lesbians and gay men compared to nonreligious participants. Additionally, Christians who reported higher levels of religious fundamentalism reported higher levels of negativity toward lesbians and gay men (Gilad & Stepanova, 2015).

Religion and Minority Gender Prejudice

Like their attitudes toward minority sexual orientation group members, religious individuals are also more likely to hold anti-trans beliefs than non-religious individuals. In a recent Pew Research Poll conducted by Lipka and Tevington (2022), attitudes toward transgender individuals vary by race and religious status. White evangelicals were the most likely to oppose recognizing non-binary identities, oppose transgender rights, and to say that minority genders were too accepted by society (Lipka & Tevington, 2022). White evangelicals were also the most likely to say that gender is fixed at birth and that their faith informs their beliefs on gender (Lipka & Tevington, 2022).

Black Protestants are less likely than Catholics or white non-evangelical Christians to believe that society has become too accepting of transgender individuals, to oppose recognizing non-binary genders on identity documents, and to oppose transgender rights (Lipka & Tevington, 2022). However, Black Protestants were more likely to say that their faith dictated their opinions on sex and gender “a great deal” (33%) than were white non-evangelicals (14%), or Catholics

(14%) (Lipka & Tevington, 2022). These results suggest that minority racial groups may be less likely to hold sexual or gender prejudice than majority racial groups.

Sexual prejudice among non-religiously identified individuals is much less prevalent than among religious individuals (Muñoz-García et al., 2021). This less severe level of negative feelings may carry over to beliefs about gender minorities such as transgender individuals. There was a significant difference between the attitudes of Christians and non-religious participants in a recent Pew Research poll (Lipka & Tevington, 2022). Compared with Christians, religiously unaffiliated individuals were more likely to support transgender rights, to believe that sex and gender can be independent of one another, and to support non-binary recognition on legal documents; they were also less likely to say faith guided their views on sex and gender compared to their religious counterparts (Lipka & Tevington, 2022). Religiously unaffiliated individuals were also much more likely to say that society has not come far enough in accepting transgender individuals and to support pro-transgender government policies compared to those who identified as religious (Lipka & Tevington, 2022).

Asexual Prejudice

Sexual prejudice toward asexual individuals specifically has not been widely studied (Hoffarth et al., 2016). One of the few studies measuring sexual prejudice toward asexuality and asexual individuals was conducted by MacInnis and Hodson (2012). In this study, two groups of heterosexual individuals (college students and a community sample) were more likely to favor lesbian, gay, and bisexual individuals as opposed to asexuals (MacInnis & Hodson, 2012). According to MacInnis and Hodson (2012), heterosexual individuals were also more likely to rate asexual people as “less human” compared to LGB people and heterosexuals, more likely to discriminate against asexuals, and reported feeling more uncomfortable with asexual individuals

than other LGB people. In a second study, MacInnis and Hodson (2012) hypothesized that the reported anti-asexual bias was due to ignorance. To investigate this, the researchers repeated their study but provided participants the definition of asexuality along with the survey.

Unfortunately, the negative attitude toward asexuals remained even when participants were provided information about asexuality. These findings suggest that participants' bias was not due solely to ignorance; other factors, such as gender, political orientation, or prejudicial attitudes contributed to the findings (MacInnis & Hodson, 2012).

Sexual orientation may also affect anti-asexual bias (Thorpe & Arbeau, 2020).

Asexuality, often seen as a lack of sexual attraction, may be seen as an outlier by both heterosexuals and allosexual LGBTQ+ minorities (Thorpe & Arbeau, 2020). Thorpe and Arbeau (2020) hypothesized that LGBTQ+ and asexual participants would report less negativity toward asexuality and asexual individuals than heterosexual participants. Indeed, LGBTQ+ and asexual participants were significantly less likely to hold anti-asexual bias than were heterosexual participants (Thorpe & Arbeau, 2020).

According to Thorpe and Arbeau (2020), anti-asexual bias correlates to anti-LGBT bias, but anti-asexual bias is a unique subset of sexual prejudice. While LGBT individuals may be disliked due to their sexual attraction and behavior, which is seen as morally wrong in many religions and cultures, asexuals are theorized to be marginalized due to their lack of sexuality (Hoffarth et al. 2015). Not wishing to have sex or a lack of sexual attraction is seen as deficient, as many consider sexual attraction and sexuality to be a core component of a human being (Hoffarth et al. 2015).

Hypotheses

In the present research I explored and measured the strength of the relationship between religious status, priming, sexual prejudice, asexuality, transgender identities, and attitudes toward asexual and transgender individuals. Given the population of the area in the U.S. where data were collected, only Christian compared to non-religious questions were asked in the current study. Other religious beliefs are much less prevalent in the area, so these more common groups were examined. Based on the above literature I tested three hypotheses.

Hypothesis 1: According to past research, high self-rated religious fundamentalism is positively correlated with prejudice toward asexual and transgender individuals (Lipka & Tevington, 2022; MacInnis & Hodson, 2012). It was hypothesized that participants in the current study who report higher fundamentalism would also report greater prejudicial attitudes toward asexual and transgender individuals.

Hypothesis 2: Negatively priming religious individuals can increase sexual prejudice toward lesbian and gay individuals (Peng et al., 2014). It was hypothesized that religious participants who are negatively religiously primed would report higher self-rated prejudicial attitudes toward asexual and transgender individuals compared to religious participants who are neutrally non-religiously or positively religiously primed.

Hypothesis 3: Non-religious individuals tend to have less sexual prejudice and more positive attitudes toward sexual and gender minorities (Anderson & Koct, 2015; Lipka & Tevington, 2022). It was hypothesized that non-religious participants would not be affected by negative or positive religious priming or neutral priming and would show less bias toward asexual and transgender individuals than religious participants, regardless of priming type.

CHAPTER 3

METHOD

Participants

Participants were drawn from MTurk to ensure swift data collection and accessibility of atheist or agnostic individuals. This was informed by Burnham et al. (2018), who conducted a review of 1,707 US citizens working as MTurk participants. MTurk workers are slightly more diverse in terms of race and gender and disproportionately non-religious compared to the US general population (Burnham et al., 2018). Using MTurk workers facilitated the effort to obtain similar numbers of Christian and atheist/agnostic participants for comparison purposes in this study.

MTurk was used to recruit 810 participants, 18 years of age or older, residing in the United States. The targeted demographic of this project was those who self-identify as Christian and those who identify as non-religious (such as atheists or agnostics). Participants could be any gender, race, ethnicity, or sexual orientation but must identify as either Christian or non-religious individual to participate. Participants received \$0.50 to their MTurk account as compensation for successful completion and the passing of three attention checks.

Each participant reported, in the informed consent, whether they are Christian or non-religious. Those who identified as Christian or non-religious proceeded to the rest of this study. Those who do not self-identify as Christian or as non-religious were excluded from the study with no compensation. Christian participants self-identified their denomination. Non-religious participants self-identified as atheist, agnostic, or other.

Of the 810 potential participants who were contacted using MTurk, 786 (97.03%) respondents successfully submitted the survey to MTurk for credit. Some participants were excluded from analyses due to failing one or more of the three attention checks, not meeting the required demographic (i.e., Christian or non-religious), completing the survey in less than three minutes, and/or indicating they did not want their data used in the analysis ($n = 353$), leaving 433 participants for analyses.

The sample was overwhelmingly white ($n = 403$; 92.4%) and cisgender ($n = 418$; 96.6%), with a mean age of 35.29. In terms of religious affiliation, 118 participants (27.3%) identified as agnostic, 41 (9.5%) as atheist, 274 (63.3%) as Christian.

In terms of sexual orientation, 175 participants (38.3%) identified as heterosexual and 281 (60.4%) identified as not entirely heterosexual. A wide sample in terms of income, educational background, geography, and relationship status was found in the sample. The demographics of the sample are further explained in Table 1.

Table 1

Sample Demographics

Variable	<i>f</i>	Percent of Sample
<i>Biological Sex</i>		
Male	234	54.8
Female	192	45.0
<i>Gender Identity</i>		
Cisgender Male	232	53.6
Cisgender Female	186	43.0
Transgender Male	8	1.8
Transgender Female	6	1.4
Other/Non-Specified	1	0.2
<i>Race</i>		
White	403	93.9
Native American	14	3.2
Asian	3	0.7
Black	7	1.6
Multiracial/Other	2	0.4
<i>Religion</i>		
Agnostic	118	26.9
Atheist	41	9.4
Christian	274	63.0
<i>Sexual Orientation</i>		
Heterosexual	164	38.1
Mostly Heterosexual	23	5.3
Bisexual	191	44.3
Mostly Gay	6	1.4
Gay	10	2.3
Asexual	28	6.4
Pansexual	1	0.2
Questioning	2	0.5
<i>Relationship Status</i>		
Single	29	6.7
Married/Partnered	394	91.2
Divorced	5	1.2
Separated	2	0.5
Widowed	1	0.2

Variable	<i>f</i>	Percent of Sample
<i>Geographic Area</i>		
Rural	170	39.1
Urban	265	60.9
<i>Education</i>		
Less than high school	10	2.3
High School	78	17.9
Some College	29	6.7
2 Year Degree	23	5.3
4 Year Degree	230	52.9
Professional Degree	61	14.0
Doctorate	4	0.9
<i>Financial Resources</i>		
Poor	21	5.0
Some Financial Resources	262	61.9
Many Financial Resources	120	28.4
Rich/Affluent	20	4.7

Measures

Religiosity/Spirituality. Participants rated their religiousness by answering: “How religious are you?” on a 7- point Likert-type scale from 1 (not religious at all) to 7 (extremely religious). Participants then answered, “How spiritual are you?” on a 1 (not spiritual at all) to 7 (extremely spiritual) scale.

Fundamentalism. Responses to items, such as “God has given humanity a complete, unfailing guide to happiness and salvation, which must be totally followed” and “The fundamentals of God's religion should never be tampered with, or compromised with others' beliefs,” were given on a 1 (strongly disagree) to 7 (strongly agree) scale. Higher scores on the RRFS indicated a higher degree of religious fundamentalism (Altemeyer & Hunsberger, 2004). The RFFS has high internal validity ($\alpha = .94$, Altemeyer & Hunsberger, 2004). In the present study, $\alpha = .94$ was found.

Attitudes Toward Asexuality. Participants answered the 16 questions on a 9-point Likert-type scale from 1 (strongly disagree) to 9 (strongly agree). Items include “Asexual people are sexually repressed” and “Asexuality is an inferior form of sexuality” (Hoffarth et al., 2016). Higher scores on the scale indicate a more negative view of asexual individuals and asexuality. The ATA has strong internal reliability ($\alpha = .94$) (Hoffarth et al., 2016.) An $\alpha = .951$ was found in the present study.

Attitudes Toward Transgender Individuals. The questions are answered on a 7-point Likert-type scale from 1 (strongly disagree) to 7 (strongly agree). Sample items include “A person who is not sure about being male or female is mentally ill” and “If I knew someone was transgender, I would tend to avoid that person” (Kanamori et al., 2017). The TABS shows excellent reliability, with the scale achieving $\alpha = .98$. (Kanamori et al., 2017). In the current study, $\alpha = .922$ was achieved.

Procedure

Participants logged onto their Amazon Mechanical Turk account, saw the survey available for the compensation of \$0.50, and selected it if they were interested. Participants provided their informed consent (Appendix A), and then were led to the survey. Participants from both samples were randomly assigned to one of three priming conditions: a negative biblical passage (Appendix B), a positive biblical passage (Appendix C), or a control neutral passage regarding a farmer pondering about the rain (Appendix D). Participants randomly assigned to the positive biblical condition read the passages “Thou shalt love ... thy neighbor as thyself” (Matthew 22:37-39, pg. 1227, King James Version, Flesch Reading Score = 100) and “whoever shall love me.... Be not afraid” (John 14:21, 23, & 27, pg. 1255, King James Version). Participants randomly assigned to the negative biblical passage read “God takes revenge on all

those who oppose him...” (Nahum 1:2-8, pp. 1156-1157, King James Version, Flesch Reading Score= 96.07). Participants randomly assigned to be primed with a neutral passage read a fictional passage about a farmer pondering about the rain (Appendix D, Flesch Reading Score 73). All participants then answered questions about how religious they consider themselves and how spiritual they consider themselves. Next, participants completed the remaining surveys in the following order: RRFS (Altemeyer & Hunsberger, 2004), ATA (Hoffarth et al., 2016), and TABS (Kanamori, et al., 2017). Participants then provided their demographic information (Appendix I). For their data to be used, participants also had to pass the three attention checks in the survey that were inserted into the questionnaires. Finally, participants were debriefed (Appendix J), thanked for their time and participation, and received compensation to their MTurk account.

Total time to completion was anticipated to be less than 25 minutes, but participants were given up to an hour to complete the study. The mean time participants used to complete the survey was 718.90 seconds (11.98 minutes). Participants who timed out of the survey were not given compensation due to not submitting it to MTurk and were not included in the analysis.

Attention Check and Data Integrity

A concern when using MTurk and other online research is the threat of inattentive responders. According to Aust et al. (2012), inattentive responsiveness or the randomization of answers are major concerns due to the potential to create false conclusions due to faulty data. Kung et al. (2018) estimated that five percent or more of respondents answer non-seriously to experiments and surveys. To reduce random responses or random clicking, attention checks are used to weed out non-serious respondents and then remove their inaccurate data from analysis.

The most common and popular attention checks are instructed-response items (Kung et al., 2018). Instructed response questions are items on a scale instructing the participant to click a certain answer; they are hidden somewhere in the survey among the other, experimental questions. An example of this would be the instruction to “please click the number four” on a seven-point Likert scale with those failing to respond as instructed removed from the study (Kung et al., 2018).

There is some concern that attention checks may threaten the internal validity of research due to participants being alerted to the purpose of the experience or confused by the instruction to suddenly prove their attention by clicking a certain answer on an item (Kung et al., 2018). Kung et al. (2018) conducted an experiment in which participants on MTurk ($N = 816$) were randomly assigned a survey with either an attention check or no attention check. No significant difference was found between the two groups, leading to the conclusion that attention checks do not threaten internal validity of experiments (Kung et al., 2018).

Another tactic that researchers use to weed out false responses is a seriousness check (Aust et al., 2012). A seriousness check is an item where participants indicate how seriously they took the study and whether they answered questions with true intent. Aust et al. (2012) say that five to 30 percent of participants declare themselves to be non-serious when asked (Aust et al., 2012). In a study of the voting habits of 3,490 German individuals, 3,378 respondents (96.8 %) reported having answered seriously, whereas 112 respondents (3.2 %) self-declared their responses as non-serious (Aust et al., 2012). Self-identified serious participants answered more consistently with one another compared to the non-serious participants, who varied much more in responses, leading to the conclusion that serious checks are an effective way to weed out random answers before analysis (Aust et al., 2012).

For these reasons, several safeguards were employed for data integrity. Three instructor-response questions were included amongst the experimental questions, a seriousness check was asked at the end of the study, and completion time was recorded. At three points in the survey, participants were instructed to leave an item blank to demonstrate their attentiveness and to prove they were not randomly clicking through the survey. Attention to the content and seriousness of the participants was also be determined based on time to completion. To detect if participants were randomly clicking through the experiment, all surveys submitted with a completion time of under three minutes were eliminated from analysis. Finally, at the end of the survey, participants were asked, “should your data be included in our analysis?” with either a yes response or a no response. Those who said “no” were excluded from analysis.

To protect the survey from artificial intelligence bots, participants were asked to solve a CAPTCHA sometime during the survey. The participants were asked to click a box with their mouse and were then allowed to move on.

CHAPTER 4

RESULTS

Hypothesis Testing

Hypothesis testing began after data were inspected for the attention check and time to completion items, mentioned above.

Hypothesis 1

To test the prediction that religious fundamentalism and anti-asexual attitudes are positively correlated, a Pearson correlation coefficient was computed to assess the linear relationship between self-reported fundamentalism and anti-asexual bias. There was a positive correlation between the two variables, $r(341) = .376, p < .001$.

To examine the hypothesized relationship between self-reported fundamentalism and anti-transgender bias, a Pearson correlation coefficient was computed to assess the linear relationship between self-reported fundamentalism and anti-transgender bias. There was a positive correlation between the two variables, $r(319) = .150, p = .007$. Additionally, a Pearson correlation coefficient was computed to assess the linear relationship between anti-transgender bias and anti-asexual bias. There was a moderate positive correlation between the two variables, $r(310) = .501, p < .001$. See Table 2.

Table 2

Correlations of Fundamentalism and Bias Scales

	Fundamentalism	Anti-Asexual Bias	Anti-Trans Bias
Fundamentalism	-	-	-
Anti-Asexual Bias	.376**	1	-
Anti-Trans Bias	.150*	.501**	1

Note: * $p < .05$ or ** $p < .001$

Hypothesis 2

Hypothesis 2 was that priming would impact attitudes, such that religious participants who were negatively religiously primed would report higher self-rated prejudicial attitudes toward asexual and transgender individuals, compared to religious participants who were neutrally non-religiously or positively religiously primed. This hypothesis was tested using two oneway ANOVAs comparing Christians who received the three (Negative vs. Positive vs. Neutral) primes.

This analysis revealed that the prime Christians received did not impact attitudes toward asexual individuals, $F(2, 237) = 1.66, p = .193$, partial $\eta^2 = .014$. Christians who received the negative prime ($M = 5.38, SD = 0.75$) were not more biased against asexuals than were Christians who received the positive ($M = 5.45, SD = 0.75$) or neutral primes ($M = 5.22, SD = 0.81$).

Likewise, the prime Christians received did not impact their attitudes toward transgender individuals, $F(2, 237) = 0.69, p = .504$, partial $\eta^2 = .006$. Christians who received the negative prime ($M = 4.78, SD = 0.53$) were not more biased against asexuals than were Christians who received the positive ($M = 4.72, SD = 0.66$) or neutral primes ($M = 4.67, SD = 0.55$).

Hypothesis 3

The third hypothesis was two-fold, that non-religious participants would be less biased than Christians against asexual and transgender individuals, and that non-religious participants would not be affected by the prime they experienced. This was tested using two separate 2 (Group: Christian vs. Non-religious) X 3 (Prime: Negative, Positive, or Neutral) ANOVAs, one for each attitude measure.

The ANOVA analyzing attitudes towards asexual individuals showed support for part of Hypothesis 3. The effect for Group showed that Christians ($M = 5.35$, $SD = 0.82$) expressed more bias against asexual individuals than did Non-religious people ($M = 5.05$, $SD = 1.26$), $F(1, 376) = 7.24$, $p = .008$, partial $\eta^2 = .008$. The analysis did not show a significant effect for Prime, $F(2, 376) = 1.038$, $p = .355$, partial $\eta^2 = .005$. The Prime x Group interaction was not significant, $F(2, 376) = 0.08$, $p = .921$, partial $\eta^2 = .000$. Cell means are shown in Table 3,

Table 3: Prime x Group Interaction Cell Means on Asexual Bias

Prime	Group	
	Non-Religious	Christian
Negative	5.06	5.38
Positive	5.13	5.45
Neutral	5.00	5.23

Next, attitudes towards transgender people were analyzed in a 2 (Group) X 3 (Prime) ANOVA. This analysis showed no statistically significant effects. There were no there significant differences between Christians ($M=4.73$, $SD=0.59$) and non-religious ($M=4.72$, $SD=0.78$), $F(1, 350) = 0.002$, $p = .979$, partial $\eta^2 = .000$, neither did Prime affect participants' attitudes toward transgender people, $F(2, 350) = 0.193$, $p = .825$, partial $\eta^2 = .001$. The Prime X Group interaction also was not significant, $F(2, 350) = 0.310$, $p = .734$, partial $\eta^2 = .002$. Cell means showing this effect are found in Table 4.

Table 4: Prime x Group Interaction Cell Means on Transgender Bias

Prime	Group	
	Non-Religious	Christian
Negative	4.70	4.78
Positive	4.76	4.72
Neutral	4.71	4.67

Exploratory Analyses

In addition to measuring religiousness categorically, i.e., Christian vs. Non-religious, the study also asked participants to indicate their self-rated religiosity and spirituality using a seven-point Likert-type scale. These measures were used in multiple regression analyses.

Predicting anti-asexual bias. In order to better understand the relative importance that religion and demographic variables play in predicting bias against asexual and transgender persons, two multiple regression analyses were conducted. In the first, multiple linear regression was used to test whether religious status (religious or non-religious), age, biological sex, sexual orientation, race (white vs. other), and/or religious fundamentalism significantly predicted anti-asexual bias. This analysis is summarized in Table 6. The overall regression was statistically significant ($R^2 = .230$, $F(8, 337) = 13.92$, $p < .001$). Anti-asexual bias was predicted by sexual orientation, religious status, religious fundamentalism, self-rated religiosity, and self-rated spirituality. Beta weights for these and for age, sex, and race, which did not predict attitudes toward asexuals, are shown in Table 5.

Table 5

Predictors of Anti-Asexual Bias

Factor	Beta	Significance Level
Age	-.068	.159
Biological Sex	-.007	.893
Sexual Orientation	.247	<.001
Race (White vs. other races)	-.011	.819
Christian vs. Non-Religious	.142	.009
Self-Rated Religiosity	-.300	<.001
Self-Rated Spirituality	.156	.027
Religious Fundamentalism	.294	<.001

$R^2 = .248, F(8, 337) = 13.918, p < .001$

Predicting anti-transgender bias. Multiple linear regression was used to examine the ability of age, biological sex, sexual orientation, race (white vs. other), Christian vs. Non-religious status, self-rated religiosity, self-rated spirituality, and religious fundamentalism to predict anti-transgender bias. Details of this analysis are shown in Table 6. The overall regression was statistically significant $R^2 = .180, F(8,317) = 8.71, p < .001$. Transgender bias was significantly predicted by self-rated religiosity and biological sex, with men reporting more bias than women. Regression beta weights are shown in Table 6.

Table 6

Predictors of Anti-Transgender Bias

Factor	Beta	Significance Level
Age	.065	.209
Biological Sex	.131	.013
Sexual Orientation	.086	.103
Race (White vs. other races)	-.048	.358
Christian vs. Non-Religious	-.085	.143
Self-Rated Religiosity	-.253	.001
Self-Rated Spirituality	-.119	.119
Religious Fundamentalism	.071	.193

$R^2 = .180, F(8,317) = 8.71, p < .001$

CHAPTER 5

DISCUSSION

The data in this study show several relationships that merit attention. Religious fundamentalism is associated with bias against asexual and transgender individuals, as predicted, but this relationship is complicated by other factors. When examined in conjunction with self-rated religiosity, religious fundamentalism predicts bias against asexual individuals but not against transgender individuals. This is an interesting relatively novel finding. One possibility for this outcome is that highly religious Christians take seriously the command to be sexual in the sense that they are expected to reproduce. Research shows heterosexual people consider asexual people to be “less human” (MacInnis & Hodson, 2012). It might be that a person who declines to be sexual threatens the underlying ideas regarding sexuality’s importance in the Christian worldview. This finding merits additional examination in order to confirm the findings and better understand the mechanisms at work.

The current study showed a second important predictor of attitudes toward asexual individuals was sexual orientation, with heterosexual people reporting more bias than sexual minorities. This is consistent with previous literature showing sexual orientation is related to anti-asexual bias (Thorpe & Arbeau, 2020). Asexuality, often seen as a lack of sexual attraction, may be seen as an outlier by both heterosexuals and allosexual LGBTQ+ minorities (Thorpe & Arbeau, 2020). Sexual minorities may see asexuality or asexuals as a threat to their identity, a step backward from LGBTQ+ acceptance, or as straight people calling themselves “asexual” in order to feel part of the LGBTQ+ community (Davis, 2021). This may indicate intergroup bias from one minority group to another, which is a possible avenue for further investigation into asexual prejudice in other sexual minority groups.

It is worth noting that at the time this study was conducted, transgender people have had a relatively high profile in the news. Many state legislatures are debating questions regarding the availability of healthcare and participation in high school athletics for transgender teens (Abreu et al., 2022; Florez et al., 2020; Jones et al., 2017). It is possible that this recent news coverage impacted participants' responses in the current study, but the present data do not allow a test of this. Further research would be needed to address this more directly.

Bias against transgender individuals was associated with biological sex and self-rated religiosity. One interesting difference between the two sets of predictors is that bias against asexual people was not predicted by participants' biological sex, but biological sex did predict bias against transgender people, with men reporting more bias than women. Further research is needed in order to confirm this pattern, and to determine the factors that affect it.

The main hypothesis of this study was that priming texts with neutral, negative, or positive tones would cause an increase in anti-asexual bias and anti-transgender bias. The data did not confirm this prediction. There are several possible reasons for this. One possibility is that people's attitudes on such matters are set firmly, and not impacted by reading a relatively brief passage. In other words, the prime might not have been sufficiently strong to exert an effect on participants. Another possibility is that the negative Bible passage came from the Old Testament, and the positive passage came from the New Testament. Some Christians use passages such as Hebrews 8:7-13 to conclude that the Old Testament is no longer applicable, having been fulfilled through Jesus Christ. Under this reasoning, a devout Christian might feel able to disregard what they consider to be outdated ideas. It is possible that such people would discount the negative priming in this study for the reason that they recognize it has not applicable.

Several other limitations are present in this study. First, the sample was recruited online, so those without Internet access or MTurk accounts were excluded. Our sample was overwhelmingly white, and more likely to report being male than female, which may also limit the generalizability of this study to other populations, although this is consistent with other MTurk samples (Burnham et al., 2018). Consequently, generalizing the present findings to other populations should be done with caution. Replicating the present study with other sampling techniques would offer the opportunity to do not allow for the conclusions to be generalized beyond the present MTurk sample to the general population. Further, this study was conducted only with Christians and non-religious individuals, also limiting the generalizability in terms of other religious populations.

The study relied on self-report data, which is impossible to verify. At the same time, it was conducted anonymously and participants had no obvious incentive to answer questions in a particular way. The study employed techniques to screen for inattentive responses to improve the quality of the data. While all those who explicitly broke the guidelines were excluded from the study analysis, some participants answers that contraindicated one another. which may reflect rushed responses or some genuine lack of clarity regarding these issues on the part of the participants.

Future research is needed in order to confirm the findings reported here, and to test the effect religious priming may have on attitudes toward asexual and transgender individuals. It would be enlightening also to include a wider number of religious groups in the sample, in order to see how widespread a religious bias against asexual individuals might be. Asexual prejudice has been found to be correlated with conservative and right-wing political beliefs, traditional views on gender roles, and desires for a strong, dominance hierarchy (MacInnis & Hodson,

2012). Further research into this trend to see how anti-asexual prejudice may tie into political beliefs.

Conclusions

This study found that anti-sexual and anti-transgender bias is higher among Christians than among atheists and agnostics, adding to the body of literature tying sexual prejudice to religious status and fundamentalism. In addition, sexual minorities compared to heterosexual/cisgender participants showed less prejudice toward asexual individuals but not to transgender individuals. These results suggest that sexual prejudice is distinct from anti-transgender prejudice. More research is needed to investigate the causes of anti-asexual and anti-transgender bias and links to religious status and fundamentalism.

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Appendix A

Informed Consent

Dear Participant,

We are Allison Davis, a graduate psychology student, and Dr. Michael Nielsen, Professor of Psychology at Georgia Southern University, and we are conducting this research to better understand factors that influence views of asexual and transgender individuals.

During this study you will view a short passage from someone and then answer some questions. We expect it to take approximately 25 minutes, and you will receive \$0.50 credited to your MTurk account. This experiment does not pose any risks to you beyond what one would experience in daily life. If you become uncomfortable with answering any question, you may skip without penalty and stop participating in the study at any time for full credit. To ensure payment, you will receive a randomly generated code to be entered into MTurk. You will receive payment for completion and submission even if you fail an attention check, but your data will be excluded from the analysis.

This research may benefit you by increasing your understanding and knowledge of the psychological research process. This research may benefit society by aiding in the understanding of factors that impact judgments of other people.

Your responses in this experiment will be anonymous. Only a code number will be used to identify your responses, not your name. Your identity will be protected to the fullest extent of the law. Your data may be placed in a public repository to allow other researchers to validate statistical analyses. However, neither your name nor IP address will be associated with your

responses. Additionally, the researchers will work with an institutional compliance officer or associate to verify that the data are de-identified prior to posting.

You have the right to ask questions and have those questions answered. If you have questions about this study, please contact the researcher at ad06842@georgiasouthern.edu. For questions concerning your rights as a research participant, contact the Georgia Southern University Office of Research Services and Sponsored Programs at (912) 478-5465. Please refer to protocol number H23199 in your response.

You must be 18 years of age or older to consent to participate in this research study. If you consent to participate in this research study and to the terms above, please indicate so by selecting the next button below.

By completing this survey, you consent that you are at least 18 years of age and that you understand your rights.

Title of Project: Views of Asexuality and Transgender Individuals: The Role of Religious Beliefs

Principal Investigator: Allison Davis, ad06842@georgiasouthern.edu

Research Advisor: Dr. Michael Nielsen, Ph.D., (912) 478-5122, mnielsen@georgiasouthern.edu

Please select an option below to indicate whether you agree to participate in this research:

- ☐ Yes, I read the terms above and consent to participate in this research.
- ☐ No, I do not consent to participate in this research.

Appendix B

Negative Religious Priming Text

Nahum 1:2-8

The Lord is a jealous and avenging God;

the Lord takes vengeance and is filled with wrath.

The Lord takes vengeance on his foes

and vents his wrath against his enemies.

The Lord is slow to anger but great in power;

the Lord will not leave the guilty unpunished.

His way is in the whirlwind and the storm,

and clouds are the dust of his feet.

He rebukes the sea and dries it up;

he makes all the rivers run dry.

Bashan and Carmel wither

and the blossoms of Lebanon fade.

The mountains quake before him

and the hills melt away.

The earth trembles at his presence,

the world and all who live in it.

Who can withstand his indignation?

Who can endure his fierce anger?

His wrath is poured out like fire;

the rocks are shattered before him.

Appendix C

Positive Religious Priming Text

Matthew 22:36-39

“Teacher, which is the greatest commandment in the Law?”

Jesus replied: “Love the Lord your God with all your heart and with all your soul and with all your mind.

This is the first and greatest commandment.

And the second is like it: ‘Love your neighbor as yourself.’

John 14:21, 23, & 27

Whoever has my commands and keeps them is the one who loves me. The one who loves me will be loved by my Father, and I too will love them and show myself to them.”

Jesus replied, “Anyone who loves me will obey my teaching. My Father will love them, and we will come to them and make our home with them.

Peace I leave with you; my peace I give you. I do not give to you as the world gives. Do not let your hearts be troubled and do not be afraid.

Appendix D

Neutral Priming Text

An old farmer gazed across his field. It was spring - time to plant his seeds. He prepared the tractor and began work. Row after row, he planted all day. The sun was warm, and he looked into the cloudless sky. Two little raindrops took saw the farmer. One said to the other, "I'm going to help this man who needs to feed his family." The other raindrop agreed and both drops fell, with one landing on the man's face and the other on the freshly tilled soil. Other raindrops joined them; together they fell gently on the ground, watering the freshly planted crop. The farmer looked at his field, remembering the many years he has planted his crops. After a few minutes of this he returned to his house to wash off the dust and dirt, and eat at the end of his long day.

Appendix E

Self-Rated Religiousness and Spirituality

(7-point Likert scale; strongly agree to strongly disagree)

1. How religious do you consider yourself to be?
2. How spiritual do you consider yourself to be?

Appendix F

Demographic Questionnaire

What racial group do you consider yourself to be?

- ☐ Asian-American
- ☐ Black/African American
- ☐ White/European-American
- ☐ Native American/Indigenous
- ☐ Pacific Islander or Native Hawaiian
- ☐ Multiracial
- ☐ Other:

What type of place do you currently live?

- ☐ Rural
- ☐ Urban

What gender identity do you currently identify with?

- ☐ Cis female
- ☐ Cis male
- ☐ Transgender Man
- ☐ Transgender Woman
- ☐ Non-binary/Genderqueer
- ☐ Other:

How old are you?

What is your financial situation?

- ☐ Poor/limited resources
- ☐ Some financial resources
- ☐ Many financial resources
- ☐ Rich/affluent

What is your sexual orientation?

- ☐ Heterosexual
- ☐ Mostly Heterosexual
- ☐ Bisexual
- ☐ Mostly Gay/lesbian
- ☐ Gay/lesbian
- ☐ Asexual
- ☐ Pansexual
- ☐ Other

What is your highest level of completed education?

- ☐ Less than high school education
- ☐ High school education
- ☐ Technical degree
- ☐ Associate's Degree
- ☐ Bachelor's Degree
- ☐ Master's Degree
- ☐ Professional Degree or Ph.D.

What religion do you identify as?

- ☐ Agnostic
- ☐ Atheist
- ☐ Christian (specify here)
- ☐ Other

Should we include your data in our statistical analyses?

- ☐ **Yes**
- ☐ **No**

Appendix G

Experiment Debriefing

Thank you for your participation!

The purpose of this study was to investigate the effects cognitive priming may have on peoples' attitudes toward asexual and transgender individuals. You received either a positive religious text, a negative religious text, or a fictional passage farmer pondering about the rain. If you would like a summary of the research when it is completed, please send me a separate email request.

If you have questions about this study, please contact the researcher at ad06842@georgiasouthern.edu. For questions concerning your rights as a research participant, contact the Georgia Southern University Office of Research Services and Sponsored Programs at (912) 478-5465. Please refer to protocol number H23911 in your response.