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I am submitting herewith a dissertation written by Angela Nichole Hilton entitled "Predictors of Heterosexual Siblings' Acceptance of their Lesbian or Gay Sibling of Origin." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Psychology.

Dawn M. Szymanski, Major Professor

We have read this dissertation and recommend its acceptance:

Donna Braquet, Joseph Miles, Gina P. Owens

Accepted for the Council:

Carolyn R. Hodges

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

**Predictors of Heterosexual Siblings' Acceptance of their
Lesbian or Gay Sibling of Origin**

A Dissertation Presented for the
Doctor of Philosophy
Degree
The University of Tennessee, Knoxville

Angela Nichole Hilton
August 2014

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Abstract

Research has shown that lesbian and gay (LG) individuals are not only coming out to their parents, but also to their siblings. Eighty percent of individuals in the United States are raised with one or more siblings; however, researchers have frequently underestimated the importance of the sibling bond. The current study examined potential correlates of heterosexual siblings' acceptance of their LG sister or brother using an online survey format ($N=189$). In addition, psychometric properties for the Acceptance of Sibling Sexual Orientation Scale are provided. Results revealed that greater sibling relationship quality in adulthood, more contact with LG individuals, greater knowledge of LG communities, more support for LG civil rights, and various demographics (being female, having higher educational levels, not having an orthodox/fundamentalist religious orientation, less church attendance, and more liberal political ideology) are related to heterosexual siblings' acceptance of their LG sister or brother. However, when these variables were examined together in a regression model, only sibling relationship in adulthood, contact with LG individuals, support for LG civil rights, and religious attendance were significant unique predictors of acceptance.

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Introduction and General Information

For years researchers have been interested in the effects of lesbian and gay (LG) disclosure on families and several theoretical models exist that help explain processes that families experience (Anderson, 1987; D'Augelli, 2006; DeVine, 1984; Herdt & Koff, 2000; Muller, 1987; Robinson, Walters, & Skeen, 1989). In addition, several mostly qualitative studies have found that there are varying reactions to having a LG son, daughter, or sibling, including shock, denial, grief, anger, fear, worry, guilt, sadness, rejection, and/or happiness and acceptance (Arm, Horne, & Levitt, 2009; Baptist & Allen, 2008; D'Augelli, 2006; Freedman, 2008; Heatherington & Lavner, 2008; Herdt & Koff, 2000; Hilton & Szymanski, 2011; Matthews & Lease, 2000; Muller, 1987; Phillips & Ancis, 2008; Saltzburg, 2004; Savin-Williams, 2001). Researchers posit that the progression of a family's reaction is multifaceted and not linear, with various family members often reacting differently (Heatherington & Lavner, 2008).

Although the models for families dealing with LG disclosure vary somewhat in the stages presented, one of the universal factors is the ultimate possibility of acceptance of LG sexual orientation. Although theory and qualitative studies provide important information about the complex processes and multifaceted nature of LG disclosure on families, they fail to give us a broad understanding of what variables predict various family members' acceptance of sexual orientation disclosure. In addition, studies identifying factors that may lead to feelings of acceptance are limited and have mainly focused on parents of LG individuals (Freedman, 2008; Phillips & Ancis, 2008) or heterosexual allies in general (Borgman, 2009; Dillon et al., 2004; Fingerhut, 2011; Gelberg & Chojnacki, 1995; Stozar, 2009). Thus, the purpose of this study is to examine potential correlates of heterosexual siblings' acceptance of their LG sister or brother.

Literature Review**Importance of Focusing on Siblings**

Eighty percent of individuals in the United States are raised with one or more siblings; however, researchers have frequently underestimated the importance of the sibling bond in general and have given little attention to the sibling relationship after LG disclosure more specifically (Cicirelli, 1995; D'Augelli, Grossman, & Starks, 2008; Dunn, 1985; Heatherington & Lavner, 2008; Hilton & Szymanski, 2011). Research has shown, however, that LG persons are coming out to their siblings. For example, a study of 56 sexual minority individuals with at least one sibling found that after combining the data on those in the sample who disclosed to their brothers first with those who disclosed to their sisters first, siblings, versus mothers or fathers, represented the most prevalent number of first disclosures in the sexual minority person's family (Toomey & Richardson, 2009). Relatedly, Savin-Williams (2001) found that among 2,000 lesbian, gay, and bisexual (LGB) youths, siblings (38%) were the second most common family members that the LGB youths disclosed to (mothers were the most common at 49%). In a qualitative study of 38 gay men, Cain (1991) found that his respondents felt that rejection by siblings was not as hurtful as the rejection from their parents; however, it was considered more devastating than rejection from their friends.

Research on children and adolescents' relationships with their siblings has found that when there is perceived warmth in the relationship, there is less reported loneliness and higher self-esteem (Sanders, 2004; Stocker, 1994). As siblings increase in age, the relationship becomes more salient and siblings often provide a source of social and emotional support (Cicirelli, 1995; Dunn, 1985; Yeh & Lempers, 2004). In a study by Sakai, Sugawara, Maeshiro, Amou, and

Takuma (2002) of 317 Japanese male and female sibling pairs, findings suggested that trust in the sibling relationship provided a defensive, or protective, factor for their mental health during negative life events with parents. In addition, less conflict in and more satisfaction with adult sibling relationships is related to greater well-being and less psychological distress (Riggio, 2000; Stocker, Lanthier, and Furman, 1997). If the sibling relationship quality is assessed as positive, it is possible that it could serve as a protective factor against mental and physical health risks for LG individuals encountering heterosexism. Taken together, these findings underscore the importance of examining heterosexual siblings' reactions to their brother or sister's sexual minority identity.

Importance of Focusing on Acceptance

Research on acceptance has defined it as approval or the act of being affirmative and the willingness to experience feelings and thoughts (Hayes, Strosahl, & Wilson, 1999; Orsillo, Roemer, Block-Lerner, & Tull, 2004). Previous scales of the construct of acceptance have also included in its definition that it is a process of allowing thoughts, memories, and feelings to unfold while being open to the present moment, versus engaging in avoidance, or "the phenomenon that occurs when a person is unwilling to remain in contact with particular private experiences...and takes steps to alter the form and frequency of these experiences" (Kollman, Brown & Barlow, 2009; Hayes, Strosahl, et al., 2004, p. 553). Additionally, studies looking at parental acceptance have defined it as displaying love and warmth (Rohner, 1975). Furthermore, Freedman's (2009) research on parental acceptance of LG individuals asserts that acceptance contains multiple variables including whether or not a parent has disclosed to others that their daughter or son is LG and the absence of negative, or prejudicial, attitudes toward the LG child.

One reason that it is important to focus on heterosexual siblings' acceptance of their LG 4 brother or sister after sexual orientation disclosure is that their reaction to disclosure might influence what happens to the LG family member. Studies that have focused on parents and families more broadly reveal that individuals who are rejected by their family after LG disclosure, are more likely to experience internalized heterosexism; less physical well-being; mental health issues, such as depression and substance abuse; and be more likely to attempt suicide (Balsam, Beauchaine, Mickey, & Rothblum, 2005; Beals & Peplau, 2005; D'Augelli et al., 2005; Ryan, Huebner, Diaz, & Sanchez, 2009; Savin-Williams, 2001). In addition, LG individuals who receive acceptance from their families about their LG identity experience a closer relationship with their family members, higher self-esteem, and fewer mental health problems (Baptist & Allen, 2008; Beals & Peplau, 2006; Goldfried & Goldfried, 2001; Hershberger & D'Augelli, 1995; Savin-Williams, 1989, 2001; Savin-Williams & Ream, 2003). Furthermore, the acceptance of family members reduces the negative effects that physical and/or verbal attacks have on the LG individual (Hershberger & D'Augelli, 1995). Because LG individuals are less likely to experience mental health issues when they have acceptance from family members, it is important for researchers to identify what predicts acceptance.

Possible Correlates of Heterosexual Siblings' Acceptance of their LG Sibling of Origin

Drawing from the findings of quantitative research on parental reactions to LG sexual orientation disclosure and qualitative research examining the experiences of 14 heterosexual biological siblings of LG persons after they learned that their sister or brother is LG (Hilton & Szymanski, 2011), we identified five potential correlates of heterosexual siblings' acceptance of their LG sister or brother: sibling relationship quality, contact with LG individuals, knowledge of LG communities, support for LG civil rights, and demographic variables.

Sibling relationship quality. Relationship quality between the heterosexual individual 5 and a LG sibling during adulthood may influence the heterosexual sibling's acceptance of their LG sister or brother, with higher relationship quality being related to more acceptance. Although researchers posit that, over time, the sibling relationship changes and develops (Cicirelli, 1985; White & Riedmann, 1992), researchers have found that adults who report having a supportive and emotionally close relationship with their sibling also report having had a positive relationship with their sibling in childhood/earlier in life (Stewart, et al., 2001; Vaillant & Vaillant, 1990), especially during various critical life events (Conger, Stocker, & McGuire, 2009).

Supporting this notion in regards to sexual orientation, Herek and Capitanio (1996) studied the relationship between heterosexual individuals' contact/degree of closeness with LG persons and their attitudes toward sexual minorities in two nation-wide telephone surveys ($n = 920$). They found that the closer the relationship (i.e., an acquaintance vs. a close friend), the more favorable the attitudes were toward LG persons. In regards to parents, research has found that if the parent-child relationship was close prior to disclosure, then they are more likely to maintain a close relationship after disclosure (Ben-Ari, 1995; Savin-Williams, 1998).

In terms of siblings, Toomey and Richardson (2009) assessed 56 lesbian, gay, bisexual, and transgender (LGBT) youth on their perceived closeness to their siblings and perceived acceptance of their sexual behavior. The results for this sample suggested that LGBT youth regarded their siblings as an important part of their support system and that greater perceived closeness was related to higher degrees of perceived acceptance (Toomey & Richardson, 2009). Relatedly, 11 of the 14 heterosexual siblings in Hilton and Szymanski's (2011) qualitative study reported that after their sibling disclosed their LG identity, their relationship changed in some

way. For those who already had a positive sibling relationship, they described the disclosure as 6 bringing them closer together; whereas, those who had a distant and/or negative relationship reported that the disclosure exacerbated the already negative sibling relationship.

LG contact. One important factor in understanding the process of acceptance of an individual who is different from another is Allport's (1954) contact hypothesis, which suggests that the reduction of prejudicial attitudes among members of the majority is directly related to interpersonal contact with members of minority groups. This finding has been repeated in several research studies regarding heterosexual individuals' contact with LG persons. For example, Herek and Capitanio (1996) found that heterosexual persons who had close interpersonal contact with LG individuals had more positive attitudes toward LG individuals than those who reported having little or no contact. Among 956 heterosexual students at a large southern university, Baunach, Burgess, and Muse (2010) found that those who knew at least one LG person or had some contact with the LG community reported less prejudicial attitudes. Relatedly, in a sample of 68 Midwestern university students who participated in semi-structured interviews regarding the development of positive attitudes toward LGB individuals, 56% reported having had contact with a LGB person in their childhoods (Stozer, 2009).

Research has also found that the closer the relationship between a heterosexual individual and a LG person, the greater the reduction of prejudice (Basow & Johnson, 2000; Baunach et al., 2010; Finlay & Walther, 2003; Herek & Capitanio, 1996; Stozer, 2009). However, Stozer (2009) also posits that the importance of television, media and the Internet in current society could also be considered contact and, as a result, be the exposure that decreases prejudicial attitudes. It is also possible that individuals who are more open to being around others who are different from themselves will be more likely to have contact with LG individuals.

Regarding family members, in a quantitative study of 27 parents and 32 gay and lesbian 7 young adults, Ben Ari (1995) found that parents who did not have previous contact with LG individuals reacted less positively to their children's disclosure of LG identity than those who had previous contact. In Hilton and Szymanski's (2011) qualitative study, the siblings who reacted with shock to their LG sibling's disclosure reported that it was due in part to a lack of contact with LG individuals; whereas, those who reacted with acceptance reported having some previous exposure to other LG individuals. For one participant, her contact was with her mother who she reported identified as lesbian. For another, he explained the contact as being experiences he had in high school. He stated,

...I had a couple of different experiences...in high school, with the History teacher bringing somebody in to talk to us...and that kind of helped me at a very early age to understand that it's not a choice. And so that he [his brother] was coming out and he was...accepting of himself, then I was happy for him knowing that he's not going to be a tormented...(pp. 298-299).

In addition, ten of the 14 participants described that both early exposure and/or exposure over time to the LG population and their LG siblings' lives led to desensitization to and normalization of homosexuality and same-sex relationships, which in turn led to becoming more comfortable with and accepting of having a LG sibling.

LG knowledge. Another factor researchers have identified as contributing to acceptance of LG individuals among heterosexual individuals is knowledge related to the LG community (Baunach et al., 2010; Worthington, Savoy, Dillon, & Vernaglia, 2002). Socially, LG individuals are often portrayed stereotypically and these images can have a negative influence on how LG people are viewed by heterosexuals (Worthington, Dillon, & Becker-Schutte, 2005). However, 14 of the heterosexual participants in Stozar's (2009) study cited various media and popular culture (i.e., *Will and Grace*, *The Real World*, magazines, novels, and *Rent* on Broadway) as

increasing their knowledge and being influential in the formation of their affirming attitudes. 8

Many of these participants, however, also noted that they understood that the media portrayal of LG people is often exaggerated (Stozer, 2009). Worthington et al. (2002) suggested that heterosexuals who are aware of the current culture's hetero-normative socialization and have gained knowledge about LG history, community, and symbols are more likely to be accepting of LG persons.

In relation to families, Phillips and Ancis (2008) found that parents coming to terms with their child's LG identity were able to manage their emotional responses and feel more at ease with situations that were LG-related over time by utilizing cognitive and behavioral approaches such as seeking out LG related information and support. In Hilton and Szymanski (2011), ten of the participants reported that they had little awareness and knowledge about LG issues until after their sibling disclosed their LG identity. These participants described a process where, as a result of their sibling's disclosure, they became interested in learning more about LG individuals through PFLAG and other sources, such as books and talking to others, and this increased their understanding and acceptance.

Support for LG civil rights. Another factor that researchers have suggested contributes to acceptance of LG individuals is an awareness of heterosexual privilege and recognition of the discrimination that sexual minorities face (Worthington et al., 2002). In more accepting individuals, this awareness leads to support for LG civil rights, including supporting the right to same-sex marriage, insurance benefits, health care, and raising children (Worthington et al., 2002). In a qualitative study of ten family members of LGBT individuals, participants expressed that they began to support LGBT civil rights because they personally valued social justice and wanted to protect and support their LGBT family member (Arm, Horne, & Levitt, 2009). This

value was confirmed by 12 of the 14 siblings in Hilton and Szymanski's study (2011). These 9 siblings reported that after sexual orientation disclosure they became more "aware," "angry," and supportive of LG civil rights, including same-sex marriage, which, in turn, increased their acceptance of their LG sister or brother. One sister of a lesbian stated, "Yeah, I guess it has definitely affected my political view points, the way I vote and that sort of thing," (p. 303).

Demographic variables. Evidence also suggests that various demographic variables are related to the process of acceptance of LG individuals, including gender, educational level, religious beliefs, frequency of religious attendance, and political ideology (Herek, 1986; Herek, 2009; Herek, Chopp, & Strohl, 2007). In regards to gender, previous studies on heterosexual attitudes toward LG persons have found that women are more likely to be affirming than men (Herek, 1988, 2002; Kite & Whitley, 1996) and that gay contact has a stronger effect on women than men (Baunach et al., 2010). Regarding family members, Toomey and Richardson (2009) found that both male and female LGBT participants perceived that their sisters were more accepting than their brothers. Researchers suggest that these findings are often due to men having more traditional ideals regarding gender roles (Basow & Johnson, 2000).

In a study on the predictors of heterosexual allies, Fingerhut (2011) found that women who had a higher level of education were more likely to be accepting and to take part in LGBT activism. Higher level of education has also been found in other quantitative studies to be related to more positive attitudes toward LG individuals (Herek, 2002). Researchers have also established that, even in studies where other factors are controlled, stronger religiosity is related to greater heterosexist prejudice (Finlay & Walther, 2003; Herek & Capitanio, 1995; Herek & Glunt, 1993; Johnson, Brems, & Alford-Keating, 1997; Negy & Eisenman, 2005; Whitley, 2009). One indication of stronger religiosity is the frequency of attendance at religious services

(Todd & Ong, 2012). Baunach et al. (2010) found in their sample that men and women who 10
were more religious had more prejudicial attitudes against LG individuals. Another manifestation
of religiosity is one's theological orientation, defined as religious liberalism or conservatism
(Whitley, 2009). In a meta-analysis of the effects of religiosity and attitudes toward LG
individuals, Whitley (2009) found that fundamentalism and orthodoxy – both more conservative
theological orientations – predicted more negative attitudes toward LG individuals.

Finally, political conservatism has been found to be associated with more negative
attitudes by heterosexual individuals toward gay men (Herek & Glunt, 1993). Relatedly, Todd
and Ong (2012) randomly surveyed 6,212 individuals from 2001 through 2008 and found that
individuals who were politically conservative were less likely to support gay marriage than those
who were politically liberal.

Current Study

With LG individuals facing mental health issues and other negative consequences when
faced with rejection, acceptance of LG sexual orientation by heterosexual siblings of LG
individuals is important for researchers to understand. Currently, however, the factors that
predict this acceptance have not been explored. Therefore, the purpose of this study is to identify
factors that help predict heterosexual siblings' acceptance of their LG sibling.

Hypothesis 1: Among heterosexual siblings, higher sibling relationship quality, more
contact with LG individuals, greater knowledge of LG communities, and more support for LG
civil rights will be related to more acceptance of their LG sister or brother's sexual orientation.

Hypothesis 2: Among heterosexual siblings, being female and having higher educational
levels will be related to more acceptance of their LG sister or brother's sexual orientation;
whereas, more frequent religious attendance, holding fundamentalist or orthodox religious

beliefs, and conservative political ideology will be related to less acceptance of their LG sister 11 or brother's sexual orientation.

Hypothesis 3: When examined together, each of these variables will be unique predictors of heterosexual sibling's acceptance of their LG sibling.

Materials and Methods

Participants

The initial sample was comprised of 207 participants who completed an online survey. Two participants who did not have a LG sibling and 16 participants who left at least one measure blank were eliminated from the dataset, which resulted in a final sample of 189 participants. To achieve 80% power at alpha 0.05 significance level, a power analysis revealed that 84 participants were needed. Of those participants who were included in the study, some had missing data. Analysis of the patterns of missing data revealed less than .39% of all items for all cases were missing, and 55.2% of the items were not missing data for any case. Considering individual cases, 69.8% of participants had no missing data. Finally, no item had 2.1% or more of missing values. In addition, Little's Missing Completely at Random analysis revealed an insignificant chi-square statistic, $X^2(5,368) = 5503.397, p = .10$, indicating that the data was missing completely at random.

Participants ranged in age from 18 to 71 with a mean age of 26.81 years ($SD = 12.57$). The sample was 68% female and 32% male, 5% African American, 3% Asian American/Pacific Islander, 85% White, 4% Hispanic/Latino, .5% Biracial/Multiracial, and 2% other. Regarding highest level of education, .5% had less than a high school diploma, 48% high school diploma, 12% two-year college, 21% four-year college, and 20% graduate/professional school. Participants were asked to report on a scale of 1-10 where they fell in relation to social class, with one being the lowest and 10 being the highest. On this scale, 11% reported identifying with two through four, 22% with five, 19% with six, 30% with seven, and 18% with eight through 10. In relation to political ideology, 20% identified as conservative, 37% as middle of the road, and

43% as liberal. Regarding religious orientation, 12% identified as fundamentalist/orthodox and 13% 88% did not. Additionally, 28% reported never/less than once attending a religious service in the past year, 12% once, 23% several times a year, 5% two to three times a month, 12% nearly every week, 6% every week, and 4% more than once a week. Regarding the LG sibling's gender, 49% were female, 49% were male, and 2% were transgender. Due to rounding, percentages may not add up to 100%.

Measures

Heterosexual sibling acceptance. To date, there have been no validated scales that measure the acceptance of sibling sexual orientation. Thus, an eight-item scale was developed for this study, the Acceptance of Sibling Sexual Orientation Scale (ASOS; see Table 1 in the Appendix for scale items and response options). The ASOS consists of statements regarding thoughts and feelings of the heterosexual sibling regarding their LG sibling's sexual orientation as well as statements to assess for avoidance. Each item was rated using a 5-point scale (*1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree*). Items were developed based on a review of the literature on acceptance, more broadly, and on acceptance toward sexual orientation and were reviewed by two doctoral level psychologists (one with expertise in LG issues and the other with scale development), thus providing support for content validity. Mean scores were used with higher scores indicating more acceptance of sibling sexual orientation.

Sibling relationship quality in adulthood. Sibling relationship quality in adulthood was assessed using the Sibling Relationship Quality Adulthood subscale of The Lifespan Sibling Relationship Scale (LSRS; Riggio, 2000). The LSRS- adulthood subscale is a 24-item scale reflecting the quality of the sibling relationship in terms of affect, cognitions, and behavior in

adulthood. Example items include, “My sibling’s feelings are very important to me,” and, “I 14
like to spend time with my sibling.” Participants were asked to respond to the LSRS with only
their one LG sibling relationship in mind and are asked to rate each statement on a 5-point Likert
scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Mean scores were used with
higher scores indicating more positive attitudes toward the adult sibling relationship. Validity
was supported by positive correlations between the Eysenck Personality Questionnaire, Adult
Sibling Relationship Questionnaire, measures of social support and independent measures of
sibling relationship quality, and discriminating between positive and negative sibling
relationships (Riggio, 2000). Alpha for the current sample was .95.

Exposure to LG individuals. To measure participants’ current as well as past (i.e., prior
to their sibling’s disclosure and/or as a child) contact with LG individuals and the LG
community, we used a series of 15 questions, designed by Baunach et al. (2010), assessing LG
family contact, LG friend contact, amount of LG contact, and LG community contact. Example
items include, “Do you currently have any friends who are gay or lesbian?”; “Did you have any
gay or lesbian friends prior to your sibling disclosing their LG identity?”; “Have you ever
attended a gay pride parade/event?”; “Have you ever purchased and/or watched a film with a
major LG character and/or a film about LG related issues?” These questions also included if the
respondent is a member of a LGBT affirming organization (e.g., PFLAG). Mean scores were
used with higher scores indicating more contact with the LG community. Validity was
previously supported by demonstrating that contact with at least one LG individual significantly
reduced overall prejudice toward gay men and lesbians (Baunach et al., 2010). Alpha for the
current sample was .74.

LG knowledge. To assess each participant's knowledge of LG communities, the five- 15
item Knowledge of LGB History, Symbols, and Community subscale of the Lesbian, Gay, and
Bisexual Knowledge and Attitudes Scale for Heterosexuals (LGB-KASH) was utilized
(Worthington, Dillion, & Becker-Schutte, 2005). Participants were asked to rate each statement
on a 7-point Likert scale ranging from 1 (*very uncharacteristic of me or my views*) to 7 (*very
characteristic of me or my views*). Example items included, "I am knowledgeable about the
history and mission of the PFLAG organization" and, "I feel qualified to educate others about
how to be affirmative regarding LGB issues." Mean scores were used with higher scores
indicating more LG knowledge. Discriminant, convergent, and construct validity was supported
through correspondence with two existing measures of attitudes toward LGB persons and the
finding that various attitudes corresponded with the self-identified sexual orientation of the
respondents (i.e., LG individuals had more affirming attitudes than heterosexuals). Alpha for the
current sample was .87.

Support for LG civil rights. To assess each participant's attitudes toward LG civil
rights, the five-item LGB Civil Rights subscale of the Lesbian, Gay, and Bisexual Knowledge
and Attitudes Scale for Heterosexuals (LGB-KASH) was utilized (Worthington, et al., 2005).
Participants are asked to rate each statement on a 7-point Likert scale ranging from 1 (*very
uncharacteristic of me or my views*) to 7 (*very characteristic of me or my views*). Example items
included, "Health benefits should be available equally to same-sex partners as to any other
couple," and, "I think marriage should be legal for same-sex couples." Mean scores were used
with higher scores indicating more support for LG civil rights. Discriminant, convergent, and
construct validity was supported through correspondence with two existing measures of attitudes
toward LGB persons and the finding that various attitudes corresponded with the self-identified

sexual orientation of the respondents (i.e., LG individuals had more affirming attitudes than 16 heterosexuals). Alpha for the subscale for the current sample was .91.

Procedure

Adult participants were recruited through the University of Tennessee's Department of Psychology human research pool and personal and professional networks using the snowball method. In addition, an email research announcement of the study was sent to various local and national LG related groups and organizations including Parents and Friends of Lesbians and Gays (PFLAG), as well as LG related listservs. The e-mail announcement of the study was sent to the list owner/contact person of a variety of general LG listerves (found primarily through searches of Yahoo Groups and Facebook), LG community organizations, PFLAG groups, and university LG centers. The list owner/contact person was asked to distribute the research announcement to their listserv and to their friends, colleagues, and students. Thus, sending the research announcement to a designated (on the website) contact person or listserv owner provided the individual the opportunity to determine whether or not she/he felt the research study was appropriate or of interest to their members (Riggle, Rostosky, & Reedy, 2005). All participants were informed of the potential risks and benefits of participation. Those participants that were recruited via the undergraduate psychology pool received research credit points for their undergraduate course. In addition, participants recruited outside of the human research pool system, were provided the option to enter a raffle for one of three \$100 Amazon.com gift cards.

Participants completed an online web-based survey, which included a demographic questionnaire and the aforementioned randomly ordered measures. Once respondents went to the first page and read the informed consent they indicated consent to take the survey by clicking a button. Then they were directed to the webpage containing the survey. Procedures for this

website survey were based on published suggestions (Buchanan & Smith, 1999; Michalak & Szabo, 1998; Schmidt, 1997). Methods for protecting confidentiality included having participants access the research survey via a hypertext link rather than e-mail. Methods used for ensuring data integrity included the use of a secure server protected with a firewall to prevent tampering with data and programs by “hackers” and inadvertent access to confidential information by research participants. Gosling, Vazire, Srivastava, and John (2004) reported that results from Internet studies are not adversely affected by repeat or non-serious responders and are consistent with findings obtained from traditional pen-and-paper methods.

Chapter 4

Results and Discussion

Acceptance of Sibling Sexual Orientation Scale Psychometrics

To establish structural validity for the ASOS, an exploratory factor analysis using principal axis factoring (PAF) with promax rotation was conducted. The chi-square test of sphericity was significant ($p < .001$), which indicates that the data was appropriate for factor analysis (Kahn, 2006). The Kaiser-Meyer-Okin (KMO) measure of sampling adequacy yielded a value of .91, which indicated that the sample size was large enough to evaluate the factor structure (Kahn, 2006). Five criteria were used to determine the number of factors to be extracted and rotated for the final solution: (a) parallel analysis, (b) Velicer's minimum average partial (MAP) test, (c) a minimum loading of three items on each factor, (d) percentage of total variance explained by each factor, and (e) interpretability of the solution, using a factor loading cutoff of .40 and no cross-loadings with less than .15 difference from an items' highest factor loading (Kahn, 2006; Tabachnick & Fidell, 2001; Worthington & Whittaker, 2006).

Results of the parallel analysis indicated a one-factor solution and Velicer's MAP test indicated a two-factor solution. Therefore, we studied solutions of one and two-factors. Because we assumed that the factors would be correlated we used promax rotation. The two-factor solution was poorly defined with two (of four items) having cross-loadings with more than .15 difference from an item's highest factor loading. In addition, the second factor only added 3% to the variance accounted for so we went with the one-factor solution. All of the items loaded on Factor 1 (eigenvalue = 5.97) and accounted for 75% of the variance. Table 2 shows factor loadings, possible range, means, and standard deviations for the Acceptance of Sibling Sexual

Orientation Scale items. Factor loadings ranged from .76 to .89. Internal consistency (alpha) 19 was .95 for scores on this scale. Initial evidence for construct validity was provided by positive correlations between the ASOS and The Parental Acceptance of Sexual Orientation Scale (PASOS; Freedman, 2008, alpha = .86). The PASOS consists of seven items that reflect acceptance of sexual orientation in parents of their adult children. We modified this scale to reflect sibling acceptance by changing items to read as brother/sister rather than son/daughter. The high correlation ($r = .87, p < .01$) between the ASOS and the PASOS provides evidence for convergent validity. In addition, discriminant validity was demonstrated by no significant relationship between the ASOS and social desirability responding assessed via the short form of the Marlowe-Crowne Social Desirability Scale (Crowne & Marlow, 1960; Reynolds, 1982; alpha = .67; $r = .07, p = .38$).

Correlates of Heterosexual Siblings' Acceptance of their LG Sibling's Sexual Orientation

Means, standard deviations, and inter-correlations among all continuous variables assessed in this study are shown in Table 3. According to Weston and Gore (2006), absolute skewness values greater than 3 and kurtosis values greater than 10 are problematic. Values for our data indicated sufficient normality with the highest skewness value being -2.33 and the highest kurtosis value being 3.48.

To test hypotheses 1 and 2, Pearson r correlations were conducted. Supporting hypothesis 1, adult sibling relationship quality ($r = .48, p < .001$), contact with LG individuals ($r = .63, p < .001$), knowledge of LG communities ($r = .34, p < .001$), support for civil rights ($r = .81, p < .001$) were positively correlated with acceptance of their LG sibling's sexual orientation. Supporting hypothesis 2, gender (coded 1 = female, 2 = male, $r = -.22, p = .002$), education ($r = .42, p < .001$), political ideology (coded 1 = conservative, 2 = middle of the road, 3 = liberal, $r =$

.59, $p < .001$) were related to higher scores on the ASOS, with females, those with higher 20 levels of education, and those with more liberal political ideology being more accepting of their LG sibling. In addition, holding fundamentalist or orthodox religious beliefs (coded 1 = no, 2 = yes, $r = -.29$, $p < .001$) and attending religious services more frequently ($r = -.44$, $p < .001$) were related to less acceptance of their LG sister or brother's sexual orientation.

To test hypothesis 3, we conducted a simultaneous regression analysis with adult sibling relationship quality, contact with LG individuals, knowledge of LG communities, support for LG civil rights, gender, education level, religious attendance, religious orientation, and political ideology as predictors of acceptance of sibling sexual orientation. Before running the regression analysis several indices were examined to evaluate whether multicollinearity among predictor variables was a problem. Tabachnick and Fidell (2001) suggested that absolute value correlations above .90 and condition indexes above 30 with at least two variance proportions for an individual variable $>.50$ indicate that multicollinearity is a problem. Myers (1990) suggested that variance inflation factors above 10 also indicate that multicollinearity is a problem. The highest absolute value correlation between predictor variables was .59, two condition index values were above 30 but neither two had variance proportions for an individual variable $>.50$, and highest variance inflation factor was 2.67 indicating that multicollinearity was not problematic.

The results of the simultaneous regression analysis were significant, $R^2 = .74$, $F(9, 179) = 55.25$, $p < .001$. Sibling relationship quality in adulthood ($\beta = .17$), contact with LG individuals ($\beta = .17$), support for civil rights ($\beta = .56$), and religious attendance ($\beta = -.12$) were the only significant and unique predictors of acceptance of sibling's sexual orientation (see Table 4).

The findings of the current study contribute to the small but growing body of research on families of LG individuals. Consistent with previous literature, at the bivariate level the results of this study suggest that greater sibling relationship quality in adulthood, more contact with LG individuals, greater knowledge of LG communities, more support for LG civil rights, and various demographics (being female, having higher educational levels, not having an orthodox/fundamentalist religious orientation, less church attendance, and more liberal political ideology) are related to heterosexual sibling's acceptance of their LG sister or brother. However, when these variables were examined together in a regression model, only sibling relationship in adulthood, contact with LG individuals, support for LG civil rights, and religious attendance were significant unique predictors of acceptance.

The uniqueness of the quality of the sibling relationship in adulthood as a predictor of heterosexual sibling's acceptance of their LG sister or brother may be due to the importance of siblings in a person's life. Family systems theory asserts that during periods of transition, the system is vulnerable to changes. Transitional periods previously studied, such as parental divorce (Abbey & Dallos, 2004), have found that during these periods there are meaningful changes in sibling relationship dynamics with most of the siblings becoming closer. A sibling disclosing their LG identity can also be viewed as a transition for the family and, thus, the sibling relationship is susceptible to changing in some way. Additionally, family stress theory states that during a time of crisis or stress in the family, such as a family member's LG disclosure, having family resources, such as cohesion among the family, could lessen the effects of the stressor (McKenry & Price, 2000; Willoughby, Malik, & Lindahl, 2006). Research, however, has failed to study this change or time of crisis in the sibling relationship specifically during adulthood

(Whiteman, McHale, & Soli, 2012). Due to the cross-sectional nature of the data in this study, 22 we cannot conclude a causal direction of acceptance of the sibling's sexual orientation with better sibling relationship quality in adulthood. In other words, we do not know if the relationship quality influenced acceptance of the LG sibling or if the heterosexual sibling's better relationship quality is a result of their acceptance of their LG sibling's sexual identity. Previous research has also found that sibling relationships that are perceived as supportive often lead to more self-disclosure (Noller, 2005). Therefore, it is possible that LG siblings who already had a supportive relationship with their heterosexual sibling were more likely to disclose their LG identity. The finding of this study that better sibling relationship quality in adulthood is a predictor of acceptance highlights the importance of the need for research that aims to better understand the sibling relationship in adulthood.

Consistent with the research that interpersonal contact with other LG individuals significantly influences positive attitudes and acceptance toward LG individuals (Baunach, Burgess, & Muse, 2010; Ben-Ari, 1995; Fingerhut, 2011; Herek & Capitano, 1996; Hilton & Szymanski, 2011; Stozler, 2009), contact with other LG individuals was also a significant unique predictor of acceptance of their LG sibling. It is possible that siblings who had previous contact with LG individuals had more positive feelings toward sexual minorities as a result of that contact and/or became more aware of the issues faced by LG individuals, such as the effects of rejection by the family. It is also possible, however, that once the LG sibling disclosed, that this was the contact that influenced the heterosexual sibling's view of sexual minorities and led to acceptance. For example, in Hilton and Szymanski's (2011) qualitative study of the development of a heterosexual sibling of a LG individual, both previous exposure as well as exposure over time after their LG sibling disclosed was influential in the development of their acceptance of the

LG sibling's sexual orientation. Overall, this finding reiterates the influence that contact with 23 individuals who identify as LG, a stigmatized and concealable identity, has on the heterosexual majority.

Another important finding of this study is that support for LG civil rights was a unique predictor of heterosexual sibling's acceptance. Currently, the Supreme Court is reviewing arguments concerning the future of the Defense of Marriage Act and Proposition 8, both civil rights issues regarding same-sex marriage for LG individuals. Clearly, heterosexual support for LG civil rights is important for the future of LG individuals. Notably, we cannot conclude causality, and therefore it is possible that the siblings became more aware and supportive of LG civil rights after their LG sibling disclosed their identity. More specifically, Arm, Horne, and Levitt (2009) found that when family members witnessed LGB family members encountering stress as a result of antigay campaigns, they too began to experience stress, rejection, and felt equally attacked by the antigay movements. However, the heterosexual sibling may also have been more aware of heterosexist socialization and their privilege as a result of previous contact with LG individuals prior to their LG sibling's disclosure, thus making it more likely that they would be accepting (Worthington et al., 2002).

Contrary to previous findings (Whitley, 2009), a fundamentalist or orthodox religious orientation was not a unique predictor in the current sample. Religious attendance, an indication of stronger religiosity (Todd & Ong, 2012), was found to be a unique negative predictor of acceptance, however. It is plausible that the siblings in this study who attend religious services more frequently did not necessarily identify as fundamentalist or orthodox and yet do have a strong religious affiliation or may be exposed to more antigay religious messages. The finding that these siblings are less likely to be accepting of their LG sibling's sexual orientation echoes

previous research that stronger religiosity has an effect on attitudes related to LG individuals, 24 often leading to more heterosexist prejudice (Finlay & Walther, 2003; Herek & Capitanio, 1995; Herek & Glunt, 1993; Johnson, Brems, & Alford-Keating, 1997; Negy & Eisenman, 2005; Whitley, 2009).

The findings of the present study also provide initial support of the reliability and validity of the Acceptance of Sibling Sexual Orientation Scale for the assessment of heterosexual sibling's acceptance of their sibling's lesbian or gay sexual orientation. Structural validity was supported via exploratory factor analysis. Construct validity was supported by expert review and positive correlations between the ASOS and The Parental Acceptance of Sexual Orientation Scale (Freedman, 2008). Discriminant validity was demonstrated by no significant relationships between the ASOS and social desirability. However, an examination of the reliability of the social desirability scale used in this study revealed an alpha slightly below the usual accepted level which could have attenuated the relationship with ASOS. While the results of the current study are encouraging, further support for the reliability and validity of the ASOS is needed. Future research is also needed to examine test-retest reliability of scores on the ASOS. Additional support for structural validity could be accomplished through confirmatory factor analysis and cross-validation using more diverse samples.

Limitations

The current study has several limitations. First, it is limited by a convenience sample with most of the siblings recruited from LG supportive groups. Therefore, it is likely that individuals that chose to participate are more accepting of their LG sibling. Additionally, the sample presented is made of predominately White, female, middle class, highly educated individuals that do not identify as having a fundamentalist religious orientation or conservative political

ideology. Therefore, generalizability of findings may be limited to siblings in these demographic groups. Furthermore, this study only examined the heterosexual sibling's of LG individuals and not the LG siblings, themselves. Also, as previously mentioned, the cross-sectional nature of the data does not allow us to conclude causality of the findings.

Another limitation is that given the unique issues that bisexual persons face and the fact that this study only focused on siblings of LG persons, we don't know if these findings generalize to siblings of bisexual persons. The current study also utilized self-report measures. As a result, participants may not have responded honestly to some of the questions and individual differences regarding attitudes and beliefs, or openness in general, may have contributed to participant's endorsement of the survey items regarding sibling relationship quality and/or sexual orientation.

Conclusions and Recommendations

Directions for Future Research

Despite the aforementioned limitations, the present study provides a solid foundation for the investigation of various predictors of heterosexual sibling's acceptance of the LG sibling's sexual identity. Historically, researchers have neglected the importance of the sibling relationship. More specifically, there is very little data regarding the heterosexual sibling and LG sibling relationship. Therefore, more research is needed in this area.

For example, future research could work to identify the potential moderators and mediators in the link between LG sibling disclosure and acceptance by the heterosexual sibling of LG identity. Additionally, studies of parents have shown that they become more accepting over time (Beeler & DiProva, 1999; Cramer & Roach, 1988; Freedman, 2008). There are various other factors that could contribute to sibling acceptance and could have an effect over time, such as contact, education level, and/or family influence. For example, previous research (Herek & Capitano, 1996) suggests that a greater degree of intimacy between a LG individual and a heterosexual individual leads to more favorable attitudes. We did not assess for the degree of intimacy in our study, however, and this could be looked at more closely in future research. Furthermore, in a study of heterosexual allies, Stozler (2009) found that participants' attitudes toward LG individuals were strongly influenced by their parents, aunts, uncles, and older siblings. A longitudinal design that assesses these factors could allow for more information about the developmental process heterosexual siblings go through once they learn about their LG sibling's sexual orientation.

Future research should also include a more diverse sample of siblings so that the findings can be more generalizable. Also, future research should include the LG sibling's perspective on the relationship with their heterosexual sibling after disclosure, including how the LG individual feels about how their sibling reacted to their disclosure and whether there are long-term effects on the relationship based on the sibling's reaction. Additionally, research may include multiple siblings and/or parents in an effort to better understand how the entire family system reacts to LG child and sibling disclosure. Furthermore, research is also needed to examine the experiences of step, half, and adopted siblings, and siblings of bisexual persons and racial/ethnic minority LG persons. Finally, research is needed to examine sibling relationship quality and heterosexual sibling acceptance of lesbian and gay identity as moderators or buffers of the links between heterosexist events and internalized heterosexism and psychological distress among LG individuals.

Clinical Implications

The current study's findings may aid clinicians when working with heterosexual siblings of LG individuals who are or who have experienced problems related to their LG sibling's sexual identity. Additionally, it can provide insight for therapists working with LG clients who report a change in their relationship with their sibling after LG disclosure.

Counseling interventions might first focus on assessing the extent to which the heterosexual sibling is accepting of their LG sibling's sexual identity. Then counselors might facilitate the exploration of how their feelings toward and relationship with their LG sibling may be related to their acceptance of their sibling's LG sexual identity. Educating heterosexual clients about the connections between rejection of LG individuals and mental health issues may also be helpful. Regarding support for LG civil rights, research has found that support from the family

serves as a form of resilience for LG family members when faced with stress related to antigay²⁸ campaigns and movements (Russell & Richards, 2003). Therefore, interventions might also focus on an exploration of how the heterosexual sibling could educate themselves on LG political issues and their heterosexual privilege. Additionally, attention should be on empowering the heterosexual sibling by discussing ways they could get involved in fighting against anti-gay legislation. Furthermore, Saltzburg (2004) found that parents finding mentors in the gay community as well as other parents with LG children helped them better understand their children's LG identity. With contact being an important factor in acceptance, clinicians could encourage heterosexual siblings to seek out opportunities to meet other LG individuals as well as finding support through local organizations such as PFLAG.

Regarding religious affiliation, a study of parents who identified as religious reported LG affirmative support groups as being influential in helping them accept that they could not change their LG daughter or son (Freedman, 2008). Many parents in this study also reported seeking out their own therapy, both secular and pastoral. Feedback from some of the parents regarding the therapeutic experience included welcoming psycho-education on LG issues that was provided to them by affirmative therapists while other parents reported feeling attacked or that the therapist took the side of the LG daughter or son. Most important, however, was the relationship between the parent and the therapist and the perception by the parent that their therapist provided normalization and comfort for their experience and feelings of shame and focused on healing the family. Relatedly, a study of Christian LG allies reported that exploring their Christian beliefs and developing new definitions of what it means to be a Christian, including seeing the Bible in its historical and cultural context, helped them resolve their conflicts with Christianity and LG identities and helped them develop into an ally (Borgman, 2009). Therefore, clinicians working

with religious siblings should focus on forming a strong alliance, normalizing their possible distress and shame of having a LG sibling, exploring their religious-based beliefs, encouraging them to consider joining LG affirmative support groups, and, if necessary, focusing on how to repair the sibling relationship by focusing on the strengths of the sibling relationship (e.g., it is a unique relationship, one of the only relationships an individual will have throughout their lifespan, etc.). 29

Conclusion

The findings of this study are relevant to both researchers and clinicians working with LG individuals and/or their heterosexual siblings. Furthermore, this research also provides insight and much needed, and otherwise missing, information for heterosexual siblings that are in the process of acceptance toward their LG sister or brother's sexual identity. In conclusion, this study adds to the existing literature by examining the unique experiences of heterosexual siblings of LG individuals and underscores the importance for future research that focuses on this special relationship.

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Table 1

Acceptance of Sibling Sexual Orientation Scale

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

1. I secretly wish that my lesbian/gay sister/brother was straight.
2. I feel that being lesbian/gay is a personal shortcoming of my sister/brother.
3. I wish my lesbian/gay sister/brother would get professional help in order to change her/his sexual orientation from lesbian/gay to heterosexual.
4. I wish my lesbian/gay sister/brother would try to become more sexually attracted to members of the opposite sex.
5. I am proud to have a lesbian/gay sister/brother.
6. I am accepting of my lesbian/gay sister/brother's sexual orientation.
7. I would not mind if my friends knew about my lesbian/gay sister/brother's sexual orientation.
8. I sometimes feel ashamed about my lesbian/gay sister/brother's sexual orientation.

Table 2

Frequencies, Factor Loading, and Corrected Item Total Correlations for Acceptance of Sibling Sexual Orientation

	<i>M</i> (<i>SD</i>)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Factor Loading	Item- total <i>r</i>
3. I wish my lesbian/gay sister/brother would get professional help in order to change her/his sexual orientation from lesbian/gay to heterosexual. (RS)	1.70 (1.10)	62.4% (n=118)	16.9% (n=32)	11.1% (n=21)	5.3% (n=10)	3.7% (n=7)	.89	.86
4. I wish my lesbian/gay sister/brother would try to become more sexually attracted members of the opposite sex. (RS)	1.94 (1.32)	58.7% (n=111)	13.2% (n=25)	9.5% (n=18)	12.2% (n=23)	6.3% (n=12)	.89	.86
2. I feel that being lesbian/gay is a personal shortcoming of my sister/brother. (RS)	1.92 (1.19)	54% (n=102)	18.5% (n=35)	12.7% (n=24)	11.6% (n=22)	3.2% (n=6)	.88	.85
1. I secretly wish that my lesbian/gay sister/brother was straight. (RS)	2.41 (1.44)	41.8 (n=79)	14.8% (n=28)	14.3% (n=27)	19% (n=36)	10.1% (n=19)	.84	.82

Table 2. Continued.

	<i>M</i> (SD)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Factor Loading	Item- total <i>r</i>
6. I am accepting of my lesbian/gay sister/brother's sexual orientation.	4.23 (1.12)	3.7% (n=7)	6.3% (n=12)	13.2% (n=25)	19% (n=36)	57.7% (n=109)	.84	.81
5. I am proud to have a lesbian/gay sister/brother.	3.77 (1.21)	4.2% (n=8)	12.7% (n=24)	27.5% (n=52)	15.9% (n=30)	39.7% (n=75)	.83	.81
7. I would not mind if my friends knew about my lesbian/gay sister/brother's sexual orientation.	4.07 (1.23)	6.3% (n=12)	6.9% (n=13)	12.2% (n=23)	22.2% (n=42)	51.9% (n=98)	.89	.79
8. I sometimes feel ashamed about my lesbian/gay sister/brother's sexual orientation. (RS)	2.02 (1.24)	48.1% (n=91)	22.2% (n=42)	13.2% (n=25)	10.6% (n=20)	5.3% (n=10)	.76	.74

Note: RS = reverse scored item

Table 3

Descriptives and Correlations among all Study Variables

Variable	<i>M (SD)</i>	1	2	3	4	5	6	7	8	9
1. Sibling Relationship Quality in Adulthood	3.90 (.69)	---								
2. LG Contact	1.51 (.28)	.44**	---							
3. Knowledge of LG	2.97 (1.57)	.25**	.59**	---						
4. Support for Civil Rights	5.67 (1.65)	.39**	.57**	.33**	---					
5. Gender	1.32 (.47)	-.28**	-.30**	-.17*	-.25**	---				
6. Education	3.11 (1.22)	.17*	.56**	.31**	.39**	-.15*	---			
7. Religious Attendance	4.24 (2.38)	-.07	-.26**	-.11	-.39**	-.05	-.18*	---		
8. Orthodox Religious Beliefs	1.88 (.33)	.14	.28**	.12	.31**	-.23**	.18*	-.23**	---	
9. Political Ideology	2.24 (.76)	.25**	.56**	.40**	.59**	-.20**	.45**	-.45**	.22**	---

Table 3. Continued.

Variable	<i>M (SD)</i>	1	2	3	4	5	6	7	8	9
10. Acceptance of Sibling Sexual Orientation	4.00 (1.07)	.48**	.63**	.34**	.81**	-.22**	.42**	-.44**	.29**	.59**

Note: ** indicates significance at $\alpha = .01$; * indicates significance at $\alpha = .05$; $N = 189$

Table 4

Summary of Multiple Regression Predicting Acceptance of Sibling's Sexual Orientation

Variables	B	SEB	β	<i>t</i>	<i>p</i>
Sibling Relationship Quality in Adulthood	.263	.069	.169	3.801	.000
Contact with LG Individuals	.730	.271	.169	2.697	.008
Knowledge of LG Communities	-.018	.033	-.027	-.561	.575
Support for LG Civil Rights	.363	.035	.560	10.335	.000
Gender	.060	.096	.026	.6240	.533
Education	.041	.041	.046	.988	.324
Religious Attendance	-.056	.020	-.124	-2.716	.007
Religious Orientation	.018	.136	.005	.130	.896
Political Ideology	.081	.077	.057	1.048	.296

Note: LG = lesbian/gay; N = 189

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